PSYCHOSOCIAL FACTORS IN DEPRESSION:

A FOLLOW-UP STUDY OF PATIENTS AFTER RECOVERY

P.G. SURTEES

Thesis presented for the Degree of Doctor of Philosophy

of the University of Edinburgh in the Faculty of Medicine

1978

CONTENTS

ABSTRACT

The study aimed to identify social and psychological variables predictive of outcome in depression. A particular aim was to examine the additive effects of these variables, together with medication received subsequent to discharge in relation to depressive relapse. The extent to which personality factors and the social support available to an individual conferred protection from or increased vulnerability to depressive relapse when that individual was subjected to adversity was also studied.

Design and method

The study was prospective in design. Eighty patients, collected over a seven month period and screened for a new episode of unipolar depressive illness, were admitted to this study. The patients were re-interviewed following a substantial improvement in their condition. This second interview aimed to provide detailed information on aspects of the patients' marital relationships, the extent to which social support had been available, demographic and previous psychiatric history items and an assessment of personality. Those patients traced 28 weeks after inception into the study were given a third interview. This involved a reassessment of their symptomatic state and of a number of the measures included in the second interview. Additional information obtained in the third interview included an assessment of patients' use of health care resources and medication intake during the study period. The final interview, the fourth, was designed to assess those social and environmental stresses to which patients had been subjected during the follow-up period.

For the most of the analysis, 'ill' patients were distinguished from 'well' patients on the basis of the severity of their symptoms at follow-up assessment. An index of support, based on the social resources available to study patients, was derived and a model developed and applied for estimating the adversity to which patients were subjected at a given time based on life stress information.

Principal results

The severity of patients' symptoms at follow-up was related to the presence or absence of social support prior to inception into the study and prior to follow-up. Relationships between stressful life events and outcome were clearly demonstrated only when time of event occurrence and the rated severity of events were considered. When both these factors were included in a dissipation model of adversity, a significant association was demonstrated between adversity suffered and follow-up symptom severity.

Those patients having social support available who were subjected to adversity, suffered less severe symptoms at follow-up than patients similarly subjected to adversity but who did not have available social support. Availability of social support appeared to provide considerably more protection against a symptomatic response to adversity than did the taking of continuous medication. Obtaining a high extraversion score was associated with a significantly reduced risk of developing depressive symptoms in the presence of adversity (availability of support not considered). When the relative protective potency of available support and high extraversion was compared in patients subjected to adversity, support was found to confer greater immunity from symptoms than extraversion.

ACKNOWLEDGEMENTS

My grateful thanks are due to Dr Jack Ingham who provided considerable encouragement at the start of this study and who has patiently made helpful comments throughout its development and to Professor R.E. Kendell for his guidance and advice available at all times during the study.

This research commenced while I was in receipt of a Science Research Council scholarship and was continued whilst in receipt of an award from the Mental Health Research Fund (Scottish Division). I am indebted to the Medical Research Council Unit for the Epidemiological Studies in Psychiatry, Department of Psychiatry, Edinburgh University, under whose auspices I was able to undertake the work and to its Director, Dr Norman Kreitman. I wish to acknowledge the advice that was given to me at varying times by many members of the unit, in particular to Dr Patrick Miller.

I am also very pleased to record my thanks to the following: Drs John Loudon and Iain Glen of the Medical Research Council Brain Metabolism Unit, Edinburgh, and Professor George Ashcroft, now of the Department of Psychiatry, University of Aberdeen, for assistance during the study in obtaining suitable patients. Mrs Marjorie Dodd and Mrs Beryl Hulme, research secretaries of the Brain Metabolism Unit, for providing the daily report on patients entering the Royal Edinburgh Hospital. The consultants and ward staff of the hospital for their generosity in allowing access to their patients on the acute admission wards of the hospital which enabled the study to be commenced without delay and to progress relatively smoothly. The group of trained interviewers who competently undertook the task of determining details of all life stresses which befell the patients.

Finally I wish to record my special thanks to Mrs Margaret Granger for her very quick and accurate typing of the thesis.

INTRODUCTION

CHAPTER 1

Introduction

This thesis is directed towards examining the way in which certain psycho-social variables relate to each other and to outcome in a group of patients who have been treated for a depressive episode. The decision to investigate this aspect of depressive illness was considerably influenced by the sequence of research studies which have been undertaken in London by members of the MRC Social Psychiatry Research Unit and by members of the Sociology Department, Bedford College at the University of London during the last decade.

The study of depressive illness has been enthusiastically undertaken and documented since the time of Hippocrates in the 4th century BC but few substantial contributions toward describing, diagnosing and differentiating it from other disorders were made between Greco-Roman times and the observations by Falret in the 1850's and Kraepelin in the 1890's. From the turn of the century to the present, the study of depression has increasingly reflected a multi-disciplinary approach and the application of rigorous research methodologies and techniques.

Up to about 1930, Kraepelin, Freud and Abrahams provided independent contributions toward the description, symptomatic form and differential diagnosis of mood disorders. (Ullmann and Krasner, 1969). Theoretical views concerning the development of these disorders were predominantly psychoanalytic and the principal, though not exclusive, research methodology adopted was the single case study.

Commencing during the early 1930's and continuing up to about 1950, research on the depressive disorders became more systematic

and methodologically sound. Larger scale group studies were undertaken, some prospective in design (e.g. Lewis, 1936). These studies were the first to examine in detail the natural course and outcome of the disorders as seen in groups of individuals. This same period also saw an ever increasing impetus to isolate pharmacological agents which could produce symptoms resembling those of depression. The conceptual notion being pursued was that certain forms of depression had a biological basis. The early work of Lewis undertaken during this period suggested, however, that environmental factors should not be neglected when considering the genesis of the disorders.

From the early 1950's to the present the depressive disorders have received vigorous research attention. The start of this period saw the rapid development and introduction of medications which are now in widespread use for the treatment of depression. Almost all research on patients with depressive disorders undertaken during this period has therefore been either influenced by the presence of these types of medication or directly concerned with examining the relative effectiveness of them. Moreover, of those research studies examining the course and outcome of the disorder, only a few have been concerned with identifying factors other than medication which are predictive of outcome. As will be shown below, these few studies have provided most of the available evidence on clinical and histographic variables as predictors of outcome but have consistently neglected the psychosocial variables.

Starting during the mid 1960's, research studies appeared which specifically set out to investigate the relationship between social and environmental influences and the onset of both physical and

psychiatric illness. Initial results, though controversial, rapidly attracted attention. The further work which followed provided relatively consistent reports of a relationship between stressful life events and the onset of a variety of psychiatric disorders including depression.

The development of this research focus in the field of depressive disorders has in many respects paralleled but remained behind that of schizophrenia. This is of particular relevance in the present context since methodologies for research into psycho-social variables have already been established, undertaken and tested both retrospective and prospective to illness onset in schizophrenic disorders. These studies have demonstrated (amongst other matters) the important additive effects of psycho-social factors and maintenance treatment with phenothiazines on schizophrenic relapse patterns. Only in the last five years, however, have these methodologies been applied to depressed patient groups and then almost exclusively in designs retrospective to illness onset.

The development of this type of research has proceeded due to the encouraging results demonstrated by the initial studies on schizophrenia. Only very recently however have a few reports (e.g. Paykel and Tanner, 1976; Vaughn and Leff, 1976) attempted to examine the important question of the way in which psycho-social factors relate to each other and to pharmacological treatment received subsequent to discharge in depressive conditions. It is therefore to this principal question that this thesis is directed.

The reasoning behind undertaking this study is more fully detailed in the literature review to follow. In Chapter 2 the studies undertaken over the last forty years which have examined

clinical, demographic, personality and treatment factors associated with outcome in depression will be presented. Changes in the natural course and outcome of depression brought about by the introduction of pharmacological treatments will be discussed as will the relative predictive importance of variables traditionally and routinely collected and examined in such studies. It is only against this background that the predictive value of psycho-social factors and their relevance to outcome in depressive conditions can be considered.

The third chapter of the thesis presents in detail the results of those investigations which have examined the relationship between a variety of social and environmental factors, principally stressful life events, and the onset of depressive disorders. This of necessity is virtually a contemporary review covering only the last twelve years. As indicated above, much of the original work which established research techniques and methodologies in this area was completed on groups of schizophrenic patients and in consequence, where considered appropriate, some of these studies will be reviewed. Studies examining life events, family relationships and social support and a summary drawing together the findings of all the studies concludes this chapter of the review.

REVIEW OF THE LITERATURE

CHAPTER 2

Studies concerned with clinical, demographic, personality and treatment factors associated with outcome in depressive illness.

Over the last forty years there has been a considerable research literature published on depressive illnesses. The primary focus of much of this literature has been an assessment of the relative efficacies of a variety of medications in the treatment of the illness with examination concentrated upon the actual recovery period. Research efforts have tended to be placed upon studying the natural course and outcome of depressive illnesses of the bipolar type (e.g. Kraepelin, 1921; Rennie, 1942; Lundquist, 1945; Astrup et. al., 1959; Olsen, 1961; Bratfos and Haug, 1968; Shobe and Brion, 1971).

The rationale for excluding from this review studies which have examined the bipolar, or cyclical, form of depressive disorders is that there is now considerable evidence to support the view that these are separate and distinct from the unipolar form. In a review of the major twin studies of affective illness, Allen (1976) reported a significant difference between unipolar (40%) and bipolar (72%) concordance rates for monozygotic twins. Other major differences detected strengthening a separate view of the disorders have been their differential responsiveness to treatment with lithium carbonate and tricyclics (Goodwin et.al., 1972; Noyes et. al., 1974), the differences revealed in the course of the disorder and the duration of episodes (Perris, 1968; Perris, 1974) and differences in family history studies (Perris, 1966; Winokur et. al., 1971). Studies which have examined bipolar illness will not be included in this

review as there is thus considerable evidence in support of a major genetic component in its development.

The studies to be reviewed here will therefore be those which have provided information on the relative importance of a variety of clinical, demographic, personality and treatment factors in relation to outcome in depressive illnesses other than those of the bipolar type. Owing to the emphasis upon outcome most of the studies will cover time periods considerably in excess of the actual duration of the illness episode.

One of the first, and still influential, studies of depressive illness was that reported by Lewis (1934, 1936). A total of 61 patients, mainly women, admitted with a primary diagnosis of depression were followed-up after a period of five to six years. The patients were personally interviewed in as many cases as possible, as were their relatives. Lewis reported that at follow-up 14 had been continuously well since their depressive episode, 4 were well but had had a further episode of depression, 19 had been reasonably well since their episode, 7 reasonably well until a further episode from which recovery had been complete, and 4 patients had not recovered from a further episode. Four patients were untraced, the remaining patients having died.

The method adopted by Lewis to assess outcome was based on an assessment of the symptomatic course the patient had followed after discharge and up to the time of follow-up. However no single factor or group of factors could be distinguished by Lewis as being predictive of outcome. The results of this study are important since an indication of course and outcome was presented before any of the currently used forms of medication were available.

A further study at the Maudsley Hospital (Anderson, 1936) set out to isolate prognostic factors in those who suffered from depression later on in life. The patients studied were all women, with a mean age of 51.5 years, diagnosed as suffering from depressive illness. The study was retrospective in design and covered a period of 1-2 years. A follow-up assessment revealed that 4 patients had died, 15 were still depressed, 11 were only partially well, and 17 were considered to have completely recovered. Three patients could not be traced. Apart from indicating that the outcome for depression suffered at this age was generally poor, Anderson was unable to make any contributions with regard to factors predictive of outcome.

Ziegler and Heersema (1942) reported the findings of a 14 year follow-up on 111 patients "whose chief symptom was depression, despondency or low-spiritedness" (page 813) who had been seen as out-patients at the Mayo Clinic. Follow-up was exclusively by letter and only 84 patients were traced. Of these, 25 were dead, 7 from suicide and of the remaining 59, 24 were worse or substantially the same as when first seen. Only 5 were regarded as being improved and the remaining 30 patients were well.

A study reported by Eitinger (1955) provided some details on the outcome, after 10 years, of a group of 466 neurotic patients who had attended the Oslo University psychiatric clinic. Information at follow-up was obtained in 75% of patients by a postal enquiry and in the remainder by personal interview; this must be borne in mind when considering the results. At follow-up 33.3% of the patients were described as being recovered or much improved, while 21.3% were only reasonably well and 45.4% had improved very little. Eitinger proposed the view that depressive neuroses had the best <u>immediate</u> prognosis of

the group of neuroses studied but also suggested that the patients' subsequent progress was marked by frequent relapse. The only prognostic factor to emerge from the study in respect to the depressed group was that outcome was related to the assessed duration of the original depressive episode. A duration of illness of more than 2 years before admission was found to be associated with a poor outcome.

Astrup et. al., (1959, 1962) reported on a series of follow-up studies started during 1955. They were concerned with 1,102 first admissions with functional psychoses in Gaustad Hospital in Oslo admitted during the years 1938 to 1950. Of the original admissions a total of 381 patients received the diagnosis of acute affective psychosis (reactive and manic-depressive). From this total group, 79 died during the follow-up period (including 11 suicides) and 26 were untraced. Of the group traced, 180 were personally interviewed in their homes or in hospital and information on the remainder was obtained by personal questionnaires to the patients or to relatives. In a few cases information was obtained from other hospitals and public health agencies. The authors reported that 47% of those followed-up were recovered, 44% improved and 8% chronic. The relationships between clinical, social and heredity factors and outcome were examined and results indicated that male sex was prognostic of a good outcome as was an acute onset of illness and a stable premorbid personality. Treatment, mainly ECT (15 patients had a leucotomy) did not appear to relate to outcome.

A large survey concerned with 2,298 patients who had been admitted to psychiatric hospitals in the London area during the years 1947 - 1949 was reported by Norris (1959). The study provided

details on the patients' discharge and readmission rates during the following 1½ to 5 years, the results being based entirely on information obtained from patients' hospital notes. No further information was presented on patients who were not readmitted to hospital during the follow-up period. For the depressed patients in the study, the mean length of initial admission was almost one year and of the 100 patients diagnosed as suffering from depression, 40 were readmitted during the follow-up and 20 of these had two or more readmissions. Norris also presented information on the death rate of the depressed patients and indicated that men had a rate 9 times that of the general population and women 6 times. Although information was not given on the outcome of those patients who were not readmitted, Norris felt able to conclude that the prognosis for the group of depressives studied in this survey was very poor.

During the 1950's a rapid development took place in the search for medications which would relieve the symptoms of depression and also provide some understanding of its assumed biochemical nature. In 1952 the alkaloid reserpine was isolated and several reports were published on its use with psychiatric patients (reviewed by Davies, 1969). Many patients however were later reported to develop severe depression while taking reserpine and following a number of suicides its use became limited. Reserpine induced depression soon became the focal point of much of the research into depression which followed.

The first drug to have clear anti-depressant properties was iproniazid and its effects were demonstrated by Crane (1956). Zeller and Barsky (noted by Davies 1969) had demonstrated four years previously that this drug was an inhibitor of the enzyme monoamine oxidase.

A second major event in psychiatry of the mid-fifties was the introduction by Geigy of G22355 in 1954. This phenothiazine related drug was shown to be predominantly anti-depressive in action. Following the development of imipramine, other related tricyclics soon followed and are now in widespread use. Consequently, from the late 1950's and early 1960's, studies examining the prognosis of depressive illness do so against a background of the development of these anti-depressant drugs. It is therefore of considerable relevance in the present context to examine the extent to which the introduction of these medications altered the course and improved the prospects for those patients who developed depression.

One of the first studies to provide comparative information on imipramine and amitriptyline in a double blind trial was that reported by Burt et. al., (1962), Hordern et. al., (1963). The study took as its subject population 137 female patients who had been admitted to a Melbourne psychiatric hospital with a diagnosis of primary depressive illness. Both an assessment of symptom severity using the Hamilton Rating Scale, and an overall clinical assessment were made on admission and then after one week, four weeks and, if necessary, six weeks on the medication. Using discharge without ECT as the criterion of success, amitriptyline was associated with reduction in symptoms in 81% of the patients as opposed to 54% in the case of imipramine. The authors concluded that out of any group of 10 depressed patients, 8 or 9 could be expected to recover in 4 to 6 weeks, and 6 or 7 patients would improve within the first week of treatment. This optimistic forecast was to be tempered by the results from a study investigating the outcome of the same patients over a longer follow-up period.

Kessell and Holt (1965) presented the results of a follow-up of

116 of the patients included in the above study. In particular, they examined the recurrence and readmission for depression at 6 months, 12 months and 18 months following discharge. The source of follow-up information was for 64 patients by case notes and a personal interview, in 13 cases by interview with a social worker and in 12 cases by telephone interview. A further group were assessed by response to a postal questionnaire. During the 18 month period following discharge, 59% of all the patients who initially responded to medication had suffered a recurrence of depression lasting at least 3 days. Just over 50% of the patients who had not responded to medication also suffered a recurrence. Of the group followed-up, 38 (33%) were readmitted to hospital and 4 of these were diagnosed schizophrenic. At 18 months follow-up amitriptyline was no longer superior to imipramine and the authors indicated that .... "no firm conclusions could be drawn as to the value of drug maintenance therapy in preventing relapse" (p. 1151).

Clark and Mallett (1963) reported the results of a three year follow-up on 186 patients admitted to the Maudsley Hospital during the years 1949 - 1954. All patients were aged less than 30 years and had received a diagnosis of either schizophrenia or depressive illness (manic-depressive psychosis or reactive depression). The main aim of the study was to compare the prognosis of the two disorders but in this context only the outcome of the depressed group will be discussed.

Of the 82 patients initially diagnosed as depressive, follow-up information was obtained on 74 by questionnaires related to their clinical state and work record and further information was obtained from their GP and hospital out-patient notes. The group followed-up

had a mean age of 26 years and there were 28 men and 46 women. Analysis of the follow-up information revealed that 25 of the depressed patients (34%) had been symptom free throughout the period, 34 (46%) had experienced minor to moderate depressive symptoms, and 15 (20%) had been readmitted to hospital. Diagnosis for readmission was in 10 cases depression, in 4 cases schizophrenia and in one case schizo-affective disorder. This study shares the limitations of many of the others so far reviewed in failing to obtain the follow-up information through personal interview. It also made no attempt to isolate any clinical features which were prognostic of outcome.

Greer and Cawley (1966) presented details of a four to six year retrospective study of 181 patients consecutively admitted to the Professorial Unit of the Maudsley Hospital and diagnosed as suffering from psychoneurotic disorders. Of this group one third were diagnosed as suffering from a depressive disorder at the key admission. Information at follow-up was obtained by structured psychiatric interview in all but six cases and where possible patients' relatives were also interviewed. Special rating scales with clearly anchored points were developed for use in the study. The assessment of outcome at follow-up was related to symptomatology and social adjustment, particular attention being given to a patient's work record, interpersonal relations, marital relations and sexual adjustment. An aggregate score, based on the above ratings, provided a measure of overall outcome.

The results of this study indicated that those patients who exhibited depressive symptoms at the time of their original admission had the most favourable immediate and subsequent outcome. These symptoms were also associated with precipitating factors of the key

admission. Further factors which were found to be associated with a good prognosis were a 'normal premorbid personality' and unimpaired interpersonal relations. Factors which showed no significant relationship to outcome for the whole of the group followed-up included age, sex, social class, family history, childhood environment, neurotic traits in childhood, intelligence, history of previous psychiatric illness, length of stay in hospital and the occurrence of stressful events since discharge. The authors recommended that more precise and detailed information could be obtained by the use of serial follow-up interviews and that only in this way would patterns of outcome and the important prognostic factors for differing diagnostic groups become apparent.

Two reports by Kay and colleagues in 1969 presented details of a retrospective enquiry into the outcome of a group of patients whose first admission to a psychiatric unit in the north of England was during the years 1957 - 1959. The group exhibited a variety of depressive disorders at key contact. Patients were selected retrospectively from case notes and the hospital diagnosis had to be one of endogenous depression, neurotic depression, involutional melancholia or paranoid psychoses with depression. Approximately equal numbers in each group were chosen. Patients were excluded on a number of grounds: principally if severe physical illness or death had occurred since key admission. All patients were aged 45 years or over at the time of initial admission. A total of 104 patients were followed-up by personal interview between 5 and 7 years following the original contact. Assessment of outcome was based on state on discharge from key admission, state at follow-up as assessed by the Hamilton Rating Scale, number of readmissions and ill-health during the follow-up period.

The results revealed that 54 patients had a Hamilton score within the range 0-4 at follow-up, 33 in the range 5-14, and 15 scoring 15 or more. One third of the group had one or more readmissions and 30 patients had had prolonged ill-health. Only 15 patients were described as having had a favourable course. The relationship between 31 clinical features and the measures of outcome listed above was examined and correlation and multiple regression techniques were used in analysis of the data. The analysis pointed to the importance of two symptoms in predicting outcome: retardation, which was related to a favourable outcome, and somatic complaints with an unfavourable outcome. The study, while well designed and using relatively sophisticated statistical techniques, placed exclusive reliance on hospital notes and the results must therefore be regarded with some caution owing to the unsystematic way in which information is recorded in the notes and their dubious reliability.

A study reported by Noreik (1970) examined the outcome of a group of 81 patients who had been admitted to Gaustad Hospital, Oslo over a 22 year period. A 5 year follow-up was successful in 77 of the former patients, 4 having died during the period that had elapsed since discharge. Of the group re-interviewed, 27 had been given an original diagnosis of depressive neurosis. Assessment at follow-up was based both on the intensity of symptoms reported by the patient and on the patient's attitude to them. The assessment of outcome for the originally depressed group revealed that while one patient had died, 9 were unchanged from their original state, 2 were worse and 15 had improved. The results provided weak support for a link between short duration of key illness and a favourable prognosis. The study was unfortunately unable to provide further details regarding the relationship

between clinical factors and outcome due to the relatively small number of patients examined.

One of the most influential and informative series of studies which has addressed the problems related to the course and outcome of depressive disorders in recent years has been those undertaken in Newcastle upon Tyne from the mid-1960's and early 1970's. (Kerr et. al., 1970; Gurney et. al., 1970; Kerr et. al., 1972; Kerr et. al., 1974; Kerr 1974; Roth et. al., 1976).

A study of particular relevance here is that reported by Kerr, Roth, Schapira and Gurney (1972). This prospective study reported on the outcome of 154 patients who had been admitted to psychiatric hospitals in Newcastle upon Tyne during the years 1963 - 1965 with a variety of affective disorders. The group were followed-up after an average length of time of 3.8 years. A total of 126 patients were personally re-interviewed, 16 patients having died during the follow-up period. Eight patients proved impossible to trace and 3 refused to be re-interviewed whilst one was too ill to be seen. The mean age of patients at key contact was 41.3 years, and there were 78 women and 48 men in the sample. Follow-up interviews took place at an out-patient clinic (in the case of 88 patients), at home (34), in hospital (3) and in a hostel (1). The interviews were conducted by psychiatrists independent of those who had been concerned with the patients' management when originally in hospital.

The interview content was concerned with recurrence of depressive symptoms, readmission to hospital, environmental stress that had occurred subsequent to hospital discharge, and questions related to physical health. A structured item sheet similar to the one used at the time of the key admission was once again completed. This was concerned

with the patient's reporting of anxiety and depression associated factors. Information was also obtained on the social adjustment of the patient at follow-up. With the aid of hospital records, GP reports and information from relatives as well as the actual follow-up interview, a detailed written report was produced, for each patient describing the clinical and social adjustment of the patient throughout the duration of the follow-up. This report then formed the basis for the derivation of an outcome index.

This composite index included both a measure of symptom state throughout the follow-up period and a measure of the occupational, interpersonal, mental and sexual adjustment of the patient throughout this period. An attempt was made to ascertain the amount of time during the follow-up period when a patient was well, much improved, slightly improved or ill/worse. Using this method of outcome assessment, Kerr et. al. (1972) classified 38% of the patients as recovered, 22% as improved and 40% as unimproved.

At discharge from the key admission, 64% of the patients were considered to be improved; at 6 months follow-up this figure dropped to 55% and then remained relatively stable for 18 months - only then did a slight rise occur. Taking the study definition of a breakdown as being an illness of at least one month's duration following a remission of at least 3 months, practically one third of the patient group had one or more breakdowns. Of those patients followed-up, 27% were readmitted to hospital at some time during the follow-up and 10% had been admitted twice or more. An attempt was made to predict outcome using correlational and multiple regression analysis based on a group of 58 variables. The results of these analyses indicated that male sex was associated significantly with a good outcome while a

history of neurotic traits during childhood and hysterical personality traits later on in life were significantly associated with a poor outcome. Marital disharmony prior to the key admission was also significantly associated with a poor outcome. The analysis also revealed that the older the patient at onset of illness and the shorter the duration of the illness the better the prognosis. Clinical features associated with anxiety were correlated with a poor outcome while those associated with depression were correlated with a good outcome.

Eysenck's Maudsley Personality Inventory (MPI) provided further interesting associations with outcome; a low N score and a high E score being associated with a good outcome and a high N score and a low E score associated with a poor outcome. A multiple regression analysis was performed on those variables which correlated most highly with the outcome index. The relative predictive importance of each of the variables was then assessed and a predictive scale based on the items devised. The analysis revealed that the variables, MPI scores, male sex, physical stress and persistent depressed mood contributed 58.7% to the predicted variance. Further analyses of the information collected in this study provided some support for a distinction between anxiety states and depressive illness in terms of their respective courses and outcome; the depressed group achieving a significantly better recovery than the group with anxiety states. (Kerr, 1974; Kerr et. al., 1974, Roth et. al., 1976). The results also suggested that the depressed group responded significantly better to tricyclic anti-depressants than those patients with anxiety states.

The above study has been discussed in some detail as it was the result of a rigorous and exhaustive analysis of aspects of the course and outcome of depressive illness. It is particularly instructive in its attempt to indicate the degree to which clinical, demographic and personality variables are related to outcome. The measure of outcome

used in the study, while being correlated 0.83 with the patient's symptomatic state at follow-up, is (as the authors themselves acknowledge) of dubious validity since it was derived from a retrospective assessment of a patient's symptomatic state over a period of almost four years. The study pointed to the importance of considering both clinical aspects of the illness and patient's constitutional factors but little information was provided on the extent to which medication was taken. Consequently the relationship between medication and outcome and the interaction with the other variables was not studied.

It is of some importance to determine the extent to which anti-depressant medication is effective in maintaining patients free from depressive symptomatology following recovery from an episode of depression. Even 20 years after the introduction of the most frequently used anti-depressants, such studies are rare. The majority of the studies reported in this area have been concerned with the effectiveness of lithium in the treatment of bipolar disorders. There has however recently been an increased emphasis on determining the relative efficacy of certain tricyclic anti-depressants and lithium as prophylactic agents in the treatment of recurrent unipolar depression.

One of the first of such drug trials was reported by Mindham et. al., (1973) and was based on an MRC organised multi-centre design. The trial was double-blind and compared placebo, imipramine and amitriptyline. A total of 92 patients who had shown a maximal response to the initial treatment were included in the trial, 42% of these patients having had at least one previous episode of depressive illness. The results revealed that 22% of those who had received an active

treatment relapsed, while 50% of patients receiving placebo relapsed during the 6 month trial period. The results further indicated that when the occurrence or the severity of prior depressive episodes was considered, no special benefit from continuation therapy was established. Also of particular interest is the fact that of 211 patients considered for this trial, only 92 entered, the predominant reason being that over 40% of the patients initially considered failed to respond to a dose of 150 mg/day or more of tricyclic medication and therefore could not be included as medication responsive.

In a second multi-centre study reported by Prien et. al., (1974) 78 unipolar depressed patients were randomly assigned lithium, imipramine or placebo. All patients had to have had at least two depressive episodes requiring admission to hospital during the preceding 5 years. The trial lasted for two years and during this period 92% of the placebo treated patients, 44% of those on lithium and 48% of those on imipramine, suffered a depressive episode. That is, of the 52 patients being treated with active medication, 24 suffered a new depressive episode during the two year period covered by the study. Moreover, if those patients who terminated their treatment regimes early due to poor clinical response are also considered, then 20 out of 39 patients (51.2%) treated with lithium and 17 out of 37 patients (45.9%) treated with imipramine had a poor clinical response or suffered an onset of a new depressive episode. Of the patients treated with placebo 40 out of 46 had a poor clinical response or suffered an onset of a new episode of depression. Out of the total of 76 patients who were treated with either lithium or imipramine, 37 patients (48.7%) had a poor clinical response or suffered a new onset.

An attempt was made to determine whether any clinical or demographic variables differentiated patients in terms of their

treatment outcome. Two comparisons were performed. The first was between patients who, in spite of active treatment, had further episodes of depression and patients who had no further episodes. The second comparison was between patients who suffered a relapse in the first two months of treatment as compared to those who did not relapse during the same period. The main result of the comparisons for the different drug and placebo groups was that those patients discharged on placebo with mild symptoms remaining had significantly more episodes of depression during the first two months of treatment than those patients who were discharged on placebo with no remaining symptoms. Finally, discharge symptomatology did not relate to treatment outcome on lithium or imipramine.

A study reported by the Boston/New Haven group (Klerman et. al., 1974) presented the results of an investigation seeking to determine the relative efficacies of maintenance anti-depressant medication in the presence or absence of psychotherapy. The subject population studied were 150 females almost all of whom were suffering from a first episode of neurotic depression.

The report was based on information collected during the eight month period of maintenance treatment which followed the successful treatment of their key episode with medication. Patients were randomly assigned to amitriptyline, placebo or 'no pill' groups and each of these sub-groups was divided according to whether they received high or low interpersonal contact - a six cell prospective design. The results revealed that both amitriptyline treated sub-groups had a 12% relapse rate and both placebo treated sub-groups had a relapse rate of about 30%. The high contact 'no pill' group had a relapse rate of 16.7% while of the low contact 'no pill' group 36% relapsed.

Recently a report by Coppen et. al. (1976) compared, in a double-blind design, lithium and a tetracyclic anti-depressant in the prophylaxis of recurrent unipolar (and bipolar) affective disorders. The comparison lasted for one year and included patients who had had at least 3 previous episodes of depression. Unfortunately there were only 15 unipolar patients in each of the drug groups and it is therefore difficult to draw firm conclusions from the results of the study - especially as 10 of the total of 30 patients did not complete the one year trial due to the side effects they encountered whilst taking the medication. Of the 8 patients who did complete the one year on the tetracyclic anti-depressant, 6 patients showed some evidence of affective morbidity as did 3 of the 12 patients who received lithium. The authors point out, however, that lithium plasma levels were monitored and maintained at therapeutic levels while it was found too difficult to do this in the case of the tetracyclic anti-depressant. No attempt was made to account for the return of depressive symptomatology through an examination of factors other than medication.

The efficacy of the relatively recently developed anti-depressant medications in producing a remission of depressive symptomatology is well established. In a review of the work published in this area between the years 1958 and 1972, Morris and Beck (1974) reported that tricyclic anti-depressants were significantly more effective than placebo in 61 of 93 double-blind group comparisons conducted in the United States.

A more recent review article (Bielski and Friedel, 1976) was more specific concerning factors associated with responsiveness to tricyclic anti-depressants. This review of prospective, double-blind controlled studies showed that response to imipramine and amitriptyline

was only equal to that of placebo for patients who exhibited neurotic, hypochondriacal or hysterical personality traits and for those who had suffered from many previous depressive episodes. An unfavourable response to these medications was also indicated for those patients whose illness episodes were characterised by the presence of delusions. The review concluded that clinical indicators for treatment with imipramine and amitriptyline were broadly similar - an illness of insidious onset and characterised by weight loss, middle and/or late insomnia and psychomotor retardation. Being of upper socio-economic class was found to be predictive of a favourable response to both forms of medication.

Summary

Those few studies reviewed which were undertaken prior to the introduction of medication now commonly prescribed for depressive illness provided an insight into the natural course and outcome of the disorder. They clearly indicated that depressive illness was a considerable disability requiring long periods of in-patient care (over a year in many cases). Whilst symptom relief did appear to occur with time, a very high proportion of patients also suffered recurrence of the disorder and many remained only partially well for extended periods. The studies contributed very little toward identifying factors of predictive value.

With the introduction of medication with established anti-depressant properties, the prognosis for those suffering from depressive disorders was improved. The initial claims which were made for the effectiveness of the medication were however soon tempered by the results of follow-up studies. The studies reviewed above indicated that relief from depressive symptoms by medication may be achieved for an illness episode (depending on the characteristics of that

episode and a given patient's history) but that the maintenance of that relief was progressively lost as time passed and the rate of the loss appeared to be related to both the severity of the original illness and the number of previous episodes suffered.

The group of patients studied by Prien et. al. (1974) was probably the most seriously ill group of those discussed and it was in this group that the highest proportion of patients receiving active medication as well as those receiving placebo relapsed. Such relapse rates were reduced in Mindham's study and even further reduced in that of Klerman in which probably the least ill patient group was studied. Moreover it must be recalled that these studies investigated the relative effectiveness of the various medications concerned under the most favourable possible conditions. In all cases trial medications were not given until the patient was considered to have already recovered, patients whose key illness was found difficult to treat were screened out, criteria for relapse were relatively high, and dosages were maintained, in so far as possible, at the correct levels. Yet, despite these favourable conditions, a substantial proportion of patients treated with active medication still relapsed and, further, a sizable proportion of those patients receiving only placebo or 'no pill' remained well.

In general, therefore, the prognosis for those who suffer from depressive illness has been shown to remain poor despite the availability of anti-depressant medication. The above studies, however, have indicated that prognosis is influenced by a number of factors. In particular, a poor outcome has been associated with having experienced a prolonged and serious initial episode and with having episodes in which anxiety symptoms and/or somatic symptoms were present. If the initial episode occurred in an older person and was of shorter duration

and acute in onset, then the prognosis was shown to be much better. Male sex was commonly associated with a favourable prognosis.

The studies have also poin ed to a number of more general features in relation to the qualit of outcome. In particular a stable premorbid personality, having unimpaired interpersonal relationships and having a harmonious marital relationship were all associated with a good outcome. Alternatively, having a history of neurotic traits in childhood and a hysterical or hypochondriacal personality later on in life were associated with a poor outcome.

The studies reviewed in this chapter have examined the associative and predictive importance of a large pool of variables in so far as they relate to the outcome of depressive illness. Many of the variables included in the analyses performed have been those traditionally thought to be of importance for the future clinical management of depressed patients. While this is a reasonable basis on which to examine variables, few have been found to be of importance in predicting outcome and together they explain only a small proportion of the total variance in respect to outcome in depressive illness. Further, the analyses have been relatively unsuccessful in identifying variables predictive of outcome which carry with them clear implications for a patient's future clinical management.

The conclusions suggest that other factors, so far neglected by the studies reviewed, may contribute substantially to a fuller understanding of the outcome of depressive disorders. The next chapter of the literature review focusses on a series of studies which have attempted to account for the onset and outcome of depressive conditions in terms of a range of social and environmental variables. The sequence of studies reviewed will reflect the way in which this research has developed.

CHAPTER 3

Psychosocial factors associated with the course and outcome of depressive illness

(a) Life events

Empirical studies

In 1965 Forrest et. al. published the results of a study which had set out to examine the relationship between certain environmental factors and the genesis of depressive illness. A total of 158 depressed patients, of whom 110 were in-patients, were compared with 58 control patients. The control patients had all been admitted to a general hospital with a variety of physical disorders. Answers were sought from both groups of patients to a series of 18 specific questions concerned with identifying stressful events which had occurred during two distinct time periods in the patients' lives. These periods were firstly the three years prior to their contact with the study and, secondly the patients' early life - whether parental loss had occurred before they had reached the age of 15.

The results of the study revealed that the depressed patients had lost at least one of their parents before the age of 15 significantly more often than had the control group. Results indicated however that the depressed group had not experienced stressful events of the type enquired about more frequently than the control group during the three year period prior to key admission or referral. Further patients were not discriminated from controls by the extent to which deaths of 'significant others' had occurred within the three years preceding contact with the study and neither were they so discriminated when the occurrence of 'medical factors' defined as 'illnesses, childbirth, addiction to drugs or alcohol' were compared. However consideration

of a further group of factors - termed 'social factors' by the authors (and including social isolation, retirement and change in household organisation) revealed that depressed patients differed significantly from controls in terms of their respective reports of event occurrences of this type during the three year period prior to contact; 52.5% of the depressed patients reported such events as compared to 17.2% of the controls. Forrest et. al. considered the possibility however that this difference could have been a consequence of the symptoms of depressive illness. The authors were unable to distinguish the endogenous from the neurotic depressives in terms of the extent to which they had been subjected to stressful environmental experiences during this period.

The results of this study must be considered in relation to a number of design factors; most particularly the appropriateness of a medically ill control group, the feasibility of obtaining reliable information retrospectively over a three year period, and the choice and method of rating the presence or absence of such a limited set of stressful events. Notwithstanding these points, the study was of considerable interest and was one of the first to attempt to examine the relationship between certain environmental factors and depressive illness. It provided stimulus for the work of many later researchers.

A further study comparing depressed patients with medical controls was that published by Hudgens et. al. (1967). These authors examined the role of life events in the onset of depression and mania in 40 psychiatric in-patients (34 having a diagnosis of depression and 6 of mania) compared to a matched group of 40 medical in-patients. An interview designed to elicit information on life events was given within two weeks of a patient's admission and covered both the patient's past and recent history.

The results of the study indicated that 10 of the 40 psychiatric patients had suffered onset of their current episode during a 6 month period following a stressful experience. This association was not upheld however if these same 10 patients' previous episodes of affective disorder were studied. The psychiatric patients were then compared with the controls with respect to their reports of whether a wide range of stressful events had occurred both recently and distantly. Significant differences however were detected only for "... more frequent changes of residence and a higher incidence of reported interpersonal discord in the psychiatric group during the year prior to admission, when the psychiatric illnesses were already underway." (p. 144)

These inconclusive results in which little evidence was found that interpersonal stress or other forms of stress had played any causative role in the genesis of depressive illness must, as in the case of the study by Forrest et. al. discussed above, be considered against the appropriateness of using a medical control group and the reliability of obtaining life event information at the height of a patient's depressive condition.

A study by Leff et. al. (1970), while using relatively unstructured questionnaire techniques for the assessment of the occurrence of life events produced results of great interest and was able to contribute substantially to an understanding of the relationship between environmental stress and depression. It reported on the extent to which environmental and behavioural events occurred before the onset of severe depression in a group of 40 consecutive admissions to an NIMH research ward. The study lacked a control group.

The results of the study were based on information abstracted from taped interviews conducted by physicians and social workers with

the patients and, where possible, with the patients' 'significant other'. Leff et. al. reported that in analysing the data "emphasis was put on defining and characterising the environmental events as specifically and literally as possible, rather than on including interpreted material". (p. 294) Of 20 stressful events which had been empirically selected, 10, because of their increased frequency of occurrence, were subjected to considerable further analysis. This analysis focussed on the relationship between these events and "the points of breakdown in functioning" as opposed to the date of admission to hospital and to the time of the initial development of depressive symptoms. Considerable care was taken to date the above points as precisely as possible. Any stressful events which occurred during a period of one year prior to the assessed point of breakdown were dated and analysed. The results showed that the mean number of stressful events prior to breakdown was 4, but that the actual number of stressful events "seemingly had no bearing on either the intensity or the tractability of the depression". (p. 297)

The most frequently occurring event found by Leff et. al. was a "threat to sexual identity" with 30 of the 40 patients having this event recorded. The second most frequent event was described as "changes in marital relationship" which was present in 19 of the 34 married patients. Other events occurring frequently were change of residence (18), "made to face denied reality" (13), physical illness (12), failure in job performance (11), failure of children to meet parents' goals (10), increased responsibility (10), damage to social status (7), and death of important person (7) - frequency of documentation of these events being indicated in brackets. The patient group was then divided on the basis of the presence or absence of at least 5 of

6 symptoms which had been reported in other studies to be associated with a diagnosis of endogenous depression and as a result of applying these criteria, 13 patients were assigned that diagnosis. Leff et. al. reported that the "incidence and type of stressful events occurring in the endogenous group were similar to those occurring in the non-endogenous group". (p. 299) This study, though based on only a small sample of patients, presented evidence which brings into question long held conventional beliefs concerning the differential diagnosis of depressive types.

A study by Hudgens et. al. (1970) set out to establish the reliability with which psychiatric and social history information was obtained from a group of psychiatric patients and, in particular, the reliability with which life stress information was documented for a one year period preceding admission. A total of 80 psychiatric in-patients, of whom the largest single group (39 patients) were diagnosed as suffering from depression, and 103 relatives were interviewed. Specific areas of questioning in the life stress section of the interview were (a) legal trouble, (b) trouble in school or job, (c) death of spouse, parent, child, other relative or friend, (d) friction with spouse or lover, (e) divorce, separation or desertion, (f) friction with parent, sibling or child, (g) financial difficulties, (h) problem with alcohol, (i) illness of relative, friend or spouse, (j) being alone and (k) any medical illness. Where a positive answer was obtained, further details were requested concerning the circumstances of the particular problem. In addition each patient was asked whether they considered the elicited event to have been of causal significance in their being admitted to hospital or whether they felt it had been caused by the illness.

Results indicated that the overall inter-pair agreement was 57% for the reported occurrence or non-occurrence of different types of stress. Patients and their relatives also differed even more substantially in their estimation of whether events caused psychiatric illness or vice versa. Hudgens et. al. concluded "that retrospective studies which purport to demonstrate a cause-effect relationship between stressful events and established non-organic psychiatric illness may be of dubious validity". (p. 643)

Beck and Worthen (1972) studied 50 consecutive admissions to a research ward. Diagnostically patients fell into 3 broad groups; 21 patients with neurotic depression, 15 with schizophrenia and 14 with a variety of other diagnoses. Each patient was interviewed on 4 occasions; within 2 days of admission, at the time of discharge, and 6 weeks and 3 months after discharge. The initial interview did not concentrate on a specific period of time prior to admission but "focussed on the person's life situation at the time he came into the hospital and on the history of the days and weeks immediately prior to admission". (p. 126) The remaining interviews concentrated on the period since the last interview. In assessing a patient's life situation, the authors' objective was to elicit from the patient what, in his opinion, related to admission or to his trouble prior to admission. Where no events or troubles were found the authors provided a brief description of the patient's life situation prior to admission. After each interview, symptom ratings were made. An independent rating was then made by non-psychiatric hospital out-patients of the extent to which each life situation and events were considered to be hazardous.

Results of this study indicated that the schizophrenics' life situations before admission were rated as significantly less hazardous than those of the neurotically depressed group of patients. The authors

further felt that they were able to specify a clear precipitant to illness in 20 out of the 21 cases of neurotic depression.

Cadoret et. al. (1972) examined the relationship between a specific set of stressful events and the onset of depression in a group of 100 rigorously screened unipolar depressed in-patients. These patients were compared, for part of the study, to 129 first-degree relatives on their answers to (only) 9 questions designed to elicit information on factors possibly related to the genesis of their depressive illness. Questions were concerned with obtaining details on early loss or separation from parents, and on whether considerable periods were spent away from parents during formative years. A further series of questions asked whether any deaths of significant others had occurred in the past year or whether the threat of loss of home, job or close personal friends had been present in the past year. Finally, a question on whether there had been any physical illness requiring treatment during the past 6 months was asked.

Analysis of the results was performed after the patients had been divided into two groups - an early illness (age less than 40 years) and a late illness onset group (age 40 years or more). No significant differences were detected between the two groups in terms of incidence of early parent loss. However the distribution of losses throughout the patients' first 16 years of life was significantly different from that expected from a random distribution when the whole group was examined. For events which had occurred within the year preceding key admission there was a higher incidence of real or threatened personal losses in the early onset group as compared with the late onset group. None of the group differences for death of a significant other during the same period was significant.

Questionnaire methods: the development of a more systematic approach.

In 1967 Holmes and Rahe described a questionnaire which was designed to assess and quantify the degree of adversity suffered by an individual over a specified time period. The questionnaire that they developed has served, with varying degrees of modification, as a model for many others in their generation of questionnaires (e.g. Antonovsky and Kats, 1967; Dohrenwend, 1970; Myers et. al., 1971; Paykel et. al., 1971; Cochrane and Robertson, 1973). Moreover, since the methods developed have resulted in a considerable research literature, the design and methodology used to produce this research instrument will be described in detail.

In 1949 and following the techniques of life-chart analysis developed by Adolf Meyer (e.g. see Lief 1948 p. 418), Holmes and others at the University of Washington commenced their studies of the relationship between life events and disease onset. From these studies emerged a life event list which was claimed to cover, both in type and number, the vast majority of situations encountered by the patients studied. This questionnaire is called the Schedule of Recent Experiences (SRE) and consists of a list of 43 life events (Holmes and Rahe 1967), each with brief descriptions. Having derived an exact list, further development was required in order that the events should be differentially quantified with respect to each other. In order to do this 394 subjects were asked to complete the SRE by allocating a score to each life event. This allocated score was intended to reflect the degree of readjustment considered by the rater to be necessary given that the event had occurred. Holmes and Rahe defined social readjustment in terms of the "... length of time necessary to accommodate to a life event, regardless of the desirability of this event" (p. 213). Marriage was given an arbitrary value of 500 and each rater was asked to rate each event relative to the value given to marriage. (Only 223 of the 394 subjects who completed the rating were in fact married).

The result of applying this technique to the original list of 43 life events was to arrange the list in rank order by calculating the mean score for each item for the entire sample and dividing it by 10. This resulting scale is referred to as the Social Readjustment Rating Scale (SRRS) and it ranges from the maximum score of 100 Life Change Units (LCUs), which is given to death of spouse, to minor violations of the law, the minimum of 11 LCUs. The results obtained by this technique have since been replicated by many groups with varying degrees of departure from the original method. (e.g. Ruch & Holmes 1971; Coddington 1972).

The general technique for using the SRRS is to obtain a completed life event list for the time period of contact and then to assign those weights obtained from the calibration study to the life events marked on the list. A total life change score is then computed for each individual for the time period considered.

Since the original scale appeared it has been used in both retrospective and prospective studies in relation to both major and minor physical and psychiatric illnesses. Many of the studies conducted by Rahe and colleagues have obtained information from American and Scandinavian naval groups and examined the relationship between life changes and a variety of illnesses in these groups. (Rahe, 1968; Rahe et. al., 1970; Rahe et. al., 1974). However the SRRS has rarely been applied in an unmodified form to patients with depressive disorders. A retrospective study reported by Thomson & Hendrie (1972) provided such an example of its application.

These authors, using the SRRS, examined the occurrence of life changes during the year prior to illness onset in 74 patients admitted with a diagnosis of primary depressive illness. This study compared

the information obtained from the depressed patients with that obtained from two control groups (37 associates of hospital staff and 22 patients suffering from early poly-arthritis). Both control groups were matched for age and sex with the depressed patient group.

The results of this study indicated that younger patients (aged less than 35 years) scored significantly higher than patients aged over 55 years on the life change score derived from Rahe's scale. A method of self-rating the degree of stress undergone by both patients and controls distinguished those who, according to the SRRS, had experienced more stress than usual. Further analysis revealed that through the depressed patients had a significantly higher mean score on the SRRS than either of the control groups, if the depressed patients themselves were allocated to either an endogenous or reactive category then the diagnosed reactive category had a higher mean score on the SRRS than the endogenous group - this difference was however not significant. This finding therefore confirms to some extent the findings of Leff et. al. (1970).

As mentioned above, the scale developed by Rahe has been modified by other research workers in order to serve a variety of research needs. A substantial contribution to work on the relationship between life stress, as assessed by the questionnaire technique, and psychiatric disorders has been made by Paykel and colleagues working at Yale University, New Haven and at St George's Hospital in London. Details will be given here of the series of studies undertaken by that group in order that the contribution made to this field of study by the careful application of event list techniques may be assessed.

The list of life events used by Paykel and colleagues in most of their studies contains 61 events. The list was based, with substantial changes however, on the SRE developed by Holmes and Rahe

(1967). Paykel stated that modifications included "... substitution and rephrasing of items to make them more suitable for lower socio-economic class subjects and elimination of some items, such as changes in sleeping habits, which might reflect psychiatric symptoms". (Paykel et. al. 1971, p. 340).

One of the first studies published by the group using the event list was that reporting on a comparison between a depressed population and a general population control group. Paykel et. al. (1969) set out to examine two important questions; firstly, whether life events occurred more frequently during the period before onset of depression than in a comparable period for a control sample, and, secondly, if this were so, did all kinds of events occur more frequently or only certain types. A total of 185 hospital in-patients and 185 controls were used in the study. The patients were all suffering from a depressive illness which was not secondary to any other disorder. The illness had to have been present for at least one week to satisfy minimum criteria and to be rated from 2 (mild) to 6 (severe) on a global severity of illness scale. The mean age of the whole sample was 35.6 years, the age range 21 - 65 years and 140 of the patients were female. The group was predominantly of lower social class; 130 patients being assigned to classes 4 and 5 on the Hollingshead 2-Factor Index. Each patient was matched by sex, age, marital status, race and social class with a control obtained from an epidemiological community study.

Completion of the life event questionnaire by the patients was sought only following a substantial improvement in their symptomatic state. The purpose of this was to reduce in so far as possible, distortion of reporting associated with depressive symptoms.

As the event list differed slightly for patients and controls, the whole list was reduced to 33 identical events for analysis. Any events which had occurred during the 6 month period before the onset of depression were then noted. Comparisons were made between the total number of events reported by the patients and by the controls for the 6 month period. A total of 313 events were reported by the patients and 109 events by the controls giving a mean of 1.69 per patient and 0.59 per control. Of the individual events included in the list, a number were reported to a significantly greater degree by the patient group. Amongst this number were increased arguments with spouse, separation, serious personal illness as well as serious illness of family member, death, and family member leaving home.

Paykel then allocated the events, where possible, into three alternative but partly overlapping categories. An 'exits' and 'entrances' category which referred only to those events which directly involved changes in the subject's social field. The second category distinguished desirable from undesirable events and the third category involved classifying the area of activity affected by the event. Five sub-categories were derived to supplement this last method of dividing the event types: these were employment, family, marital, health and legal. Life events categorised as 'exits' were significantly more frequent in the depressed group than the controls with no difference in 'entrances'. Undesirable life events were also found to be much more frequent amongst patients than controls. The final system of categorising the events revealed further differences; in particular the patients had significantly more events categorised as employment, health and marital than did the controls.

Following on from this study, Paykel developed his event list along the lines that Rahe had done in applying social consensus scaling to the SRE. The first published result of this is reported in Paykel et. al. (1970) in which all the 61 events were assigned weights by direct comparison with the events in the SRE. Where additional events were present in Paykel's list they were assigned values after careful inspection of those given to the rest of the list. This method of assigning weighted values was, however, soon changed and the results presented for a different scaling technique (Paykel et. al. 1971). In this report 373 subjects were required to judge each of the 61 events on a 0 - 20 equal interval scale in terms of "how much distress or 'upset' they provoked". (Paykel et. al. 1971, p. 340) In this method no single event was given a fixed value thereby departing substantially from the ratio technique used by Holmes and Rahe.

The results of using this technique for scaling the 61 events was that mean event scores ranged from 2.94 for the event 'child married with respondent's approval' to 19.33 for the event 'death of child'. Ranked highest in the list were highly disturbing events while at the lower end were mainly unimportant or desirable events. The information for the above scaling exercise was obtained in conjunction with information on symptoms over the preceding week and on the respondent's own experience of life events over the 12 months before the interview. Results of the study are presented in Uhlenhuth & Paykel 1973a and 1973b. In brief, the reports suggested that the timing of onset of psychiatric symptoms and their reported intensity was in part predictable through the knowledge of the quantity of life stress experienced. The configuration of symptoms experienced however was not determinable from knowledge of life stress.

In the majority of papers published by Paykel and colleagues using the life event list following on from the above studies very little further attention was paid to the system of weighting events. The work on life events which did predominate was that examining the total number and type of events that had occurred in a given population.

A substantial contribution to this work was provided by Jacobs et. al. (1974). This study attempted to provide answers to 2 questions. Firstly, how did patients suffering from depression differ from patients suffering from schizophrenia in their experience of life events during the 6 months before the onset of illness. Secondly, if differences were detected did this involve all events or only events of certain types. A total of 50 first admission schizophrenic patients were screened and matched on age, sex, marital status, race and social class with 50 screened depressed patients obtained from Paykel's 1969 study. The occurrence of life events during the 6 month period prior to onset was assessed using an event list identical (except for 2 omitted events) to that used in a number of previous studies (e.g. Paykel et. al., 1969; Paykel et. al., 1971; Uhlenhuth & Paykel 1973 a and b). Interviewing for events was delayed until after symptomatic improvement and a semi-structured interview was then used to assess events.

Results indicated that the depressed patients had experienced significantly more events than the schizophrenic group during the 6 month period before onset; on average 3.6 events per patient over this period as compared with 2.5 events per patient for the schizophrenics. In terms of individual events only 2 revealed significant differences; the depressed patients reporting that they had had significantly more serious arguments with family members not living with them or with

fiancées or steady girl-friends. When events were examined in terms of their social desirability, the authors demonstrated that the depressed patients had reported significantly more undesirable events than the schizophrenics. No differences were detected on the other hand for desirable events.

If events were further categorised by 'exits' and 'entrances' the results revealed that 'exit' events had occurred significantly more often prior to onset in the depressive group than in the schizophrenic group. There was no difference for 'entrances'. Finally, events were broadly categorised into 10 areas of activity and in only 2, financial and health, did depressed patients report significantly more events than schizophrenic patients. Jacobs conceded that the "... present findings suggest that exits and undesirable events are related more closely to depression than to other forms of mental illness". (p. 451)

Further results were presented by Paykel et. al. (1975) on the relationship between recent life events and suicide attempts in a controlled comparison. A sample of 53 patients admitted to hospital following unsuccessful suicide attempts were compared with a depressed control group and a community control group on which Paykel had reported previously (Paykel et. al. 1969). The time period covered by the interview was 6 months for all groups: for the suicide attempters this was the period prior to the attempt, for the depressed controls the period prior to symptomatic onset and for the community controls the period prior to interview. The results were based on a condensed event list of 32 events.

In brief, the group attempting suicide had reported 4 times as many events as the community controls and 57% more than the depressed controls. When timing of events was examined, the suicide attempters

showed an increased event rate in every month of the 6 month period with a marked rise in the month prior to the attempt - practically one third of all events reported occurred in that month. When types of event were considered, the suicide attempters had experienced significantly more undesirable events than both the depressed and the community control groups. No significant differences were detected for desirable events. Paykel also examined 'exit' and 'entrance' events. The results obtained after this categorisation of events revealed that the suicide attempters had experienced significantly more 'entrance' events than had the depressed controls and about the same number of 'exit' events, this number in turn being significantly greater than for the community control group. These results taken together present a forceful argument in support of the existence of a strong relationship between suicide attempts and the occurrence of life events.

The majority of studies using Paykel's method of life event assessment have been retrospective in design. However a recent paper by Paykel and Tanner (1976) provided life event details in a prospective design. Subjects, all women, were obtained from those who had entered a treatment study of depression with amitriptyline and psychotherapy (Klerman et. al., 1974). A total of 150 patients entered the major study and, of these, 33 patients relapsed after the second month of treatment. The study reported here presented details of the relationship between relapse in 30 of this group, the treatment received, and the occurrence of life events during a 9 month follow-up period. These were compared to a matched control group of 30 patients who did not relapse during the same period.

Interviews recording the occurrence of life events using Paykel's list of 61 events were conducted after 2, 4, and 8 months of main enance treatment. For patients who relapsed a further interview was arranged at the time of relapse which covered the period since the preceding interview. The analysis of results was confined to the last 6 months of the follow-up period in an attempt to avoid the possible effects of persistent illness. Event frequencies for both the relapsed group and the control group were examined.

The patients who relapsed reported more events than the controls for every month of the follow-up considered. However the event frequency for the relapsing group during the month prior to relapse only was significantly higher than the corresponding month for the controls. Almost all the patients who relapsed (93%) reported at least one event as compared to 6.7% of the controls. When types of event were considered, no significant differences were found between the relapse group and the control group in terms of the mean number of events reported during the 3 months prior to relapse which were categorised as 'exits', 'entrances' or desirable events. Undesirable events however were significantly more common for the group of patients who relapsed than for the controls during this period: 83% of the relapsers reporting at least one undesirable event as compared to 43% of the controls.

This study was also able to provide some indication on the extent to which maintenance medication conferred protection against adversity. The results suggested that patients experiencing stressful events were almost as likely to suffer a relapse if they had been taking maintenance medication as if they had not. Though the results were based on only a few patients it appeared that prophylactic treatment with amitriptyline was not specifically protective against adversity.

The quantification of life stress using methodology developed by G.W. Brown

The technique used by Brown and colleagues in the assessment of stressful life events is radically different from those methods used in the studies described above. Since the technique was initially evolved from studies on a schizophrenic group, attention will be paid in this section to these studies where considered necessary.

It was not until 1973 that more than scant details were provided by Brown and colleagues on the techniques they used in the assessment and quantification of stressful life events (Brown, Sklair, Harris and Birley 1973; Brown, Harris and Peto 1973; Brown, 1974). Prior to this time some details had been published (Brown and Birley 1968; Birley and Brown 1970) of the results of applying the life event assessment technique on a group of 50 schizophrenic patients. Results of these early studies were extremely encouraging. The techniques were, however, not reproducable from the information published.

In 1974 Brown presented details of three sources of invalidity which he felt had considerable relevance to the work examining the relationship between stressful life events and the onset of illness. These sources were: direct contamination, indirect contamination and spuriousness. Direct contamination, he argued, is applicable only to information which has been collected retrospectively by an investigator who has knowledge of the illness he wishes to predict and who wishes to assess the occurrence of events which preceded it. The measurement of the events can be affected by knowledge of the illness.

Indirect contamination refers to the possibility that the measurement of stressful life events could be influenced by other factors which in turn influence or relate to the illness or symptom itself. This form

of measurement contamination can occur in prospective research. Finally Brown pointed out that even if the measurement of life events and illnesses is completely accurate and takes account of the two pitfalls of measurement techniques mentioned above then a further invalidity, that of spuriousness can occur. This refers to the possibility that a correlation measure between events and illness is not a measure of causality but just an indication of the influence of one or more other variables on both of them.

The method of assessment and quantification of stressful life events developed by Brown and colleagues attempted both to avoid the above sources of measurement invalidity and also that embedded within the basic theoretical argument relating events to illness. To achieve this the interview was structured in such a way that it was clear what may or may not be included as events; all classes of events and the persons covered by them were defined before the interview was conducted. The interview technique further required that the information collected was not coloured by how the person being interviewed actually felt about the events that had occurred. For every occurrence reported which might be included by the interviewer as an event, further specified questions were asked to determine contextual details surrounding it and only if the event then satisfied certain pre-established criteria was it included. The interview was tape recorded and on the basis of this, 30 rating scales were completed by the interviewer for each event. These scales related directly to contextual information which surrounded a given event.

In the papers dealing with life events which have been published by Brown, contextual rating measures of threat were presented as being of particular importance. The four point scales were intended to

reflect the extent to which most people would find a given event threatening for the short term threat rating on the day the event occurred, and for the long term threat rating about one week later when the immediate consequences of the event were over. The scales were rated as "marked", "moderate", "little" and "none". The allocation of a rating was achieved by presenting all the relevant contextual details of a given event to a group of individuals who did not share with the actual interviewer information on how the subject reacted to the event. The final ratings were then obtained from those made independently by all members of the group. This interview technique also focussed on any chronic long term difficulties in the same way as events. Six point rating scales were developed in order to quantify the degree of subjective and objective long term threat such difficulties were considered to represent.

Having decided upon a method of assessment as to whether an event has occurred or not, and on its threatening implications, Brown, like others, attempted to obtain information used to determine in so far as possible the extent to which an event is illness related, possibly related or independent of the illness. Events considered to be illness related were then excluded from further analysis. The other major detail which Brown was very careful to assess and include concerned the accurate dating of events. In order to achieve the best possible estimate of when a given event occurred, the period of time under analysis was divided in o weekly periods and events allocated to these periods on the basis of information from the subject and frequently with the additional aid of sources other than the patient (e.g. relatives, hospitals, GP's, the police).

In contrast to the low level of agreement between patients and

significant others in accounts of the occurrence of life events during a particular period prior to the onset of illness (e.g. Hudgens et. al. 1967 reported only 57% agreement), Brown et. al. (1973) reported quite high levels of agreement using this interview technique; achieving 81% agreement between schizophrenic patients and their relatives concerning the occurrence of events.

Brown et. al. (1973) presented the results of a study which set out to examine the relationship between the onset of depressive illness and the occurrence of stressful life events. The interview technique described above was used to assess the occurrence of life events. In all, 114 patients were interviewed. They were all women and 36% were in-patients. The interview covered the twelve month period preceding admission, or, for out-patients, key contact. Also reported were the results of interviewing 152 randomly selected general population female controls obtained from the same community as the patient group and screened as being free from any physical or psychiatric disorder. For the control group the time period covered by the interview was the year preceding the day of interview.

Results were presented by dividing the time period before initial interview up into 16 three week periods and comparing the event rate for each of these periods with that for the community sample. During the three week period immediately prior to onset of illness, 51% of the patients as compared to 16% of the community group had experienced at least one event, a significant difference in event rates. Further, when events were analysed by severity of threatening implication and by the time period in which they had occurred, the results revealed that life events rated as markedly threatening were common throughout the whole of the year for the patient group but relatively rare for the control group. Of the patients, 42% had

experienced at least one markedly severe event compared to 9% of the community sample for comparable 38 week periods before onset of illness in the depressed group.

For events which were rated as moderately threatening, only the event rates during the three week period before illness onset differentiated the depressed group from the community sample; 15% for the depressed group compared to 3% for the community group. For all other time periods the event rates for the two groups were the same. Finally a similar analysis was performed for those events rated as having "little" or "no" threatening implications and results showed that for the depressed patients the event rate was slightly raised in the three week period before illness onset but was not significantly higher than that for the comparison group.

Further results of the above study were published by Brown et. al. (1975) with information obtained from a larger community sample (220 women) than before. Screening for psychiatric symptomatology in this group using the Present State Examination (PSE) revealed that 35 women were considered to have suffered psychiatric disturbance (mainly of an affective nature) during the three months prior to interview. These Brown termed "cases". Twenty-one of those who had suffered an onset in the year prior to interview were termed "recent cases", 45 other women who had a lesser degree of symptoms were called "borderline" and the remaining 140 women Brown referred to as "normals". The 1975 paper presented a comparison in terms of life event information of results obtained from the above sub-groups and the previous group of 114 depressed patients. Other aspects were considered but only those results concerning the life stresses suffered will be referred to here.

Results revealed that 28% of the patient group had experienced severe events alone, 32% a severe event and a major difficulty, 15% a major difficulty alone and 25% no severe events or major difficulties during a 38 week pre-onset period. The figures for the "normal" and "borderline" community patients taken together (N = 185) indicated that 17% had suffered a severe event alone, 4% a severe event and a major difficulty, 9% a major difficulty only and 69% had experienced no major difficulties or severe events. Clearly there are factors other than life events and difficulties which are causally related to the development and onset of psychiatric disturbance and it was to this area that Brown and colleagues addressed their attention in the 1975 paper. The factors they revealed as being of considerable importance, in particular when events and difficulties occurred, will be discussed in a section of this chapter to follow.

Comparative overview of the techniques used in the life event studies reviewed

The problems posed in research attempting to examine the relationship between adversity (defined socio-environmentally) and the development or onset of physical and psychiatric illnesses are considerable. Some of the different ways in which authors have tried to resolve them have been presented above. Each technique, however, has its own individual set of problems and advantages associated with it. In order to clarify the similarities and differences in the techniques used in the studies described, a detailed contrast will be given below of the two principal methods used.

The questionnaire methods of assessing the occurrence of life events used by Rahe and Paykel have attracted considerable attention and through their application some understanding has been gained of the relationship between events and illness. However their assessment techniques have also met with a good deal of criticism. Brown (1974) presented a forceful argument against further use of the questionnaire technique in studies on life events. His criticisms related principally to the interpretative freedom given to the individuals completing the questionnaire. This could be reflected in personal decisions as to the meaning of a given item and on the group of people or particular individual to whom it relates. The reporting method is, Brown claims, also subject to direct and indirect contamination occurring, for example, if an individual is still experiencing symptoms at the time the questionnaire is completed. Hudgens (1974), in support of this view, assessed that of the 43 events listed on the Holmes and Rahe SRRS, 29 were construed by him as being symptoms of or consequences of illness. Hudgens also felt that the same criticism could be made against 32 of the 61 events on Paykel's full questionnaire and 18 of the 33 on the short form.

Yet another way in which contamination can occur with this type of questionnaire (again pointed out by Brown and others and stemming in part from the work of Bartlett 1932), is that in which the respondent searches for meaning in an effort to explain to himself and others how the particular problems in question developed. An apposite example of this is provided in the work of Stott (1958) which examined psychosomatic factors as necessary causal precursors to the pre-natal development of mongol children. His results not only showed that mothers of mongol children reported more shocks during pregnancy than mothers of normal children but also that these shocks had occurred more frequently during the early part of pregnancy. Stott's results were published before those of Polani et. al. (1960) in which the chromosomal abnormalities diagnostic of mongolism were reported. It is therefore reasonable to postulate that Stott's findings resulted both from the mothers' 'effort after meaning' to explain the problems of their children and from Stott's own beliefs regarding that period during pregnancy when mothers are vulnerable to such shocks.

The above criticisms taken together, cast considerable doubt on the value of results obtained using the questionnaire methods but do not in themselves warrant that the questionnaire technique as applied to this research area should be abandoned - only that further development is necessary. The advantages of this method and the source of its attraction to so many research workers is the ease with which it can be administered, and, as no training is required to use it, its economy of research workers' time. In addition, the technique lends itself to the postal survey type of research and hence much larger numbers of subjects can be questioned than is possible by Brown's method.

The technique developed by Brown, while radically different from

the questionnaire method, still shares some of the above criticisms. While he attempted to control for the effects of indirect and direct contamination through the prior specification of what life events and individuals to include, the problem of spuriousness remains and is only partially controlled for by asking interviewers to ignore an individual's actual experience of an event when making certain ratings.

The Brown technique is also very interviewer dependent, a period of training being necessary to use it. It is therefore less economic in time and expense than is the life event check list technique. To justify this substantial extra effort to obtain information Brown's technique needs to be demonstrably superior in terms of the information elicited from respondents and a carefully designed comparative exercise still remains to be done. Provisional results from a study going some way towards this, conducted by Heinz Katschnig (to be published in 1978) appear to cast some doubt on the alleged superiority of Brown's technique over and above that of the SRE. Further details are awaited.

Both techniques are dependent on the attitude of the respondent to disclosing information asked, though the actual length of the Brown interview (up to four hours) may enable the development of interviewer-respondent relationships to increase disclosure. This again of course reflects the extent to which the technique is interviewer-dependent. A further discussion of these issues together with possible directions for alternatives will be presented in the discussion chapter.

(b) **Family life and family relationships**

In common with the developmental work on life events, the examination of certain other socio-environmental factors associated with the course of psychiatric illness was initially carried out on patient groups diagnosed as schizophrenic. Where considered relevant to the research on depressive disorders, details concerning the research focus, methodology and findings of these studies will be presented.

One of the principal areas of attention for research workers endeavouring to relate environmental factors to subsequent course and outcome of schizophrenic disorders has been the family environment in the home. The original studies in this area were conducted in the late 1950's and early 1960's. Work by Brown et. al. (1958), Brown (1959) and Brown et. al. (1962) demonstrated from survey data of long stay (chronic) male schizophrenic patients that a poor outcome was strongly associated with close emotional attachments between the patient and his parents or wife. The research was largely based on the techniques of assessment used to measure the expressed emotionality of the patient's relations.

In an attempt to clarify these issues, further work was undertaken by Brown and colleagues in 1966 (Brown and Rutter, 1966; Rutter and Brown, 1966). As a result, the Family Interview Schedule (FIS) was developed - initially on a group of 80 families each with children and in which one parent was a psychiatric patient. This interview included a number of scales designed to assess the feelings and emotions expressed by family members. Particular emphasis was given in the development of these scales to the tone of voice and to the actual content of what was said. Ratings of emotional response were based on the number of

critical comments made about an individual in the home, the presence or absence of hostility (its presence being defined by a comment signifying the rejection of someone as a person), dissatisfaction, warmth and emotional over-involvement. Brown et. al. (1972) reported that none of the measures developed had inter-rater correlations of less than 0.8 based on information obtained at the same interview.

This study by Brown was prospective in design and had as its principal aims the extension and refinement of components of the FIS and an attempt at replicating the findings of the earlier studies mentioned above. Brown derived a composite index of expressed emotion (EE) which was based on three of the measures mentioned above; emotional over-involvement, hostility and the number of critical comments made by a significant relative concerning the patient. An examination of the relationship between this composite index and relapse over a nine month follow-up period in 101 schizophrenic patients showed that 58% of the patients whose relatives had high EE at the time of the patient's admission relapsed during the subsequent nine months as compared to 16% of the patients whose relatives had a low EE ($p < .001$).

This study also investigated the relationship between two other variables and outcome following discharge from hospital. An attempt was made to determine the extent to which continuous taking of phenothiazines conferred protection against relapse during the follow-up period. Results revealed that there was no difference in relapse rates between those patients who took continuous medication and those patients who did not - provided both groups had low EE relatives. If, however, the relatives were rated high EE it appeared that some protection was given to the group who did take continuous medication (46% of patients relapsed while taking continuous medication as compared to a relapse rate of 66% for those who did not).

The second variable of particular interest concerned the period of face-to-face contact per week that the patient spent with relatives in the home during the period prior to follow-up or relapse. Again the result of analysis was a replication of previous findings. Of the 19 patients who spent more than 35 hours a week in face-to-face contact with close relatives with high EE, 15 relapsed. Of the 33 patients who spent more than 35 hours per week with low EE relatives, only 4 relapsed. There was no difference in the percentage of patients relapsing for those who spent less than 35 hours a week with either high or low EE relatives. These results therefore pointed to the importance of the interview with the patient's relative and to the particular relevance of the expressed emotion variable in predicting symptomatic relapse in schizophrenic patients.

Due to the important practical and theoretical implications of the above results, Vaughn and Leff (1976) designed a study with the principal aim of attempting to replicate the findings of Brown et. al. (1972) and to further determine whether the factors found to be of importance in that study were specific only to schizophrenics. Two groups of in-patients were obtained and followed-up nine months after discharge. The first group comprised 37 schizophrenics and the second group 30 patients suffering from neurotic depression - the PSE being used to screen and select patients. Only the interview with the patients at the time of admission was retained in the replication by Vaughn and Leff. This was in fact substantially shortened in length from the original four to five hours to one which rarely lasted more than one and a half hours.

As in the 1972 study, ratings were made on all the sub-scales of the expressed emotion index (EE). Relapse criteria for the schizophrenic

patient group were identical to those used previously in the 1972 study. Relapse criteria for the depressed group were, however, more difficult to decide upon. Vaughn and Leff reported that of the 30 patients followed up, 16 were considered to have relapsed, 14 of these having "significant symptoms of depression rateable on the PSE at time of follow-up." (p. 128) The two other patients who relapsed were well at follow-up but had reported a period of depression lasting at least two weeks during the period between discharge and follow-up assessment.

The analyses performed in the study by Brown et. al. (1972) were then repeated on this data. The results replicated Brown's original findings that the index of emotion expressed by a key relative about the patient at the time of admission to hospital proved to be a successful predictor of symptomatic relapse during the nine month follow-up after discharge from hospital. As in the 1972 paper, maintenance therapy with phenothiazines and number of hours in face-to-face contact with emotional relatives were examined and related to relapse. Again the earlier results were replicated only on this occasion the original trend for medication to confer some protection against relapse for patients living with high EE relatives reached statistical significance.

The results obtained with the depressed group are of particular interest here as it was important to know if the previous findings were specific to the schizophrenic group. As indicated above, the index of EE was devised from three measures - hostility, emotional over-involvement and number of critical comments made. Only the number of critical comments made appeared to be important in relation to relapse in the depressed group. Taking an identical criterion on the 'criticism index' to that used with the schizophrenic group resulted

in failure to distinguish the patients who relapsed from those who did not. However if the criterion was lowered to $\geqslant$ 2 critical comments as compared to $<$ 2 critical comments, discrimination was achieved. Of the 21 patients whose relatives had $\geqslant$ 2 critical comments, 14 relapsed, while of the 9 with $<$ 2 critical comments, only 2 relapsed. (Fisher's exact $p = 0.032$).

Vaughn and Leff were unable to examine the extent to which continuous medication conferred protection in the case of the depressed group as only six patients had taken it. They did report however that the amount of face-to-face contact between the depressed patients and their relatives did not relate to relapse except for the fact that patients from homes with relatives making $\geqslant$ 2 critical comments spent significantly less time in face-to-face contact with them than did patients in low criticism homes.

In addition to replicating the results of Brown et. al. (1972), Vaughn and Leff also examined the extent to which the factors examined in both studies were additive in relation to relapse. Data from both studies was therefore pooled and three variables - maintenance therapy, face-to-face contact with relatives, and relatives' EE were examined in detail. The results, based on a total group of 128 schizophrenics, revealed that patients who had been living with high EE relatives, had substantial face-to-face contact with them, and were not taking maintenance phenothiazine were almost certain of suffering a relapse during the follow-up period. It was also clear that the probability of inevitable relapse could to some extent be reduced either by taking medication or by reducing contact with high EE relatives. If the patient lived in a low EE home however, the taking of medication appeared to be of minimal value. For the depressed patient group an examination of the relative

contribution of factors in relation to relapse revealed that only the criticism factor made a significant addition in terms of explained variance, the contributions of all the other factors being negligible.

In summary therefore, it would appear that the above series of studies have isolated a group of social and environmental factors which are of critical importance in relation to predicting relapse in schizophrenia. The recent extension of these findings by Vaughn and Leff to a group of patients suffering from a depressive neurosis has indicated not only the non-specificity of these factors to schizophrenia but, in the case of the criticism factor, a heightened vulnerability of these patients to its presence within their homes. The question of the additive effects of psycho-social factors and treatment received subsequent to discharge in relation to depressive relapse remains almost totally unanswered. The results of the study by Vaughn and Leff, however, have suggested that such an investigation may reveal relationships between variables which are of considerable significance for the clinical management of depressive conditions.

(c) Social support

A further focus of research attention in recent years which has provided a better understanding of some of the issues presented above has been 'social support'. This somewhat nebulous term has gained considerable appeal in the research literature. Its meaning to different research groups has, however, varied considerably.

Cobb (1976) provided a review of some of the literature in which the concept had been used and also examined its importance as a moderator of adversity. The concept of social support was defined by Cobb as "information leading the subject to believe that he is cared for and loved, esteemed, and a member of a network of mutual obligations". (p. 300)

Cobb suggested that the concept of support used by those undertaking research had always included at least one of the three classes of information specified in his definition.

Initially evidence was presented for the presence of social support being associated with a reduced risk of developing a variety of physical problems when individuals were subjected to adversity e.g. complications of pregnancy (Nuckolls et. al., 1972). He also emphasised the prognostic value of social support with respect to recovery from a variety of illnesses, in particular sanitorium treatment of tuberculosis (Holmes et. al., 1961) and response to steroid therapy in asthmatics (de Araujo et. al., 1973). Cobb argued that the evidence was strongly suggestive that social support might serve to reduce the amount of medication needed, accelerate recovery, and, perhaps of greatest importance, might encourage the observance of prescribed medical treatments.

The extent to which the presence or absence of social support may relate to the ability of individuals to cope with adversity and protect against the onset of psychiatric illness has only recently received attention.

Brown et. al. (1975) provided one of the first serious attempts to assess the relationship between aspects of social support, the occurrence of serious life events and whether the subject suffered an onset of affective illness during the period under study. Ratings were made of the practical and emotional support received from friends and relatives available to each respondent following the occurrence of an event or difficulty. No significant differences in onset rates were detected in the study between those who, having experienced a severe event reported that they had "marked support" available and those

who, having experienced a severe event reported having "some or none". No withstanding this result and following the collection of all the study data, a new scale was constructed to assess not only the frequency and the quality of all social contacts available to an individual but also the quality and intimacy of the confiding relationship if one existed.

A four point scale was used for rating the quality of the relationship that existed with a confidant. An 'a' relationship was one in which the woman respondent was regarded as having a "close, intimate and confiding relationship with their husband or boyfriend, or in exceptional cases a woman with whom they live". A 'b' relationship was for a woman who had a confiding relationship with someone other than husband or boyfriend and saw them at least once a week. The 'c' category signified women in the same position as 'b' but who saw their confidant less than once a week. The category 'd' distinguished those women who declared that they had no confidant.

Brown and colleagues then examined the extent to which the presence or absence of an 'a' relationship with a confidant as described above protected against the onset of a psychiatric disorder given that a severe event or a major difficulty had occurred. The results revealed that of the 45 women with an 'a' relationship who had experienced a severe event or a major difficulty, only two had suffered an onset of illness during the year of the study. Of the 45 women who had 'b', 'c' or 'd' confidant relationships and had suffered a severe event or major difficulty, 17 had suffered an onset. This result suggested that an intimate, confiding relationship might provide considerable protection against the effects of adversity. However the absence of such a relationship was not in itself associated with the onset of illness when no adverse events or difficulties had occurred.

Of further interest was that Brown and colleagues found that for those women who had a 'b' relationship and had suffered events or difficulties, 9 out of 26 (35%) suffered an onset of illness while of the 19 women with 'c' or 'd' relationships, 8 had an onset (42%). These figures appeared to indicate that some degree of protection was being provided but this in no way approached that provided by an 'a' relationship. Frequency of contact with a confidant was also examined and results revealed that, when intimacy of the relationship was controlled for, frequency of contact in itself was not protective.

A further examination of the role of social support factors in moderating the effects of stressful environmental influences was recently reported by Miller et. al. (1976). This study obtained its subjects from the patients of an Edinburgh general practice. In all, 172 patients who had just visited their doctor with a new illness episode were selected over a 10 week period. These patients, the consulters, were then matched by age and sex with patients from the same practice who had not consulted their doctor during the preceding three months, this group forming the controls.

Both consulters and controls were interviewed to obtain self-report ratings on nine symptoms, information on presence or absence of a confidant, the availability of diffuse social support and, for a smaller sub-group, the extent to which life events had been experienced during the three months preceding the research in erview. The technique used to assess the occurrence of life events was based on that developed by Brown. Separate analyses were then performed on the confidant variable above and on diffuse support available in relation to symptom declaration and life event assessments.

The results indicated that having a good confidant was associated with lower scores on certain psychological symptoms but that the association was only significant for the females in the sample. There was a similar trend though not a significant one for the males. The results of examining diffuse social support indicated that having only a few acquaintances was associated with higher symptom levels; in particular, anxiety and tiredness in males and tiredness and depression in females. An analysis of the life event information collected from a sub-sample of 34 consulters and 34 controls allowed certain tentative conclusions to be drawn regarding the extent to which close and diffuse social support conferred protection when severe events occurred. It appeared that having a good confidant or having a reasonable degree of available diffuse social support was able to confer partial protection against the rise in symptoms following the occurrence of threatening life events. The difference in results between the London and Edinburgh studies can probably be accounted for by the extremely different patient groups that were the focus of attention in the two studies.

The results of both of these studies were, however, of considerable interest since it appeared that the presence or absence of close social support was important not only in relation to onset of the major psychiatric disorders but also to the declaration of symptoms to general practitioners at a much earlier stage. The findings from both these studies must be regarded as tentative and certain areas should be investigated more thoroughly; in particular, in view of the partial protection apparently afforded by diffuse social support in the general practice study a further examination of its importance in relation to the major psychiatric disorders should be undertaken. A further question remains as to whether the assessment of the components of social support is in any way symptom related since questions concerning available support were asked at the time the patients had at least some residual symptoms.

(d) Social class, life stage and loss of close relatives

In spite of the considerable research literature demonstrating that higher rates of psychiatric illness were predominantly found in the lower social class groupings (e.g. Dohrenwend and Dohrenwend, 1969) very little work has considered the possibility that social class differences may be of etiological significance in the development of psychiatric disturbances. One of the principal aims of Brown et. al. (1975) was to examine this hypothesis. The study was based on the group of 114 depressed female patients reported on in Brown et. al. (1973) and a group of 220 community controls (a somewhat larger group than in the 1973 study). To avoid the effects of factors which select patients for treatment most of the results to be presented will be concerned with the community comparison group.

In common with previous studies, Brown found that lower social status groupings had a significantly higher rate of psychiatric disturbance than middle or higher class groups. The sample of women were also divided into five life stage groups and separate analyses performed for rate of psychiatric disturbance and social class groupings. This analysis revealed that the group of women aged less than 35 years with one child aged less than six years had a 26.5% rate of psychiatric disturbance. When this group was divided by middle and working class criteria, the working class group had a 44.4% rate of disturbance. (Richman 1974 found a similar rate, (42%) for a comparable social group). Brown demonstrated that this result was not due in any way to differential rates of life events and difficulties. While the younger women from all social classes had the highest rate of severe life events, they also had a relatively low rate of psychiatric disturbance. A significant difference in the event rates between the social classes only became evident for the group of women with younger children at home.

The next stage of the analysis was to determine if particular groups were more vulnerable than others to psychiatric disturbance given that a severe event or a major difficulty had occurred. Results revealed that 14 out of 36 working class women with children at home (38.9%) who had suffered either a severe event or difficulty, developed a psychiatric disturbance as compared with one out of 17 middle class women (5.9%) in the same situation. The researchers then went on to examine whether the presence or absence of an intimate confiding relationship, as described above, explained to any extent the heightened vulnerability to severe life events or difficulties of married working class women over the married middle class women. The results indicated that while 74% of the middle class women with children aged less than six years had an 'a' relationship, this was the case for only 37% of the working class group. The authors felt that this result provided at least some of the necessary explanation of the question of differential class vulnerability.

A further analysis of the data then revealed other factors which assumed importance only when a severe event or major difficulty occurred and only for that group of younger women who had a child at home. For the 12 women who had three children aged less than 14 years living at home with them and who had experienced a severe life event or major difficulty, 8 had developed a psychiatric disturbance - significantly more than the remaining group of women. Moreover, of the 25 women who had a child at home and who were unemployed, 11 developed a psychiatric disturbance following a severe event or difficulty, as compared to only 4 of the 28 who were employed - again a significant difference. Finally, four out of five women who had lost their mother before age 11 who had recently experienced a severe

event or difficulty, developed a psychiatric disturbance, as compared to only 11 out of the 48 who had experienced no loss of mother.

Brown and colleagues therefore felt that they had identified four factors which, if present, would increase the chances of a woman developing a psychiatric disturbance (predominantly depressive in nature) if a severe event or a major difficulty occurred. These factors were; having three or more children aged less than 14 years living at home, absence of an 'a' category relationship with a confidant, lack of full or part-time employment and loss of mother in childhood. All factors were identified with respect to women only.

Of these four vulnerability factors isolated in Brown's 1975 study, only one, that concerned with the loss of a parent has received any systematic research over the years in relation to the development of psychiatric disorders in general and depressive illness in particular. However a series of studies by Birtchnell (1970 a b c, 1972) did firmly establish a significant association between the death of either parent before the age of 10 years and the later development of depressive illness. The question of whether early loss of parent was a causal factor in depressive illness has, however, only recently been systematically investigated.

Following upon the results provided by the investigation into early loss of mother in the random sample of women described in the previous section (Brown et. al., 1975), Brown et. al. (1977) reported on a broader study of loss in a random community sample of 458 women and the relationship between loss and the later development of depression. They distinguished between recent loss (that which had occurred in the two years before the onset of depression) and past loss (that which had

occurred at any other time). The categories of loss focussed upon were principally loss through death or separation of parents, loss through death of a sibling and loss of a husband through death. In general, all losses occurring during the period the subject was aged between one year and 17 years were included in the analysis. The results revealed that of the 76 individuals in the whole sample who were termed cases, 17 (22.4%) had lost their mothers before age 11. This compared with 23 out of the remaining 382 (6.0%) who had lost their mother before age 11. Early loss of father or sibling, or of a child or spouse was not associated with an increased chance of developing depressive illness.

Of additional interest was the secondary analysis performed on a group of 114 patients upon which previous reports had been made (Brown et. al., 1973; Brown et. al., 1975). This examined the extent to which such losses described above could differentiate the patients' depressive illnesses in terms of form and severity. From the total group, 63 patients were categorised as psychotic and 49 neurotic, two patients with some manic symptoms being excluded. Distinctions were made on the basis of "the total clinical picture" and certain symptoms "which have fairly general acceptance in the literature as distinguishing features of the two forms of depression". (p. 8) Further separation within the two diagnostic groups was aided by the results of a discriminant function analysis applied to 23 clinical items. The weighted scores from this analysis were used to distinguish between the upper and lower halves of the psychotic and neurotic groups. A further rating of overall severity of illness was made on the basis of individual symptom severity.

The results of this analysis indicated that 77% of the group categorised as the upper psychotic group had a parent loss as compared to 55% of the lower psychotic group and 39% of the neurotic group as a whole. If loss by death was then compared to all other types of loss, then 77% of the upper psychotic group had experienced a parent loss through death while only 44% of the lower psychotic group and 16% of the neurotic group as a whole had done so. When other losses were considered, 22% of the neurotic group had experienced these as compared to 13% of the least psychotic and none of the most psychotic group - significant differences for each analysis performed. Considering these results, the authors expressed the view that the types of losses a woman had experienced might influence the form of a subsequent depressive illness once it had started to develop.

Summary

The examination of psychosocial factors as they relate to the onset of depressive disorders was the basis for this chapter of the review. Evidence initially obtained from research on schizophrenic groups provided both the techniques and methodologies for systematically examining psychosocial variables and onset of depression. Relationships which have for many years been intuitively suspected as being important in the development of depressive disorders have only received support from well designed research studies in the last few years. In particular, those studies which examined the relationship between life events and onset of depression, whilst still providing scope for controversy and in spite of using quite different techniques for the assessment of life events have, in general, demonstrated a strong association between stressful events and illness onset.

More recently, research has suggested that this relationship is influenced by other factors. The availability of a close confiding relationship was shown to be associated with a much reduced risk of developing depressive illness for those subjected to adversity than for those who were under stress but who lacked such a relationship. Other factors were also identified (e.g. lack of full or part-time employment) which if present appeared to amplify the chances of developing a psychiatric disturbance - but again only if the individual was subjected to adversity.

Due to the difficulties involved in implementing prospective research designs almost all the studies examining the relationship between adversity and the onset of depressive illness and the search for factors influencing that relationship have been retrospective in design. The principal problems concern the high consumption of time

and money involved in follow-up and the possibility that substantial patient losses will occur through death, movement or failure to trace. The retrospective design however carries with it theoretical disadvantages which many would argue (e.g. Brown, 1974; Copeland, 1975) exceed those of the prospective design. Relationships between variables demonstrated in a retrospective design by correlational techniques do not allow causal interpretation.

In order to further this type of research it is therefore of crucial importance to determine whether relationships revealed in a retrospective design are retained prospectively and to determine whether these psychosocial variables are additive in their effects on outcome. Studies concerned with schizophrenic conditions have again provided the initial impetus for the extension of work to depressive disorders. Results obtained suggested that schizophrenics were highly responsive to the occurrence of life events, and to the quality of the emotional relationship which existed between a schizophrenic patient and the relation with whom he lives. More recently, the important additive effects of social factors and maintenance treatment with phenothiazines on schizophrenic relapse patterns were demonstrated and later replicated.

Two small prospective studies very recently provided the first indication of important relationships between psychosocial variables, maintenance medication and depressive relapse patterns. The results of one of these studies (Paykel and Tanner, 1976) suggested that stressful events were associated with depressive relapse as they had previously been shown to be strongly associated with illness onset. This same study also provided tentative evidence to support the view that maintenance treatment with amitriptyline was not protective against the effects of adversity, depressive relapse still taking

place under such circumstances. The second study (Vaughn and Leff, 1976) demonstrated that intrafamilial criticism, previously found to be a potent indicator of relapse in schizophrenia was also predictive of relapse in depressive disorders.

It would appear therefore that this focus of research interest once specific to schizophrenia has now widened to include the depressive disorders. From the review of the literature it is also apparent that this transference of research interest and techniques has already indicated some relationships worthy of further investigation and has pointed to others which have yet to be examined. It is important for the future clinical management of those patients who have recovered from a depressive episode to determine whether the psychosocial resources available to them following recovery provide any immunity against depressive relapse in the face of the occurrence of adversity. Further, research attention should also be given to determining the <u>additive</u> effects of these variables together with maintenance pharmacological treatments on the outcome of depressive disorders. It is therefore to some of these questions that this study is addressed.

AIMS, DESIGN AND METHOD

CHAPTER 4

Aims, design and method

Aims

This study aims to identify variables, mainly of a psychosocial nature, which are predictive of outcome in depression and to examine their additive effects, together with treatment received subsequent to discharge in relation to relapse. Of particular interest is the extent to which certain intrinsic and extrinsic resources (principally personality and social support factors) available to an individual may confer protection from, or increase vulnerability to, relapse when that individual is subjected to adversity.

The aims of this exploratory study are restated more formally in a number of principal hypotheses below. The testing of each hypothesis will serve primarily as a starting point from which, where considered necessary, other analyses will be performed to illuminate further the inter-relationships between specific variables.

Principal hypotheses:-

Concerning social support and symptoms

1. Presence of social support prior to a patient's inception into this study is associated with lower symptom severity levels at first interview.
2. Presence of social support prior to a patient's inception into this study is associated with lower symptom severity levels at follow-up.
3. Presence of social support prior to the follow-up interview is associated with lower symptom severity levels at follow-up.

Concerning adversity and symptoms

4. Relative absence of adversity during the follow-up period is associated with lower symptom severity levels at follow-up assessment.

Concerning social support, adversity and symptoms

5. Social support and adversity when present together in the following combinations result in the following order of outcome, ranked by the percentage of patients 'ill' at follow-up assessment.

Best Outcome

That patient group with social support available to them prior to follow-up assessment and subjected to 'little or no' adversity during the follow-up period.

Intermediate Outcome

That patient group with social support prior to follow-up assessment and experiencing adversity during the follow-up period.

and

That patient group relatively lacking in social support prior to follow-up assessment and subjected to 'little or no' adversity during the follow-up period.

Worst Outcome

That patient group relatively lacking in social support prior to follow-up assessment and experiencing adversity during the follow-up period.

Outline of Study Design

To obtain a study population all in-patients admitted to the Royal Edinburgh Hospital between 1st February 1976 and 31st August 1976 were personally screened (in almost all cases within one week of admission) to determine their suitability for inclusion in the study. In addition, all new referral letters to the Andrew Duncan Clinic out-patient department during the same period were read and potentially suitable patients then screened by interview. The screening interview, Interview A, was identical for both in-patients and out-patients.

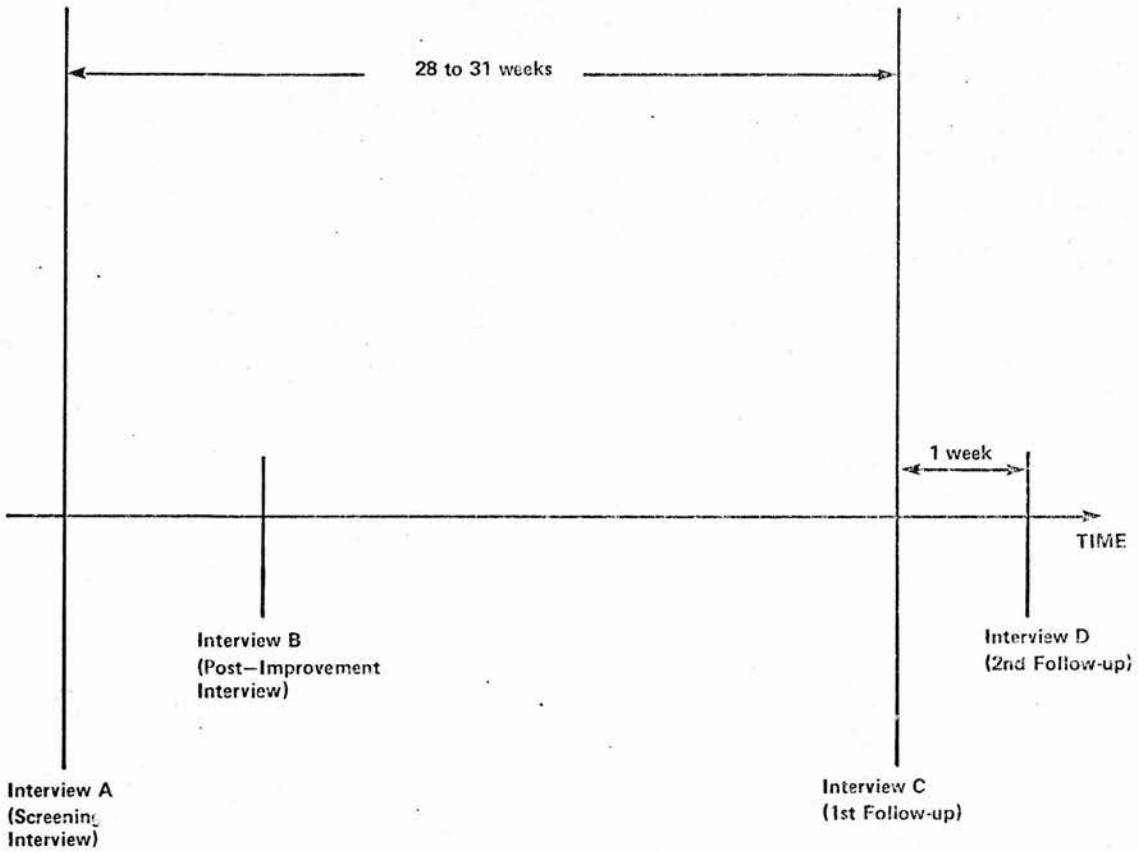
Following a substantial improvement in a patient's condition a second interview, Interview B, was arranged. In the case of the in-patients this was usually conducted during the week before discharge while for the out-patients it was after consultation with their psychiatrist on the extent to which they had improved. Availability of finance limited the follow-up period to about 28 weeks.

The first follow-up interview, Interview C, was therefore timed to be given during the 28th week after Interview A. Of those followed-up 76% were successfully interviewed in that week with the remainder being seen by the 31st week after Interview A.

A final interview, Interview D, was timed to be given during the week following Interview C. In practice, 61% of those given Interview C were given this further interview during the following week as planned. Interviews A, B and C were personally conducted while Interview D was carried out by a group of trained interviewers. All interviews were conducted by investigators completely independent of those concerned with the patients' health care management.

The relative timing of the four study interviews together with a brief resumé of their content is presented below in Figure 4.1 and Table 4.1.

Figure 4.1 Relative timing of the four study interviews



Interview A (Screening Interview)	Interview B (Post-improvement Interview)	Interview C 1st Follow-up 28/52 after Interview A	Interview D 2nd Follow-up within 1/52 of Interview C
Application of MRC based screening criteria PSE (where possible) Hamilton Rating Scale (all) Beck Depression Inventory	<u>Section (i)</u> Demographic items Previous psychiatric history Loss of close relatives through death <u>Section (ii)</u> Assessment of social resources available <u>Section (iii)</u> Marital/cohabiting relationship assessment <u>Section (iv)</u> Time spent in pre-determined categories <u>Section (v)</u> Personality assessment EPI	Re-assessment of symptomatic state (i) HRS (all) (ii) BDI (where possible) (iii) Social resources (iv) Marital/cohabiting relationship (v) Time variables <u>Additional sections</u> Recent treatment history Recent use of health care resources Recent work history Home environment (description)	Assessment of adversity suffered during the period between initial inception into study INT.A, and the date INT.C completed. Interview Edinburgh version of that developed by Professor Brown and colleagues in London
Personal interview selected N = 80	Personal interview N = 80	Personal interview N = 73	Trained interviewer team N = 71

<u>Content of the four study interviews</u>

<u>TABLE 4·1</u>

Study methodology

All patients to be reported on in this study were seen initially as in-patients or as out-patients in the Royal Edinburgh Hospital (REH). This hospital, which has about 1,000 beds, serves all of the Edinburgh area except for one third of those aged over 65 years in the north-west sector. In order to obtain some indication of the expected numbers of depressed patients that would be obtained by screening all admissions to the hospital, statistical information was sought from the Common Services Agency for the Scottish Health Service prior to the commencement of the study. The admission statistics for the year 1974 indicated that for patients with an admission diagnosis of depression (defined from ICD 8th edition as 296.0, 296.2, 296.9, 300.4, 790.2) within the 15 - 64 years age band, there was a total of 394 admissions of which 158 were first admissions. The aim of the present study was to obtain between 80 and 100 patients during a six month time period. Both patient number and time restrictions were imposed principally because the study was to be undertaken by one investigator.

Selection of patients

Rigid criteria were to be used for the admission of patients to the study. To achieve the numbers required it was felt necessary to have as wide a source of patients as possible. It was therefore decided that in addition to in-patients, all new out-patient referrals to the Andrew Duncan Clinic of the REH would be screened for patients potentially suitable for the study.

In-patients

Initial screening of all admissions to the hospital was achieved by routine daily contact with the central admissions office of the REH. This facility had information on newly admitted patients within one day

of their arrival in hospital. The MRC Brain Metabolism Unit had already established a routine daily contact with the admissions office of the hospital to obtain lists of all new patients from which further information was then obtained. A research secretary of the MRC Brain Metabolism Unit, upon obtaining a day's admissions list, would contact in turn each ward to which patients had been admitted. Basic information descriptive of the admission was then obtained from ward staff. Such information included: (i) whether the newly admitted patient was considered to be depressed in any way and (ii) whether the patient was known to have had any previous admissions and if so what the diagnosis had been. Between February 1st and August 31st 1976 this daily information was used as a basis for the initial selection of patients for this study, and a provisional list of patients thus obtained.

All wards to which patients had been admitted were then visited personally. The various sources of information concerning the admission were then consulted wherever possible and (if necessary) in the following order (i) the patient's case notes, (ii) the ward staff, (iii) the doctor under whose immediate care the patient had been admitted.

Out-patients

To sustain the highest possible rate at which patients with a new episode of depression were admitted to the study, all new out-patient referrals to the Andrew Duncan Clinic (ADC) of the REH were screened. Selection criteria (see below) for out-patients were necessarily identical to those used for in-patients.

In practice, each consultant team which held an out-patient clinic in the ADC was approached and permission obtained to screen all new GP referral letters for patients with possible depressive symptoms.

If, after reading a particular letter the patient concerned was considered potentially suitable for inclusion, the past case-notes, if any were available, were then read in order to determine further the appropriateness or otherwise of the patient. At this stage if no obvious factors had resulted in the patient's exclusion, then permission was sought to join the interview which had been arranged between the team doctor and the patient. On the basis of the information obtained during that interview, a decision was made to seek the patient's co-operation in the study or to exclude the patient.

If the patient was still considered suitable and his assent obtained then either he was interviewed immediately or a suitable appointment time was made when the assessment measures used with the in-patient group were administered. Only after these measures were given was a decision made to provisionally include or to exclude the patient from the study.

Screening criteria

A set of inclusion and exclusion criteria were systematically applied to each patient under consideration for selection. These criteria were broadly identical to those used in the MRC study which examined the effectiveness of imipramine as a treatment of depressive illness (MRC, 1965), to those used in the MRC investigation of the benefits of continuation therapy with tricyclic medication (Mindham et. al., 1973) and to those currently being used by the multi-centre MRC trial of lithium and amitriptyline in the prophylaxis of affective episodes in patients with recurrent unipolar depressive illness.

The exclusion criteria applied were as follows:

(1) Age less than 21 years or greater than 65 years.

(2) Definite physical disease, toxic disorder or cerebral damage or disease.

(3) Mental retardation.

(4) Previous history of alcoholism, drug dependency.

(5) Childbirth within preceding six months.

(6) Frank manic episode on admission or within six months of admission.

(7) Sociopathy.

(8) Presence of one or more of the following symptoms:

(i) Thought withdrawal or intrusion, echo of thoughts

(ii) Delusion of being controlled

(iii) Elaborate delusional system of delusions (other than guilt, hypochondriasis, impoverishment, nihilism)

(iv) Elaborate hallucinations with content other than depressive

(9) Presence of severe language or hearing difficulties.

If none of the above criteria which could be checked with reasonable certainty by consultation with case notes or ward staff resulted in the patient being excluded, the patient's doctor was approached to determine whether in his opinion he considered the patient to be suffering from any depressive symptomatology, whether any of the exclusion criteria (the presence of which had not yet been fully determined) were known to be present, and whether he felt the patient to be potentially suitable for the study. If, following this consultation the patient was still considered suitable, the patient himself was approached and his permission sought for inclusion in the study.

Each patient approached for interview had the essential nature of the research explained to him. Emphasis was further given to the voluntary nature of his participation and to the independence of the

study from his treatment while in the hospital. The necessity for further interviews, the content of these interviews and the absolute confidentiality of any information arising was stressed. The investigator introduced himself as a clinical psychologist engaged in a research project under the auspices of the MRC and the SRC.

Design of Interview A (screening interview) and procedure for administration

The principal aim of this interview was to establish whether the patient was in fact suitable for inclusion in the study by concentrating on the presenting symptoms. The interview had to fulfil two subsidiary aims; the provision of a detailed profile of the presenting depressive symptoms and a measure of their severity. With regard to the assessment of both the form and the severity of a depressive condition the choice of measures available was not very wide and any choice was to some extent a compromise.

Self-report measures for obtaining details of depressive symptomatology, while attracting considerable and in some cases deserved criticism, are widely used and facilitate comparison of results between studies. The most commonly used of these are the Beck Depression Inventory (Beck et. al., 1961), the Zung Self-Rating Scale (Zung, 1965) and the Depression Adjective Check Lists (Lubin, 1965). A further measure which has gained some popular support because of the apparent ease with which it can be used is the Visual Analogue Scale (Aitken, 1969). Instruments used for the observer's rating of depressive symptoms are based mainly on the Hamilton Rating Scale (Hamilton, 1960, 1967) and those of Sachar et. al., (1971), Rickels et. al., (1969) and Prusoff et. al., (1972) were derived in this way. A final choice is the possible use of a structured psychiatric interview to assess the form and to determine the diagnosis of a presenting condition. Such an instrument is the Present State Examination (PSE) developed in Wing et. al., (1967) and Wing et. al., (1974).

The decision was initially made to obtain the desired information from a full PSE interview and to complete, on the basis of this, a Hamilton Rating Scale (HRS). The Beck Depression Inventory (BDI)

would provide the self-report assessments. The choice of the Hamilton and Beck Scales was based on their wide use and on the generally favourable reports published on their application, particularly in research studies (e.g. Metcalfe and Goldman, 1965; Carney and Sheffield, 1972; Carroll et. al., 1973; Bech et. al., 1975).

It was hoped that the PSE would provide a clear and definitive method of identifying patients suitable for the study. Unfortunately the writer was unable to undertake a training course in the administration of the PSE until well into the patient collection period. However a proportion of the patients who were being screened for inclusion in this study were simultaneously being considered for inclusion in the multi-centre MRC trial of lithium and amitriptyline in the prophylaxis of affective episodes. Almost all patients admitted to that trial also entered this study. For a proportion of patients, therefore, each screening interview served a dual purpose and, further, enabled inter-rater reliability assessments to be made between symptom ratings made by the writer and those made by the trial interviewer.

Only about half of all the patients seen were selected on the basis of a PSE interview for reasons mentioned above. For those who were not given a full PSE, a special structured interview was developed based on each of the items of the Hamilton scale. All ratings were then based on the same set of questions. (The full interview is reproduced in Appendix 1). Many of these questions were taken from the equivalent items on the PSE interview and from a structured interview version of the Hamilton Rating Scale developed by Paykel and colleagues. The rating scale relevant to each symptom had anchor points clearly defined to facilitate as much as possible the actual rating of a symptom.

On the basis of the structured Hamilton interview alone the following list of inclusion criteria were assessed and checked and the symptoms listed on the exclusion list re-checked at the end of the interview. The inclusion criteria were: a new persistent alteration in mood exceeding customary sadness and constituting a major symptom together with one or more of the following symptoms; self-depreciation with a marked sense of guilt, sleep disturbance, hypochondriasis, retardation of thought and action, agitation, suicidal thoughts. At the conclusion of this interview the patient was either provisionally accepted into the study or excluded.

Summary of screening criteria and content of Interview A

All patients aged between 21 and 65 years admitted to the REH or seen as new out-patient referrals to the ADC and presenting with a primary depressive illness but no recent history of mania and/or no serious physical disability were eligible for inclusion in the study. Interview A required that all patients be assessed using a carefully designed and structured version of the Hamilton Rating Scale and every patient was asked to complete a Beck Depression Inventory. In a substantial sub-group Wing's Present State Examination was also given. The mean duration of the interview was about one and a quarter hours with the longest taking about two hours.

Design of Interview B (post-improvement interview) and procedure for administration

This interview was designed to be given to the patient after a considerable degree of improvement from the initial depressed condition. It was timed to be given at this point as patients would be required to make judgements on items which previous work (e.g. Kendell and DiScipio, 1968; Weissman and Paykel, 1974) had indicated could be substantially influenced by the symptomatic state of the patient at the time they were assessed. Certain other items (e.g. the assessment of a patient's available social resources), also could not safely be assumed to be immune from such influence.

An operational decision was made to attempt to re-interview all in-patients within one week of their date of discharge from hospital unless circumstances (such as if the patient had taken their own discharge against the advice of ward staff) indicated that this would be inappropriate. In fact this decision was easily implemented by the cooperation of hospital staff concerned in giving forewarnings of any intended discharge. The decision on when to interview out-patients was based on the judgement of the doctor involved in their health care and only after they had indicated that considerable improvement had occurred was the patient approached and a further appointment time arranged.

The design of Interview B involved five separate sections of enquiry. Information for four of these sections was obtained exclusively within the interview while certain information for the fifth was obtained prior to the actual interview from the patient's case notes. The use of case note information greatly facilitated the collection of information in that section since otherwise the patient's ability

to recall personal details at the time of the interview would have had to have been relied upon exclusively.

SECTION (i)

This section contained essential demographic items, detailed information of any losses of close relatives the patient may have experienced and previous psychiatric history.

Routine information was sought concerning the patient's home address, date of birth, marital and work status and the occupation of the head of the household (if this was not the patient). Further information regarding the length of the current marriage, number of children and size of current family unit was also requested.

The next sub-section was concerned with obtaining details of any family losses ever suffered by the patient. In particular, if losses of spouse, parent, siblings or children had occurred then the number of years prior to the initial hospital contact with the patient this had taken place was established and recorded, as was the age of the patient at the time of the loss.

The final set of questions concerned the previous psychiatric history of the patient. In particular they were directed toward determining the age at which the patient had first come into contact with the psychiatric services, if appropriate, the age of first admission to a psychiatric hospital and the number of subsequent such admissions that had occurred. Finally an attempt was made to determine the total duration of all previous admissions to psychiatric hospitals and the time that had elapsed since last an in-patient in such a hospital.

The full details of all the items concerned are presented in Appendix 2. The areas in which information was obtained prior to

the interview for confirmation of the patient's report and as guidance during the actual interview were principally those concerned with dating previous losses of close relatives and for ascertaining the clear sequence of psychiatric events which preceded the current contact with the health services.

SECTION (ii)

This section of the interview was concerned with obtaining detailed information on the social resources available to the patient during the three month period prior to the assessment Interview A. In particular, social resources were divided for the purposes of assessment into a number of distinct areas of concern. These were:

(a) Contact with close relatives

A decision was made to include the following individuals as close relatives: parents, parents-in-law, spouse, siblings, children, fiancée. A series of questions was asked in an attempt to determine the availability of a particular relative to the patient, the frequency with which the patient had visited that relative during the three months preceding Interview A, and the frequency with which that relative had visited the patient during this same period. A five point scale was designed which reflected the range of frequencies of contact by both the patient and by the relative. This section therefore required that for each relative included in the list above, two ratings had to be made. The precise format of the information sheet specially designed for the study is presented in Appendix 2.

(b) Contacts at patient's place of work

All patients who prior to their initial contact with the study had a place of work, were asked questions within this section. The first of these concerned the actual number of individuals the patient

routinely came into contact with by virtue of being employed in his position. If this number was less than 20 individuals, an attempt was made to obtain an accurate assessment of the number of contacts. The second question was concerned with establishing the proportion of the people mentioned who were frequently spoken to and considered by the patient to be reasonably close and friendly work associates. The final question in the section attempted to determine if any of the people with whom the patient worked were seen regularly outside the work environment.

(c) Contact with neighbours

A question was asked to determine the number of individuals who lived reasonably close to the patient, who were regularly spoken to, could easily be approached and who were considered to be good friends.

(d) Contacts made by the patient through club or association membership

For this section all patients were asked if they were members of any clubs, associations or other groups or if they regularly attended a church. For any such organisation attended, details were obtained of the frequency of attendance during the three month period prior to Interview A and the number of people who were personally and regularly met at each meeting.

(e) Other contacts

This section determined the extent of any other social contacts the patient may have had during the period considered. The criteria for inclusion was that these contacts should have been seen on a regular basis amounting on average to at least once a week throughout the period concerned.

(f) Confidant

The aim of this section was to determine as precisely as possible

the nature and quality of the confiding relationship a patient may have had during the three month period prior to contact. The choice of items was influenced by the results of Brown et. al. (1975) and included questions recently asked by J.G. Ingham and P.McC. Miller in a community study in a New Town near Edinburgh (Miller and Ingham, 1976). An additional item was specifically designed for the present study.

The initial question was designed to establish whether there was anybody to whom the patient could have turned during the time period for help with personal problems or worries. If no-one was mentioned, or, if more than one was mentioned, further questioning followed to establish the identity of a person considered to be the only or closest confidant. This being successfully determined, the aim of the remaining questions was to provide information so that judgement could be made as to the quality of the relationship, i.e. whether in fact the patient felt he was able to confide in the individual mentioned without any significant restriction and further, whether the patient felt that the confidant named reciprocated the relationship to the same extent. Information was also sought on the availability of the named confidant, a five point scale being used to make a rating. A final rating was made on the overall frequency of the contact the patient had experienced with the named confidant during the period under study. Details of the questions and rating scales appear in Appendix 2.

SECTION (iii)

This section of the interview assessed certain characteristics of the patient's marital relationship or, if cohabiting, the relationship with the cohabitee. The first sub-section was concerned with

obtaining an estimate of the satisfaction felt by the patient with the degree of help and assistance given by their spouse in each of seven role areas. These areas were; household responsibilities, rearing of children, involvement in social activities, handling of money, communication in marriage, sexual relationship and work progress. Each area was very briefly described in order that the patient could make a judgement on five point scales to indicate the extent to which they had been satisfied or dissatisfied with the contributions made by their partner in these seven role areas during the month preceding entry into the study. This scale, which was specially developed for the research project, proved acceptable to practically all the patients. For the full scale see Appendix 2.

The second sub-section within this part of the interview was concerned with a different, though possibly related, aspect of the marital or cohabiting relationship to that assessed above i.e. that concerned with feelings of affection, happiness and confidence in marriage. The measurement of patients' satisfaction in each of these areas was assessed by two different methods.

Four statements were produced for each of these three variables, e.g. for the variable concerned with happiness felt in marriage, the four statements were: 'I have been extremely unhappy with my marriage', 'I have been unhappy with my marriage most of the time', 'I have felt reasonably happy with my marriage most of the time' and 'I have been completely happy with my marriage'. A questionnaire was then constructed with a selected set of pairs of these four statements and selected pairs of statements for the other two variables. The sequence of within pair ordering and overall pair ordering was randomised according to the methods detailed in Ingham (1965). The final questionnaire then

consisted of 15 pairs of statements, five pairs having been selected from those possible for each variable. The questionnaire was completed by patients being asked to select from each pair of statements the one which was nearer to the truth for them during the month preceding their acceptance into the study.

The response obtained from the patient resulted in their score being placed along a Guttman type scale and provided information on the consistency of their responses. The paired statement scale was preceded in the interview by a set of five paired statements concerned with the weather. This was presented to the patient in order to establish that they understood what was required through an immediate assessment of the consistency of their response.

The second method of assessment of the three variables involved the placement of each of the same statements in order at 50 mm intervals along a 200 mm line with the most extreme statement at 0 and the least at 150 mms. The patient was then asked to place a mark anywhere across the line to indicate the nature of their feelings on these aspects of their marriage during the month preceding their admission to the study. A score was obtained by measuring the distance from 0 to the mark placed by the patient. The set of three line rating scales was introduced in the interview by an example scale, as was the case with the paired statement method; statements concerned with the weather were ordered along a 200 mm line and the extent to which a patient had understood the instruction then assessed by his rating response. All items used in this section of the interview are presented in Appendix 2.

SECTION (iv)

This section of the interview provided very detailed objective

information on how the study patients spent their time within certain broad categories and over a specified period. While the methods and categories of concern used in the study were new, the idea of examining time relationships between certain variables in psychiatric patients is not. The design of this section, while empirical, was influenced by the work of Kreitman et. al. (1970), Brown et. al. (1972) and Vaughn and Leff (1976). The main areas of interest here were the extent to which the patient spent time alone, at home and with spouse and/or confidant.

In order to assess these potentially very complex relationships over a specified time period, a written record was discounted as being unsystematic and extremely unreliable. A speical form (Form T) was therefore designed which was completed by the investigator on the basis of the patient's report. A separate form was used for every day considered. Each form was divided into four columns. The first covered the 18 hour period 6 am - 12 midnight, broken into hourly units. The second column was titled 'at home', the third 'alone' and the fourth 'together with spouse/confidant'. To complete the form based on the patient's account of the day concerned, vertical lines were drawn between the hours within each column applicable to the patient until the 18 hour day had been fully specified within the given categories. For this interview the patient was asked to provide in detail the above information for a 'typical week' just prior to their entry into the study - this therefore involved the completion of seven such forms. This provided information on both time patterning and proportion of time the patient spent alone or with others (and whether there were in fact significant others for a particular patient). Form T is reproduced in Appendix 2.

SECTION (v)

The final section of this interview consisted of the presentation to the patient of a self-report personality inventory, form B of the Eysenck Personality Inventory (EPI) (Eysenck and Eysenck, 1964). The rationale for including this scale reflected the aim of the project to investigate the role of factors intrinsic to the individual patient in relation to outcome in depressive illness. The inclusion of the EPI was influenced by the interesting results obtained by Kerr et. al. (1972) in indicating the relationship between extraversion and neuroticism scores and the outcome of affective disorders. The use of the inventory here was in part an attempt to replicate these findings and also to examine its scales in relation to other measures and outcome.

As there is evidence to suggest that the EPI scales are not stable over time (psychiatric populations that were assessed when ill and later when there had been a considerable remission of symptoms showed changes in their EPI scale scores; Kendell and DiScipio, 1968), the administration of the EPI was undertaken when substantial symptomatic improvement had taken place in the study patients. The EPI is reproduced in Appendix 2.

Method of administration: Interview B

Since all these interviews were undertaken by one individual, it was possible to structure them to follow a set pattern which conformed to the sequence of sections covered above. Almost all the interviews were conducted either on a patient's ward or in the out-patient department of the ADC with only one patient being seen at home. After being screened and admitted to the study, patients were informed of the study's requirement for further interviews and all patients approached for permission to be given Interview B readily agreed.

For those being treated as out-patients, contact was achieved by arranging an interview time with the patient while they were visiting the doctor under whose care they had been. As this appointment was very frequently for a routine check up, the interview was carried out at this same occasion, thereby minimising the inconvenience caused to the patient by a further visit. Considerable care was taken to see that the total interview period was not overlong. In a few cases this meant that the interview was conducted on two separate occasions.

In general the interview took approximately 70 minutes, with a few taking 40 minutes and some a total of more than two hours. On conclusion of the interview the patient was asked for permission to recontact them in the future for a further interview. All patients agreed at this stage and a means of contacting them was then established.

Design of Interview C (first follow-up interview) and procedure for administration

Based on a given patient's date of entry into the study, a preferred week for the first follow-up interview was calculated. The maximum interval between initial and follow-up assessment that was possible in the study, due to the overriding financial and time restriction, was 28 weeks. Having established the preferred date of interview and having determined that the patient was not at the time an in-patient, a standard letter was sent to the patient or a 'phone call made. The letter (reproduced in Appendix 3) offered the patient an appointment time in the Andrew Duncan Clinic but gave them the opportunity of being seen at home if preferred, or of declining to be interviewed. A tear-off slip and a stamped and addressed envelope was provided for their reply.

In practice the system worked well in arranging the follow-up interviews. Problems arose in a number of cases because of such circumstances as patient's change of address or spouse's reluctance to allowing a re-interview with their partner, but in only one case did a patient contacted refuse to be re-interviewed. During the week preceding the time of the interview, some preparation had to be done to make the most efficient use possible of the actual interview time in order to avoid long interviews. Information was sought relating directly to the treatment the patient had been given during the period since initial contact, the number and duration of any admissions to hospital, and the frequency with which attendances were made at the hospital for personal health care reasons within this time period. This information was obtained from case notes, nursing Kardex and the patient's personal doctor and confirmed or otherwise by the patient during the actual interview.

The design of the follow-up interview, Interview C resulted in nine separate sections, a number of these being identical to those mentioned in the description of Interview B.

Section (i)

This section entailed a careful re-assessment of the patient's symptomatic state during the one month period immediately preceding the interview. The assessment method, as before, was a structured interview version of the Hamilton Rating Scale; on this occasion however a slightly shorter version to that used in Interview A was used. Those items which were rarely scored even in a severely depressed population were not asked. The patient was also required to complete if possible a further Beck Depression Inventory based on how they felt at the time of the interview.

Section (ii)

This section was comprised of four items which served to introduce the core of the interview and to establish if any changes in the patient's basic histographic characteristics had taken place since Interview B. The items concerned the current work status of the patient, their civil status and the nature of their living group during the greater part of the follow-up period.

Section (iii)

The items comprising this section were identical to those comprising Section (ii) of Interview B. This entailed a full re-assessment of the social resources that had been available to the patient during the three months preceding the follow-up interview.

Section (iv)

This section provided detailed information on the patient's treatment history between entering the study and the follow-up interview.

To facilitate the recording of the information on medication, a special form was designed. Its design (see Appendix 3) was based on the life chart method and completion required that continuous lines be drawn between date points to indicate the time periods when specifically named types of medication were taken. Points on the line were also marked to indicate the dates when dosage levels were fixed and, if appropriate, the dates when plasma levels of the medication were assessed. If a medication that was once initiated was discontinued, information was also entered on the chart to indicate the reason for this - specifically whether it was on the doctor's advice, due to side effects, whether the patient had defaulted or whether it was for some other reason. Details of medication recorded in this way were restricted to the tricyclics, the MAOI's, lithium, L-tryptophan and the major tranquillisers.

The well-known difficulties involved in obtaining the above information concern the fact that patients may take the medication prescribed for them only spasmodically or in fact not at all. Apart from a careful examination of all relevant medication records, the patients themselves were questioned about the medication they had been prescribed, the amount prescribed, the dosage actually taken, the number of prescriptions obtained during the period and finally, wherever possible, an assessment made of the tablets remaining in the patient's possession.

A further assessment in this section concerned the extent to which minor tranquillisers and/or night sedation was actually taken by the patient during the follow-up period. Any additional information which arose from this section of the interview was noted at the end of the form. Information obtained from the patient's case notes

concerning treatment with ECT during the key episode was also verified at this stage of the interview.

Section (v)

This section determined the extent to which the patient had utilised health care resources during the period between initial contact and the follow-up interview. Again in order to facilitate the collection of information, a special form was designed (reproduced in Appendix 3) which was similar in construction to that used in Section (iv) above. The information sought in this section was, (as in the case of the information on medication) aided by obtaining, prior to the actual interview, as many details as possible concerning the patient's contact with the hospital. In particular, precise details were obtained on periods of in-patient and day-patient care that the patient may have had during the period under examination and these time periods were represented on the form as continuous lines between date points.

The patient was asked about the number of out-patient visits made to the Royal Edinburgh Hospital and the number of visits made to his GP during this period. All such attendances were represented by an X on the appropriate time bar. Answers to the two latter questions were frequently assisted by patients consulting their diaries and appointment cards or by reference to doctors' personal appointment systems and case notes. The final question asked in this section of the interview covered any attendances by the patient at hospitals other than the Royal Edinburgh during the period of assessment. Where these had occurred details of dates and circumstances were noted.

Section (vi)

Details of the patient's work history during the follow-up period

were obtained in this section. A special form, designed in a similar way to those used in the two preceding sections, was used to collect this information. All periods of unemployment, and part-time or full-time employment were then represented by time bars between relevant dates. In addition, if a role change had occurred during this period (such as from full-time working to retirement) this was also indicated on the form by a code. The completed form then clearly showed the course of a given patient's employment during the preceding seven or eight months. This form is reproduced in Appendix 3.

Section (vii)

Questions concerning the patient's home environment were asked in this part of the interview. Initially details were obtained as to the type of accommodation the patient had, the nature of the tenancy and, if appropriate, the number of floors above ground level on which he lived. Further details were then noted of the actual housing conditions in which the patient had been living, including an assessment of the number of rooms that the patient and family had available. The patient was then asked to indicate the degree to which he was satisfied with his current home, taking into consideration the physical state of repair of the house, its immediate social environment and the amenities available in the area. A rating was made by the patient placing a mark across a 100 mm line which had at one pole the descriptor 'satisfied' and at the other 'extremely dissatisfied'. The measure taken was the distance the mark was placed from the 'satisfied' pole. Questions relating to the above items are reproduced in Appendix 3.

Section (viii)

This part of the interview focussed, where applicable, on the re-assessment of the patient's marital or cohabiting relationship.

The period covered for the purpose of this assessment was the month immediately preceding the follow-up interview. Measures used were identical to those used in Interview B except that the line ratings of marital affection, happiness and confidence were not included on this occasion due to the very high consistency of response achieved with the paired statement measures of the same variables in Interview B.

Section (ix)

The final section was devoted to a re-assessment of the time variables assessed in Interview B. For this re-assessment, details were obtained of the week immediately preceding the follow-up interview.

Method of administration: Interview C

Interview C was arranged and conducted by one investigator. As with Interview B this facilitated consistency in presentation of the interview. Wherever possible, interview procedure followed the sequence indicated in the section design described above. Interruptions to this order occurred only when a patient was seriously ill at follow-up, in which case symptoms were assessed but the remaining parts of the interview were delayed until it was conveniently possible to administer them. This interruption to the interviewing routine occurred only in very few cases.

The duration of the interview varied considerably depending upon the circumstances of the individual patient and in general the largest proportion of the time was taken up with the re-assessment of the patient's symptom state. The average length of time taken for this interview was about one and a half hours.

Design of Interview D (second follow-up interview) and procedure for administration

This interview was designed to assess the degree of adversity to which the patient had been subjected during the period between initial inception into the study and the date on which Interview C was conducted; a period of approximately 28 weeks for most patients. The interview was an Edinburgh version of the interview to assess life stress developed during the late 1960's and early 1970's by Brown and his colleagues in London. It has been described in some detail in the literature review.

To make possible the use of the life event interview Dr Patrick Miller of the MRC Unit for Epidemiological Studies in Psychiatry in Edinburgh was familiarised with Brown's life stress interview in London. As a result, a shortened interview was produced essentially identical in core structure and in rating methodology but which included a number of minor modifications.

The essential differences between the Edinburgh and the London forms of the interview lay in the presentation and recording of information. All interviews using the London version were tape recorded. This was not done in the Edinburgh studies as a special form was developed (described in detail later) which was completed during the interview for every incident that arose. The interviews, while being divided into the same areas of questioning, also differed slightly in respect of the actual question sequence within each area and in the method of asking probe questions.

The Edinburgh version was initially used in a pilot study and independent ratings obtained by Sue Davidson (interviewer on the London life event studies) and by Patrick Miller. A weighted Kappa of 0.72

computed on the basis of the independent ratings was produced and judged to be satisfactory. The Edinburgh version was produced primarily for inclusion in a community study of about 1100 individuals in a New Town near Edinburgh. In order that the interviews and assessments based on it would be undertaken in a consistent and reliable way, a group of 10 paid female interviewers were trained along with a number of others (the present writer included). Inter-rater reliability was found to be acceptable after six weeks of training.

It was a research aim of the current study to personally assess the adverse conditions and events which had occurred during the follow-up period for all the patients in the study. The community study team however were kindly able to offer the services of the trained interviewers for this assessment. The assessment of the patients' symptomatic states at follow up (Interview C) was thus able to be made independently of the assessment of adversity suffered (Interview D) thereby adding a substantial design advantage to the study.

Interview D: procedure

On the completion of Interview C every patient was asked if they would grant their permission for one further and final interview, the general nature of which was explained. It was also pointed out that another interviewer would be conducting the interview for reasons of study design. No patients refused this request at this stage. Details were obtained from the patients at the completion of Interview C in order to facilitate contact between them and the interviewer. Operationally, an attempt was made to have Interview D completed within one week of the completion of Interview C to minimise the possibility of the occurrence of life events following the first

follow-up interview. In practice this objective was achieved in a relatively high proportion of cases.

The procedure followed by each interviewer in obtaining information concerning events and difficulties occurring over the previous seven months was structured by a list of 114 questions, all of which had to be asked if considered appropriate. The full list of questions is reproduced in Appendix 4. The interviewers were further guided by the prior knowledge of whether the patient had been an in-patient, the time period this had involved and the date of any readmissions if they had occurred. This information greatly assisted the flow of the interview as it provided both parties with datum points for relating the occurrence of other events.

At the beginning of the interview enquiries were made of the patients' living group, whether parents were alive, how many siblings they had and, if appropriate, number of children. Details were also obtained of any confidants. This preliminary information being obtained, the main interview questions were asked. These were divided into the categories of health, accidents, psychiatric, pregnancy, role changes, employment, housing, money, crises, forecasts, interaction with others and finally a general section.

For every incident elicited by questions within any of the above categories, a separate form was completed. An example of the recording form is reproduced in Appendix 4. On each form there were 17 statements which served as prompts for further questioning the objective and subjective circumstances of the incident and for establishing as clearly as possible the context in which it had occurred. The emphasis throughout each interview was on determining the objective circumstances of each incident.

The time taken for completion of these interviews varied considerably; some being completed in under an hour while in extreme cases three actual visits were necessary and total time exceeded six hours duration. At the completion of the interview each incident was rated by the interviewer on a number of scales. A decision was made initially as to whether a particular incident was to be classified as a long term difficulty or a life event. For long term difficulties the decisive point was whether it had lasted, from a commonsense point of view, for more than four weeks of the follow-up period. If this was considered to be the case, then ratings were made on six point scales of the 'objective' and the 'general' overall severity of the difficulty. The 'objective' severity rating was intended to reflect a commonsense rating of the degree of difficulty inherent in a situation independent of the patient's feelings or experience of it, whereas the 'general' rating was based on all available material pertinent to the incident and was therefore intended to take into account the patient's reactions to it.

After the severity ratings were made, the interviewer categorised the difficulty within one of nine areas. These were: family relationships, housing and neighbours, work, money, health, children, marital/boyfriend/girlfriend, legal and 'other'. To complete the ratings an attempt was made to judge the duration for which a difficulty had been in existence and a rating was made within one of the three categories; up to one year, one to two years and more than two years.

If a given incident was considered by the interviewer to be a life event, then a different set of rating scales were applied. Having established within the interview, as accurately as possible, the date on which the event occurred, then ratings of short term and long term threat were made. The short term threat rating was on a four point

scale of how unpleasant the event was considered to have been during its immediate consequences; the long term threat rating was made on an identical four point scale only this rating was intended to reflect the degree of threat that had remained once the immediate consequences of the event were over (for most events the rating was one of threat remaining after a period of one week).

The ratings for both short term and long term threat were on the scales: 'marked unpleasantness' 1, 'moderate' 2, 'some' 3, 'little or none' 4. Following the threat ratings, a judgement of the focus of the central incident in a particular case was made, i.e the focus of the incident was rated either 'S', indicating that the patient was involved in the main focus of the incident or 'O' indicating that an individual other than the patient was the focus.

To assist the interviewer in making ratings of both events and difficulties a specially prepared 74 page manual was produced by Dr Patrick Miller. This contained actual examples of both events and difficulties and the agreed ratings made of them by those connected with the studies from which the examples were taken. These were the London studies of Brown and an Edinburgh study undertaken by Ingham and Miller (1976).

Following the interview and the completion of the ratings, the interview was sent directly to Patrick Miller who kindly offered to re-rate the interview based on the recorded information. Following this re-rating, a separate session was arranged between Patrick Miller and the interviewer who had obtained the information in order to arrive at a set of agreed ratings. It was these agreed ratings which were used in the analysis stages of the study. Complete independence was therefore achieved between this method of adversity assessment and other assessments made during the course of the study.

The final exercise concerning the information obtained in this interview was one of categorisation. Ratings were made of every life event in terms of its 'relatedness' to the depressive illness and of its 'desirability'. (For long term difficulties ratings were made of 'relatedness' only). All ratings were agreed upon between Dr Patrick Miller and the writer; a separate session having been organised to discuss all the events and difficulties of every interview.

During these sessions, life events were categorised as either 'illness related', 'possibly independent of the illness' or 'independent of the illness' within each of these categories as 'undesirable' or 'desirable/neutral' events. Categories applied to long term difficulties were: 'illness related difficulties', 'difficulties possibly related to illness' and 'difficulties independent of the illness'. Rating categories used in the last section of the interview were substantially influenced by the published work of Paykel and colleagues (e.g. Paykel et. al., 1975).

RESULTS

CHAPTER 5

The study population

(All tables referred to in this chapter are contained in Appendix 6)

There are three main aims of this chapter of the results. These are:-

(i) To provide detailed information on the social and demographic characteristics of the patient group studied.

(ii) To provide some information on their previous psychiatric history.

(iii) To provide details of the assessments made of the illness episode which admitted the patients to the study.

(i) Description of the social and demographic characteristics of the patient group

Between February 1st and August 31st 1976, a total of 80 patients were admitted to this study. They were all assessed to be suffering from a primary depressive condition. The group of patients consisted of 50 females and 30 males and this female/male ratio conforms to that which might be broadly expected from a consecutive series of referral cases of depression. The study reported by Mindham et. al. (1973), though very different in purpose, had a ratio of 1·78:1. The ratio of 1·8:1 reported by Sartorious, for first admissions with a variety of depressive disorders in England and Wales in 1969 (see Weissman and Klerman, 1977) was also comparable.

Both in-patients and out-patients were seen, both sexes in approximately similar proportions. Almost 90% of the total group (44 females, 26 males) were in-patients and this reflected to some degree the severity of the presenting condition. More than half of the total sample were female in-patients.

Age of the patients

Patients less than 21 years or over 65 years of age were excluded from the study. Between these limits however the complete age range was represented in the sample. The full age by sex distribution is presented in Table 5.1. The mean age of the whole group was 46.9 years (SD 11·93) with the females having a mean age of 48·1 years (SD 12·58) and the males a mean age of 44·8 years (SD 10·64). Though the female group was slightly older than the male, the age distribution for the two groups was not significantly different (Kolmogorov - Smirnov Test).

Social class of the patients

The occupations of all patients were classified according to the 1970 report of the Registrar General. For males, and for females who were single, divorced or separated, usual or previous occupation was taken. For those females who were married or widowed, the husband's occupation was taken. The social class distribution by patient sex and by the total sample is presented in Table 5.2.

For three females no classification was possible. There was no significant difference between the social class distribution of male and female patients (Kolmogorov - Smirnov Test). However a higher proportion of the female patients (61·7%) who were successfully classified were from social class 3 than were the male patients (36·7%). Further, while every social class was represented in the group, the social class frequency distribution for males was considerably more platykurtic than that for females. Social class 3 accounted for exactly 50% of the total group.

Civil status of patients

Just over 61% of the whole patient group were married and living

with their spouse. However a significantly higher proportion of male (80%) than female (50%) were married (corrected $\chi^2 = 5{\cdot}90$, $p < {\cdot}025$). The next most frequent group for both sexes were those who were single, this group accounting for 17.5% of the total patient group. One further point of interest to arise from an examination of the patients' civil status categories was that if 'loss of spouse' for whatever reason was taken as the basis for constituting a category, then 28% of the female patients fell into this group as compared to only 3·3% of the males (the divorced, separated, living apart and widowed combined to form this category). The civil status of the patient group by sex is presented in Table 5.3.

Living group of the patients

Details of the patients' living group are presented in Table 5.4. As has already been pointed out, the majority of the patients were married and living with their spouse. However an examination of the table reveals that of the 15 patients who were living alone, 14 were female (28% of the total group of female patients). No further major differences are revealed by the table.

Work status of the patients

Table 5.5 presents the full details of the patients' work status at initial contact (or just before initial contact if seen as an in-patient).

Of the 30 male patients, 24 (80%), had paid work available to them while only five male patients were unemployed. The majority of female patients (52%) were classified as housewives and only 36% of the whole female group had any form of paid employment. If availability of paid employment was used as a criterion, the male patients had a significantly higher proportion of paid work available to them than

had the female patients (corrected χ^2 = 12·60, p <·001). Table 5.5 also reveals that a total of 24 patients out of the 42 (57%) who had some sort of paid employment were not engaged in that employment as a result of depressive symptoms.

(ii) Previous psychiatric history of the patient group

Information concerning patients' previous contact with the psychiatric services which had been obtained in Interview B and supplemented by information from hospital case notes will be presented here.

The age at which the patients had their earliest contact with the psychiatric services (anywhere) is presented in Table 5·6. The mean age of this first contact for the whole group was 40·0 years (SD 12·15) indicating that the average number of years that had elapsed between that contact and the current contact was almost seven. (Mean age at key contact for whole group 46·9 years). Table 5.6 reveals that while exactly half the male patients were first seen between the ages of 31 and 45 years and while similar percentages of both sexes were seen before the age of 30 years, a higher percentage of female patients than male patients were seen after the age of 45 years.

Information was also routinely obtained on the age of the study patients at the time of their first admission (if ever) to a psychiatric hospital. The details for both sexes and for the whole group are presented in Table 5.7.

Table 5.7 indicates that 90% of the male patients and 94% of the female patients had at some time been admitted to a psychiatric hospital. These figures include, where applicable, patients whose first psychiatric admission was the one which resulted in contact

with the study. The table also reveals that the age at which their first psychiatric admission occurred was represented reasonably uniformly by sex and by the three age bands in the table.

Information concerning the number of admissions to psychiatric hospitals excluding consideration of key contact hospital status, is presented in Table 5.8. Almost half of the male group and approximately one third of the female group had no previous psychiatric admissions. Of the female patients, 48% had two or more previous admissions while this was true of only 30% of the male group. Considering the whole patient group, 37.5% had experienced no previous admissions, while 21.25% had had one and 41.25% two or more admissions. This and the information already provided makes apparent the degree of the past disabilities of many of the patients selected for this study.

Finally some details will be given of the more recent psychiatric history of the patient group prior to their contact with this study. Table 5.9 indicates the time since the study patients were last in psychiatric in-patient care as calculated from the date of their last discharge.

This table shows that a relatively high percentage of both sexes had been in-patients within the year preceding their contact with the study. Slightly more than 23% of the male patients and exactly 36% of the female patients had been in-patients during the year preceding contact. The actual duration of their in-patient stay in weeks during this year is presented in Table 5.10.

While almost 70% of the total patient group had spent no time as in-patients during the year before contact, practically all of those that had, had been in-patients for less than ten weeks of the year.

(iii) The key contact illness episode of the patient group

This section of the results will provide details of the duration of hospital stay, the assessed severity of illness and the discharge hospital diagnosis of the study patients. An analysis of the symptomatic form of the illness episode, assessed by the Present State Examination (Wing et. al., 1967; Wing et. al., 1974) was possible only on a sub-group of the patient population and therefore will not be presented here.

Duration of in-patient stay

A total of 70 of the 80 patients who entered this study were admitted to the Royal Edinburgh Hospital; four male patients and six female patients being seen as out-patients. Details of the duration of the hospital admission by patient sex and for the whole group are presented in Table 5.11. The mean duration of hospital stay for the whole group was 40·1 days (SD 25·4) with the 26 male in-patients having a mean stay of 37·3 days (SD 27·8) and the 44 female patients having a mean stay of 41·5 days (SD 24·1). The difference in the mean in-patient duration of stay for the sexes was, however, non-significant ($t = -0{\cdot}59$, $df = 68$, two tailed $p = 0{\cdot}557$).

Severity of key depressive episode

An assessment of the severity of the depressive episode at initial contact was made for all study patients by the completion of a Hamilton Rating Scale (HRS) and also, where possible, by the patients' own completion of a Beck Depression Inventory (BDI). In order to calibrate the present writer's ratings of the symptoms on the Hamilton Rating Scale against those of a number of Royal Edinburgh Hospital psychiatrists, an inter-rater reliability study was performed on a group of 25 of the patients who were being screened for inclusion in the study.

The full list of scores for both the raters are presented in Appendix 5. The inter-rater reliability coefficients for the total scores of the first 10 pairs, the last 15 pairs and all 25 pairs was found to be 0·94, 0·99 and 0·97 respectively. The 25 paired assessments were made with a total of four different psychiatrists though 19 were made with one psychiatrist.

The individual items within each paired assessment were examined and it was clearly demonstrated that as the number of joint assessment sessions increased, so the writer became more able to rate each symptom in the same way as the psychiatrist. The information to follow was based on the assessment by the psychiatrist of the first 10 patients and on the writer's assessment of the last 70 patients.

The range of scores obtained for the HRS by sex and for the whole group is presented in Table 5.12. The mean score for the whole group was 22·83 (SD 5·76) with the male patients having a mean score of 22·87 (SD 4·99) and the females 22·80 (SD 6·23). Examination of Table 5.12 indicates that a wide range of scores was obtained by the whole patient group thus reflecting a complete spectrum of symptomatic disability. The group divided very approximately on the basis of these scores into three sub-groups with broadly similar numbers of patients in each. A total of 21 patients scored in the lower part of the scale, 30 obtained scores in the medium severity range and the remaining 29 patients had scores indicating a severe or very severe illness.

The scores for the patients' own assessment of their state (obtained from the BDI) are presented in Table 5.13. A total of nine patients were unable to complete this inventory due to their presenting mental states. Those who did complete however, produced a wide range

of scores. The mean score for the 28 male patients who completed the BDI was 25·61 (SD 8·96) as compared to the 43 female patients who had a mean score of 30·84 (SD 10·28). This difference was significant ($p = 0·031$, $t = -2·20$ $df = 69$) and is of particular interest when contrasted with the non-significant difference between the mean scores of the two sexes on the HRS.

A significant correlation between the HRS and BDI total scores (0·56, $p < ·001$) was obtained for the 71 patients on whom Hamilton and Beck scores were obtained. This level of correlation confirms the results obtained by others (e.g. Burrows et. al., 1972) when these two scales were compared in depressed patients assessed soon after hospital contact.

Discharge hospital diagnosis

Details will be given here of the primary diagnosis given to those 70 patients who were admitted to the Royal Edinburgh Hospital. The diagnosis, based on the ICD 8th Edition was allocated to each patient at their discharge by the doctor who had been responsible for their care. A number of different doctors with varying degrees of training, were involved but diagnoses were based on a great deal of contact with the study patients and were made with knowledge of the patients' initial symptomatic states, their change, the treatment received and their response to it. The details of these diagnoses are presented by sex for the patient group admitted to the REH in Table 5.14.

The table reveals that by far the largest proportion of patients of both sexes were given a primary discharge diagnosis of affective psychosis (ICD category 296). This was the case for over 61% of the male patients and 54% of the females. The next most frequent category

was depressive neurosis (ICD 300.4) and a further five patients were given a diagnosis of reactive depressive psychosis (ICD 298.0). Of those remaining patients who were admitted to the Royal Edinburgh Hospital, three received a primary diagnosis of personality disorder. Two of these were given secondary diagnoses - depressive neurosis in one case and reactive depressive psychosis in the other. One patient was diagnosed as suffering from a psychosis associated with child-birth but this patient was not excluded from the study as the birth had not occurred within the six months preceding the screening interview and further it was not clearly established in the interview that the presenting condition as assessed had developed within six weeks of the birth. Two patients received primary diagnoses of schizophrenia but in one case this was sub-classified as schizo-affective type and the other could not be specified.

In conclusion, a strict selection procedure was adopted for the study and this included in over 60% of the cases the completion of a full Present State Examination. The results of this selection procedure when compared to the primary discharge diagnoses made by the hospital were encouraging. A very high general level of agreement was achieved between what was considered to be a primary depressive state by the study criteria at initial contact (Interview A) and the subjective primary diagnosis made at discharge by the patient's health care personnel.

Chapter 5: Summary

The study group were almost exclusively in-patients admitted in the majority of cases with a moderate or severe psychotic episode of depressive illness. They were predominantly middle aged and from social class three and over 60% had suffered at least one previous

admission to a psychiatric hospital. The analysis of the main results to follow are concerned almost exclusively with social, environmental and intrinsic factors based on information obtained from this group of patients when ill and some months later at follow-up.

CHAPTER 6

Follow-up

As a large number of the main measures included in this study were reassessed at the follow-up interviews (Interviews C and D), the detailed analysis of the measures as a whole will be presented with as little repetition of items as possible. Results will therefore be compared, where appropriate, between initial contact and follow-up, rather than by an analysis of the different interviews separately. In order to achieve this and to preserve the natural sequence of the analysis of results, details will be presented here of the success with which patients were re-contacted and of their symptomatic state at follow-up assessment before proceeding to the main analysis.

Interview C, the first of the follow-up interviews, was timed to be given during the 28th week following the initial contact with the patient. Of the group of 73 patients who were successfuly traced and interviewed, almost 77% were interviewed in the week planned and the remaining patients were seen by the 32nd week after Interview A. Full details of the weeks of contact are given below in Table 6.1.

	Number of weeks following initial patient contact			
	28	29	30	31
Total number of patients interviewed	56	8	4	5
Percentage of the total followed-up	76·71	10·96	5·48	6·85

TABLE 6.1

Of the original group of 80 patients, seven were not given Interview C resulting in a follow-up rate of 91·25%. Losses were due

in one case to suicide (female patient fell from her home bedroom window) following discharge from original in-patient care, to a refusal in one other case and in five cases to movement of the patient from Edinburgh (two patients to London, one to Colchester, one to Southampton and one to Torquay). These latter interviews were unfortunately not undertaken due to the travel costs that would have been incurred.

The second follow-up interview, Interview D, was successfully administered to only 71 of the original 80 patients, a follow-up rate of 88·75%. In addition to the seven losses detailed above, two further losses occurred, in one case due to a refusal and in a second to a suicide (hanging, in the case of a female patient) during the period following the completion of Interview C and before contact was made for Interview D.

Interview D was operationally timed to be given to patients during the week following the administration of Interview C. Details of the weeks in which the contacts for this interview were made are given below in Table 6.2.

Time in weeks between Interview C and Interview D	ONE	TWO	>TWO
Number of patients interviewed within each time period	43	13	15
Percentage of total given Interview D	60·5	18·3	21·2

TABLE 6.2

As Table 6.2 indicates, approximately 60% of those patients given Interview D were interviewed during the period specified by the study design; a considerable achievement on the part of the trained group of

interviewers. The remaining patients contacted were interviewed by the fourth week following Interview C, delays in a number of cases being unavoidable due to patients' holiday arrangements.

Patients' symptomatic states at follow-up

An assessment was made of the symptom severity of every study patient successfully followed-up. This assessment was completed on the basis of responses to a slightly shortened form of the semi-structured interview administered to the patient initially and which enabled the completion of a Hamilton Rating Scale (HRS). All patients were asked to complete, if possible, a Beck Depression Inventory (BDI).

The distribution of HRS scores at follow-up assessment is shown below in Table 6.3.

HRS score range	0	1→5	6→10	11→15	16→20	>20	TOTAL
Number of patients	17	16	10	15	11	4	73
Percentage of total group	23·29	21·92	13·70	20·55	15·07	5·48	100
Cumulative percentage	23·29	45·21	58·90	79·45	94·52	100	

TABLE 6.3

The mean score of the HRS was 8·66 (SD 7·38) with the highest score obtained being 24. As this scale has a reduced range of scores (from a possible 64 to 48) as compared to the full scale, the appropriate cut-off score level to indicate a probable depression state pro-rated from the full scale recommended cut-off score of 15 (Hamilton, 1960, 1967) would be a score of about 11. Table 6.3 above reveals that almost 41% of those patients followed up had an HRS score of 11 or more and over 20% had scores above 16.

The distribution of BDI scores at follow-up assessment is shown below in Table 6.4.

BDI score range	0-4	5-9	10-14	15-19	20-24	25-29	⩾ 30	TOTAL
Number of patients	15	15	7	8	6	8	13	72
Percentage of total group	20·83	20·83	9·72	11·11	8·33	11·11	18·06	100
Cumulative percentage	20·83	41·66	51·38	62·49	70·82	81·93	100	

TABLE 6.4

The mean score for the BDI was 15·96 (SD 12·58) with the highest score obtained being 55. Table 6.4 indicates that over 48% of the group at follow-up had BDI scores of ⩾15. Metcalfe & Goldman (1965) found that (British) patients who obtained a mean score of about 14 on the BDI were also described as 'mildly depressed' on the basis of psychiatrist's ratings. Over 29% of patients scored 25 or above, a score level commonly obtained from patients suffering from a moderate to severe depression (Beck 1967).

A correlation of 0·85 $p < 0.001$ (Spearman) was obtained for the 72 pairs of HRS and BDI scores obtained at follow-up. This increased level of correlation beyond that obtained at initial contact supports the results of others (e.g. Burrows et. al., 1972) for patients who have undergone a considerable reduction of overall symptom severity.

Chapter 6: Summary

(i) Of the original group of 80 patients admitted to the study, 73 patients (91·25%) were given the first follow-up interview (Interview C) and 71 patients (88·75%) the second follow-up interview (Interview D).

Of the nine patients lost to the study, two (both female) had committed suicide.

(ii) A considerable range of symptomatic disability was revealed by the follow-up symptom severity assessments. Between 40% and 50% of patients at follow-up obtained symptom severity scores at or beyond the level frequently found in patients suffering from a mild or moderate depressive illness.

CHAPTER 7

Social support items and index derivation

This chapter will be devoted to an analysis of the measures of 'social support' assessed both at initial contact (Interview B) and at follow-up (Interview C).

A total of six different components of 'social support' were assessed in this study. These were; the existence of a confidant, contact with close relatives, patients' living group, work contacts, contacts with neighbours and contacts through attendance at clubs or church meetings. The inclusion of these six particular components was in an attempt to reflect both the diffuse social support and also the close social support available to a given individual. The latter close social support category consisted, for the study purposes, of the components 'confidant', 'close relatives' and 'living group' while the diffuse social support category was defined for the study purposes as including the 'work', 'neighbours' and 'club/church' components. Within each separate component, ratings were devised. These, while generally narrow in range, were clearly anchored by rating point definition. Each individual rating scheme was an attempt to incorporate both the 'quantity' and the 'quality' aspects of each component of social support within each category.

The following rating scales were adopted for the six components of social support. Each anchor point within the scales was clearly linked to the questions asked during the interviews. The range of the individual scales was intended to reflect the relative importance considered appropriate for each component.

Close social support

(a) Ratings of confidant

0 = A confidant exists, confides almost everything and this is reciprocated; confidant seen at least twice/week.

1 = As above except confidant seen no more than once a week.

2 = A confidant exists, a non-reciprocating relationship (confiding in one direction only) - seen any frequency.

3 = A confidant exists, neither party confides very much in the other; seen any frequency.

4 = No confidant exists.

(b) Contact with close relatives

0 = Patient visited or was visited by at least one close relative at least ten times during the three month period covered by the interview.

1 = As above only at least four to nine times during the three month period.

2 = As above only at least once twice or three times.

3 = No visits made, or received, or no close relatives exist.

(c) Living group

0 = Living with spouse or cohabitee.

1 = Living with close relatives (any).

2 = Living in lodgings/hostel/hospital with other than close relatives.

3 = Alone.

Diffuse social support

(a) Work

0 = In regular contact with at least one person at work, 'friendly' with at least one, at least one seen out of work hours regularly.

1 = As above except none regularly seen out of work hours.

2 = In regular contact with at least one person at work, or working alone, or unemployed.

(b) Neighbours

0 = In regular contact with at least one neighbour with whom subject gets on well.

1 = No such contact available.

(c) Clubs/Associations/Church

0 = Regular (at least once a month) attendance, and contacts made at clubs/associations/church.

1 = No such attendance.

Available social support prior to inception into the study

The results of applying the scales which reflect the amount of close social support available to the 80 patients based on information obtained in Interview B at the time they had improved from their episode of depression and covering the three month period prior to their initial contact with the study, are presented by sex in Table 7.1 below.

Support rating	Confidant		Contact with close relatives		Living group	
	Male	Female	Male	Female	Male	Female
0	13	11	6	7	24	25
1	1	6	4	4	4	8
2	7	17	9	22	1	3
3	5	9	11	17	1	14
4	4	7				

TABLE 7.1

The main points revealed by the table are the relatively large proportion of patients who indicated they had a poor confiding relationship or none at all - over 61% of the whole group obtained ratings of 2, 3 or 4. Similarly, 35% of the whole group had had no contact at all with any close relatives during the three month period covered by

the interview. The sex differences again revealed for female patients living alone have already been mentioned in Chapter 5.

The results of applying scales reflecting the amount of diffuse social support available to the 80 patients are presented below in Table 7.2.

Support rating	Work		Neighbours		Clubs/Associations/Church	
	Male	Female	Male	Female	Male	Female
0	11	8	21	38	9	22
1	15	11	9	12	21	28
2	4	31				

TABLE 7.2

This table indicates the much larger proportion of female patients over male patients who were without regular work contacts, due in the main to the large proportion of the female patients who were housewives. The only other major point to emerge from this table is the lower proportion of male patients over female patients who were regularly attending club or church meetings prior to contact with the study.

Available social support prior to follow-up assessment

The above scales were also applied to those 73 patients who were successfully followed-up approximately seven months after being admitted to the study. The time period on which the assessment of each of the social support items was based was the three month period preceding Interview C - the follow-up interview. Table 7.3 presented below indicates the close social support ratings for the patient group by sex at follow-up.

Support rating	Confidant		Contact with close relatives		Living group	
	Male	Female	Male	Female	Male	Female
0	18	13	12	11	21	23
1	0	4	5	6	4	5
2	4	19	7	11	0	6
3	4	9	12	19	1	13
4	0	2				

TABLE 7.3

This table indicates that at follow-up 52% of the whole patient group contacted reported having a poor confiding relationship or none at all. This is a 9% reduction from that reported in Table 7.1. Table 7.3 also indicates that 43% of the group followed-up had had no contact with close relatives during the three month period preceding the follow-up interview; this compares with a report of 35% preceding the initial interview.

Details of the diffuse social support available to the patients prior to the follow-up interview are presented in Table 7.4.

Support rating	Work		Neighbours		Clubs/Associations/Church	
	Male	Female	Male	Female	Male	Female
0	5	10	14	29	11	22
1	19	10	12	18	15	25
2	2	27				

TABLE 7.4

Contrasts between this table and that presented for the period preceding initial contact (Table 7.2) are difficult to make due to the reduced number of patients successfully followed-up. However it would appear that an increase in attendance at clubs and other group meetings did occur for the male patients during the time span covered by the follow-up interview as compared with the pre-initial contact period.

Derivation of social support indices

In order to examine more precisely differences which did occur over the time period covered by the study and to perform an analysis of the inter-relationship between other variables and social support, an index of social support was derived from the measures listed above. This index was derived in the following way:

(i) Index of Diffuse Social Support = sum of the ratings of work, neighbours and clubs.

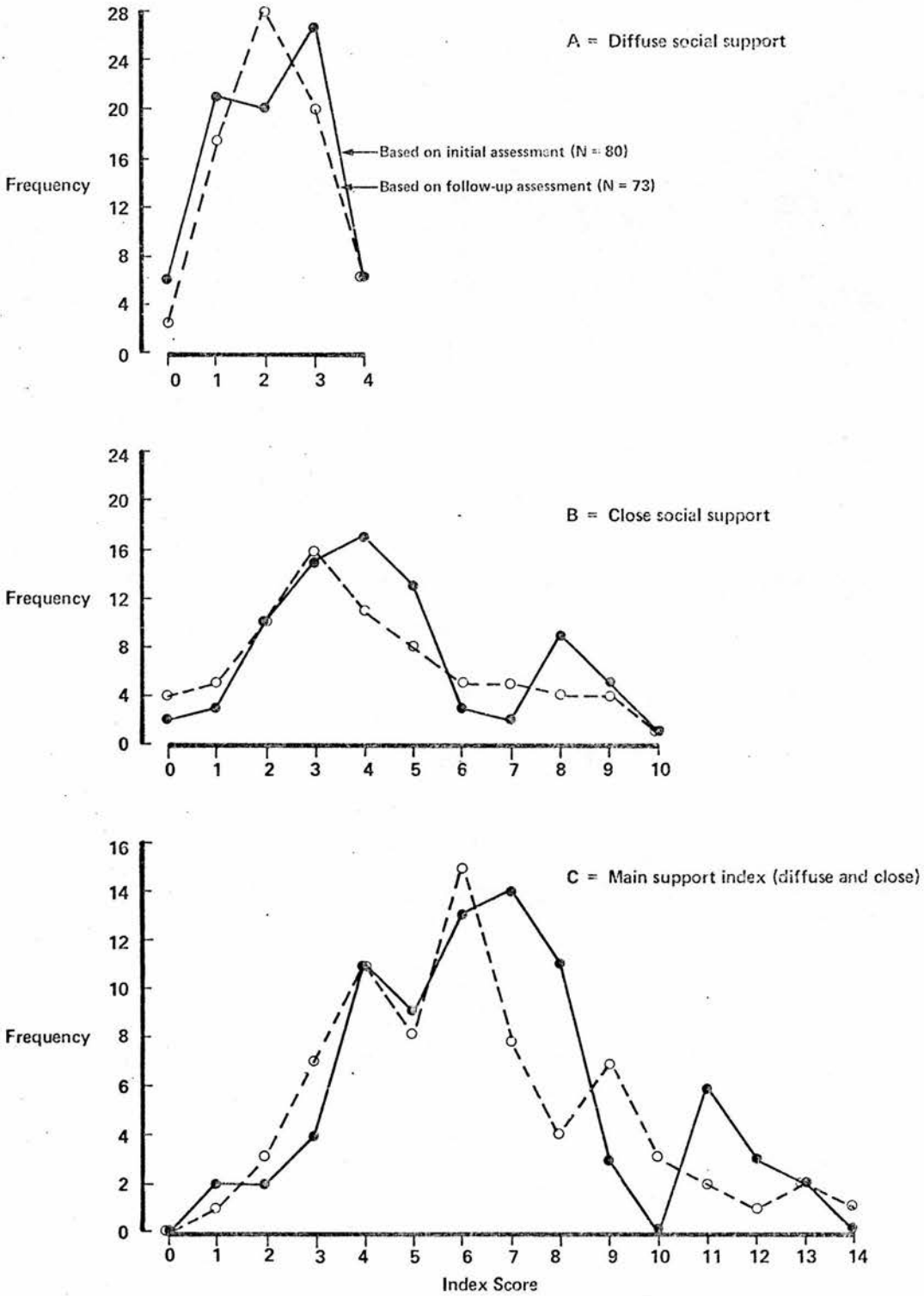
(ii) Index of Close Social Support = Sum of the ratings of confidant and close relatives and living group.

(iii) Social Support Index (All) = Index of Diffuse Support + Index of Close Support.

These individual indices were then computed for the group of patients at initial contact and at follow-up and their distributions contrasted. The results of this contrast are presented graphically in Figure 7.1 A, B and C.

As is immediately evident from an examination of the figures, very little change occurred in the profiles in spite of the assessments on which they were based being separated by several months and, more significantly, in spite of a considerable change in the mean symptom severity levels of the study patients for the time period on which the assessments were based.

Figure 7.1 Frequency distribution of patient scores on the social support indices based on key contact and follow-up assessments



The mean score for the main social support index (shown in Figure 7.1 C) of the patient group for the pre-initial contact period was 6•58 (SD 2•72) and for the reduced follow-up group 6•26 (SD 2•80). The distribution paramaters just described, together with a visual inspection of the social support profiles, provide some evidence to indicate that the measures remained relatively stable over a period of time when symptom levels changed.

Further evidence of the stability of these measures is provided by the Spearman correlation between the individual indices as measures for the pre-contact period and the period preceding follow-up. The details are presented below and are based on the 73 pairs of results available.

Support (All)	Close Support	Diffuse Support
•66	•71	•58

All correlations are significant ($p < \cdot 001$)

From the above it would appear that the measure of social support derived for this study is reasonably stable and that an acceptable level of consistency in rating was achieved. The measure does, however, reflect changes in an individual's social circumstances and such changes if they occurred would be a possible reason for the correlations not being any higher. This question will be examined further at a later stage in the analysis. Low and non-significant correlations were obtained between the indices of close and diffuse social support at both pre-contact and the follow-up assessment thus providing evidence to indicate that the intended separate contribution by both indices to the main support index was achieved.

Social support and symptom severity

In all the results to follow, the main social support index based on information related to the pre-key contact period will be referred to as 'SS' and the computed main social support index determined at the follow-up interview will be referred to as 'SSB'.

Where a principal hypothesis is to be tested the hypothesis will be formally stated and following the analyses a statement will be made as to whether the hypothesis was supported or not.

(a) Pre-key contact social support and key contact symptom severity

Hypothesis 1: Presence of social support prior to a patient's inception into this study is associated with lower symptom severity levels at first interview.

Spearman correlation coefficients were computed to assess the degree of association between the three social support indices and the assessed severity of the presenting symptoms at initial contact with the patients. Only the correlations between the diffuse social support index and the Hamilton Rating Scale scores ($r = 0{\cdot}20$, $p = {\cdot}036$, $n = 80$) and the correlation between the main support index (SS) and the initial self-report Beck ratings ($r = 0{\cdot}20$, $p = 0{\cdot}047$, $n = 71$) was significant. These results therefore only partially support Hypothesis 1.

(b) Pre-key contact social support and follow-up symptom severity

Hypothesis 2: Presence of social support prior to a patient's inception into this study is associated with lower symptom severity levels at follow-up.

Analyses performed in (a) above were then repeated except that the degree of association between initial support indices and follow-up symptom severity levels were analysed. The result of this analysis revealed that SS was correlated significantly with both the follow-up Beck Depression Inventory scores ($r = {\cdot}23$, $p = {\cdot}024$, $n = 72$) and with the follow-up Hamilton Rating Scores ($r = {\cdot}23$, $p = {\cdot}028$, $n = 73$). Further significant correlations were also obtained between both the index of close social support and the follow-up Beck scores

(r = 0·24, p = ·022, n = 72) and the follow-up Hamilton scores (r = 0·23, p = ·028, n = 73). Finally, a significant correlation was obtained between the initial confidant ratings and the follow-up Beck scores (r = 0·21, p = 0·042, n = 72). These results therefore fully support Hypothesis 2.

(c) Follow-up social support ratings and follow-up symptom severity

Hypothesis 3: Presence of social support prior to the follow-up interview is associated with lower symptom severity levels at follow-up.

The Spearman correlations obtained as an indication of the degree of association between follow-up social support ratings (as measured by the derived indices) and the follow-up symptom severity levels are presented in Table 7.5.below for the 73 patients successfully followed-up.

	Social support measures as assessed for the three months preceding follow-up			
	Confidant rating	Close support	Diffuse support	SSB
Follow-up Beck rating	r = ·50 p ·001	r = ·36 p ·001	r = ·31 p = ·005	r = ·44 p ·001
Follow-up Hamilton rating	r = ·44 p ·001	r = ·35 p ·001	r = ·32 p = ·003	r = ·44 p ·001

TABLE 7.5

The results revealed in Table 7.5 indicate that all the correlations are significant, many at beyond the ·001 level. This relationship is further examined by analysing the distribution of patients who fell within various symptom by support cell groupings. Dividing SSB at a level of 7 (the first point above the mean score) and dividing the follow-up Hamilton Rating Scale (HRS) score at 11 resulted in the following distributions. (Table 7.6).

		Follow-up HRS scores	
		< 11	$\geqslant 11$
SSB	< 7	33	12
	$\geqslant 7$	10	18

TABLE 7.6

The computed χ^2 with Yates correction is equal to 8·60 with 1 df $p = 0{\cdot}003$.

If the analysis is repeated for the Beck Depression Inventory (BDI) scores at follow-up and the score divided at 15, the following distribution results (Table 7.7).

		Follow-up BDI scores	
		< 15	$\geqslant 15$
SSB	< 7	29	16
	$\geqslant 7$	8	19

TABLE 7.7

The corrected $\chi^2 = 6{\cdot}85$ with 1 df, $p = 0{\cdot}009$.

Tables 7.6 and 7.7 therefore indicate that the severity of a patient's symptoms assessed at follow-up are strongly related to the relative presence or absence of social support as measured by the derived index.

All the results presented in this sub-section of Chapter 7 fully support Hypothesis 3.

(d) Change in assessed social support from pre-key contact period ('SS') to pre-follow-up period ('SSB')

In investigating the relationship between change in available social support during the study period and the symptomatic state of the patient group at follow-up, cut-off points used for the variables

will be identical to those used above. In order to clarify details on the tables and figures to follow a key will first be given concerning the change in support which occurred over the study period.

Key 'A' = Continuous 'absence' of social support (SS $\geqslant$ 7 and SSB $\geqslant$ 7)

'B' = Increase in available social support (SS $\geqslant$ 7 and SSB $<$ 7)

'C' = Decrease in available social support (SS $<$ 7 and SSB $\geqslant$ 7)

'D' = Continuous 'presence' of social support (SS $<$ 7 and SSB $<$ 7)

As the relationships to be examined are with respect to the group of patients at follow-up, 73 pairs of results were considered. Details of changes in social support and follow-up symptom severity levels are first presented for the Hamilton Rating Scale scores at follow-up in Table 7.8 below.

		Follow-up HRS scores	
		<11	$\geqslant 11$
Change in social support	'A'	8	15
	'B'	9	3
	'C'	2	3
	'D'	24	9

TABLE 7.8

The raw χ^2 = 10·16 with 3 df, p = ·017 for this distribution.

This table, while significant over all, is particularly revealing in respect of individual cell analysis. If the criterion HRS score of <11 is defined by this study as indicating that a patient is 'well', then for that group of patients who had a continuing absence of social support ('A' above), only 34·78% were 'well' at follow-up while for those who had the continuous presence of support

('D' above) 72·72% were 'well'. Groups 'B' and 'C' above also conform to the direction expected in that 75% of those who had an increase in support during the study period were 'well' ('B' above) and only 40% of those who suffered a decrease were 'well' ('C' above). If the distribution of those patients with a continuous lack of support is compared to that of those with a continuous presence of support (i.e. 'A' with 'D' above), then the corrected χ^2 = 6·49 with 1 df $p < ·02$ is obtained based on 56 patients.

If the above analysis is then performed for the 72 patients' own reports of their symptoms at follow-up on the Beck Depression Inventory (BDI) the following emerges (see Table 7.9 below).

		Follow-up BDI scores	
		<15	⩾15
Change in social support	'A'	6	16
	'B'	8	4
	'C'	2	3
	'D'	21	12

TABLE 7.9

Raw χ^2 = 8·48 with 3 df, p = ·037.

If a BDI score of <15 defines a patient as being 'well', the individual cell analysis of Table 7.9 reveals an identical pattern to that just described for the Hamilton ratings. As with the Hamilton ratings above, if the distribution of those patients with support category 'A' are compared with those with support category 'D' in Table 7.9 then a corrected χ^2 = 5·60 with 1 df $p < ·02$ for 55 patients is obtained indicating once again that the availability of social support, as measured by the study index, is associated with lower symptoms at follow-up assessment.

(e) An analysis of the confidant rating at follow-up and symptom severity at follow-up

Due to the emphasis placed by other researchers upon the importance for patients of a confiding relationship, the largest proportion of the full range of the main support index was designed to be taken up by a confidant rating. The relationship, if any, between that rating and the symptom severity scores at follow-up assessment is next examined. In the table that follows 'well' is again defined for the Hamilton Rating Scale (HRS) as any score <11, while for the Beck Depression Inventory (BDI) as any score <15. The confidant ratings will again be those used throughout the study and explained at the start of this chapter of the results.

		Follow-up HRS scores <11	$\geqslant 11$	Percentage 'well'
Confidant rating	0	26	5	83·9
	1	1	3	25
	2	12	11	52·2
	3	4	9	30·7
	4	0	2	0

TABLE 7.10 A

		Follow-up BDI scores <15	$\geqslant 15$	Percentage 'well'
Confidant rating	0	24	7	77·42
	1	1	3	25
	2	9	13	40·91
	3	3	10	23·08
	4	0	2	0

TABLE 7.10 B

The raw χ^2 = 17·43, df = 4, p = ·002 for Table 7.10 (A). The raw χ^2 = 16·78, df = 4, p = ·002 for Table 7.10 (B).

As is evident from a visual inspection of the Tables 7.10 (A) and (B) above, the percentage of patients 'well' at each confidant rating level is very similar for both methods of symptom assessment. Further discussion will therefore be restricted to only one of these - the HRS table.

It will be recalled that a confidant rating of 0 or 1 indicated the existence of a close, confiding, reciprocating relationship but that the rating differentiated only in respect to the frequency of contact. If the 0 and 1 ratings above are summed, then 77·1% of the patients in that category were 'well' at follow-up, while if the ratings 3, and 4 are summed (thus indicating a very poor, non-reciprocating relationship or no confidant at all), then only 26·7% of the patients in that category were 'well'. The resulting distribution of patients in this contracted, but still informative set of ratings, results in a computed raw χ^2 = 11·69, df = 2, $p < ·01$.

These results therefore confirm and expand in considerable detail the results of other researchers in respect to the presence or absence of a confiding relationship and the association this may have with a patient's symptomatic state.

(f) Patient sex and social support

Finally, details will be given of the relationship between the sex of the patients and the two computed indices of support, 'SS' and 'SSB'. Both 'SS' and 'SSB' mean scores for the sexes were significantly different on both occasions for each sex. For 'SS', the mean male score was 5·43 (SD 2·89) and the female score was 7·26 (SD 2·40). As the variances of the two distributions were not significantly different

($F = 1{\cdot}45$, $p = {\cdot}249$ two tailed), a pooled variance estimate was computed for the 80 patients. This analysis resulted in a t value of $-3{\cdot}05$, df = 78, $p = {\cdot}003$ two tailed and indicated that the mean score of 'SS' obtained by the female patients was significantly higher than that of the male patients.

This analysis was then repeated for the index 'SSB' (the follow-up social support index) in order to determine if the initial sex difference was retained at follow-up. The mean male score for 'SSB' was 5·08 (SD 2·31) and for the females 6·92 (SD 2·86) and the pooled variance estimate gave a t value of $-2{\cdot}81$, df 71, $p = {\cdot}006$ two tailed, thus indicating that the sex difference was retained at follow-up.

Chapter 7: Summary

(i) This chapter provided details on the derivation of an index of social support. This index was obtained for the three month period prior to patients' inception into the study and for the three months prior to their follow-up. The distribution parameters of the index, based on these two occasions, when compared, indicated that the index had remained relatively stable over a period of time when symptoms had changed.

(ii) The severity of patients' symptoms assessed at follow-up was strongly related to the relative presence or absence of social support as measured by the derived index and also as measured by the confidant rating alone.

(iii) Female patients in this study were assessed as having significantly less social support than the males both during the three month period prior to inception into the study and prior to follow-up.

CHAPTER 8

Life stress ratings and symptom severity

The aim of this chapter is to present a detailed analysis of the information obtained in Interview D in which the Edinburgh version of Brown's life event interview was administered. It will be recalled from the method section that this interview was given by a trained interviewer who had no knowledge of material collected in the other interviews. Ratings of life stresses and of the patients' symptoms were therefore made by independent interviewers.

The analysis that follows will focus initially on all events and difficulties which befell the patient group over the follow-up period and then progressively move to a more specific analysis in terms of the severity of events and their judged relatedness to the original illness condition of the patients. Finally the time at which events occurred will also be considered. The dependent variable throughout this analysis will be the patient's symptomatic state at follow-up.

The following hypothesis (Hypothesis 4) will be tested at every stage of the life stress analysis.

Hypothesis 4: Relative absence of adversity during the follow-up period is associated with lower symptom severity levels at follow-up assessment.

(a) An analysis of all events and all difficulties (regardless of their ratings or their judged relatedness to the initial depressive illness) in relation to symptom severity levels at follow-up.

For this analysis a count was made of all events and all long term difficulties for the 71 study patients successfully administered Interview D. The number of events and the number of long term difficulties

for each patient were then added together. This resulted in a range of scores from 1 to 13 with a mean of 5·79 (SD 2·97) and a mode of 4. Study patients who had obtained symptom severity ratings of ⩾11 on the Hamilton Rating Scale (HRS) at follow-up were then compared to those scoring <11 on the extent to which they had suffered life events and long term difficulties during the follow-up period. The results are presented in Table 8.1 below.

		Total of all events and all difficulties		
		⩽5	6-8	>8
Follow-up	⩾11	11	10	8
HRS scores	<11	27	10	5

TABLE 8.1

The resulting raw χ^2 = 5·24 with 2 df is non-significant. When the analysis was repeated for the distribution obtained in relation to the follow-up Beck scores (the cut-off score being at 15 as before) a raw χ^2 = 3·60 was obtained with 2 df. This was also non-significant.

As a next step in the analysis, all life events (regardless of their assessed relatedness to the original illness) were compared to follow-up symptom levels. The resulting distribution obtained against both HRS and BDI symptom scores are presented in Table 8.2 (A) and (B) below.

		Follow-up HRS scores	
		<11	⩾11
Number of life events	⩾5	6	10
	<5	36	19

TABLE 8.2 (A)

		Follow-up BDI scores	
		< 15	$\geqslant 15$
Number of life events	$\geqslant 5$	7	9
	< 5	29	25

TABLE 8.2(B)

The result of the above comparison was that both the HRS (corrected $\chi^2 = 2{\cdot}94$, df = 1) and the BDI (corrected $\chi^2 = 0{\cdot}17$, df = 1) distributions were non-significant thus indicating that the actual number of events which occurred over the follow-up period was unrelated to follow-up symptom levels. Hypothesis 4 was therefore not supported by this sub-section of results.

(b) <u>An analysis of all life events which were considered independent or possibly independent and all long term difficulties which were considered completely independent of the original illness (in all cases regardless of ratings) in relation to symptom severity levels at follow-up.</u>

The group of 71 patients who were successfully administered the life event interview (Interview D) had experienced a total of 411 events and long term difficulties. Of this total, 212 events and difficulties were <u>excluded</u> as being related in some way to the key illness episode thus leaving 199 (48·4%) events and difficulties for the analysis to follow. This aggregate total of illness independent stresses was then compared to follow-up symptom levels.

The resulting distribution is presented in Table 8.3 (A) and (B) below:

Numerical total of illness independent stresses	Follow-up HRS scores < 11	⩾11
9	1	0
8	2	2
7	0	1
6	2	0
5	3	2
4	6	3
3	4	9
2	11	1
1	7	8
0	6	3

TABLE 8.3 (A)

Numerical total of illness independent stresses	Follow-up BDI scores < 15	⩾15
9	0	1
8	2	2
7	1	0
6	1	1
5	3	2
4	4	5
3	4	9
2	10	1
1	7	8
0	4	5

TABLE 8.3 (B)

The 'best' possible division of the above tables for statistical comparison purposes was at the three event/difficulty level. For the HRS table (corrected $\chi^2 = 1{\cdot}13$, df = 1) and the BDI table (corrected $\chi^2 = 1{\cdot}43$, df = 1) the results, however were again non-significant and Hypothesis 4 was not supported.

(c) An analysis of only those life events considered independent or possibly independent of the original illness, together with a consideration of the event threat ratings in relation to symptom severity levels at follow-up.

In the analysis to follow only the long term threat (LT) ratings of the independent or possibly independent events will be considered. It will be recalled that this rating refers to the degree of threat considered to be remaining approximately one week after the occurrence of an agreed life event.

The comparison was first made between those patients who had experienced at least one event with a LT threat rating of '1' (the highest) during the follow-up period and all other patients in terms of their symptom severity levels at follow-up. The results are presented in Table 8.4 (A) and (B) below.

	Follow-up HRS scores	
	< 11	$\geqslant 11$
At least 1 event with LT rating '1'	3	6
No events LT '1'	39	23

TABLE 8.4 (A)

	Follow-up BDI scores	
	<15	$\geqslant 15$
At least 1 event with LT rating '1'	3	5
No events LT '1'	33	29

TABLE 8.4 (B)

The result of this comparison was that both the HRS table (corrected $\chi^2 = 1{\cdot}75$, df = 1) and the BDI table (corrected $\chi^2 = 0{\cdot}21$, df = 1) yielded non-significant results, thus providing no support for Hypothesis 4.

The analysis was then repeated only with somewhat finer distinctions between adjacent event threat rating categories. The results are presented in Table 8.5 (A) and (B) below.

	Follow-up HRS scores	
	<11	$\geqslant 11$
At least 1 event LT '1' and/or 1 event LT '2' independent/possibly independent of original illness	12	14
No LT '1' or LT '2' but LT '3' and/or LT '4' independent/possibly independent of original illness	15	4
No independent events at all or no events	15	11

TABLE 8.5 (A)

	Follow-up BDI scores	
	<15	⩾15
At least 1 event LT '1' and/or 1 event LT '2' independent/possibly independent of original illness	10	15
No LT '1' or LT '2' but LT '3' and/or LT '4' independent/possibly independent of original illness	13	6
No independent events at all or no events	13	13

TABLE 8.5 (B)

Even after making the above finer distinctions between categories of life events, the HRS table (raw χ^2 = 4·94, df = 2) and the BDI table (raw χ^2 = 3·52, df = 2) produced non-significant results overall. Hypothesis 4 was again not supported.

If, however, only those patients who had experienced events with an LT rating of '1' or '2' were compared to those patients who had experienced only events with a '3' or '4' rating, then for Table 8.5 (A) above (a corrected χ^2 = 4·10, df = 1, N = 44) a significant result ($p < .05$) was obtained. The similar analysis for Table 8.5 (B), however (corrected χ^2 = 2·45, df = 1, N = 44) was non-significant.

It is to some extent misleading to make such distinctions and more correctly the patients who had experienced events rated '3' or '4' (but no '1' or '2' events) should, for comparison purposes, be combined with those patients experiencing no events or no independent events at all. Such a division, when tested, yielded non-significant differences for both the HRS table (corrected χ^2 = 2·08, df = 1 and for the BDI table (corrected χ^2 = 1·38, df = 1) once again providing no support for Hypothesis 4.

(d) An analysis of those life events considered independent or possibly independent and all long term difficulties which were considered completely independent of the original illness, together with a consideration of their threat ratings, in relation to symptom severity levels at follow-up.

In this section of the analysis of Interview D, both independent events and independent difficulties will be considered together and by their ratings to establish whether patients suffering such combinations of stressful circumstances are discriminated at follow-up in terms of their levels of assessed symptom severity. It will be recalled from the method section of this study that two ratings were made of all long term difficulties, one of the objective and one of the general overall severity of the difficulty. Both ratings were made on six point scales. In the analysis to follow only the value of the objective rating (OBR) will be considered for each difficulty as this rating is intended to reflect the degree of difficulty inherent in a given situation independently of the patient's feelings or experience of it.

The result of combining both events and difficulties by rating level and comparing to follow-up symptom levels are shown in Table 8.6 (A) and (B) below:

	Follow-up HRS scores	
	< 11	≥ 11
At least 1 LT '1' and/or 1 LT '2' and/or 1 OBR '1' and/or 1 OBR '2'	14	17
None as above but at least 1 LT '3' and/or 1 LT '4' and/or 1 OBR '2'	22	9
No independent events or independent difficulties/ or no events	6	3

TABLE 8.6 (A)

	Follow-up BDI scores	
	< 15	⩾15
At least 1 LT '1' and/or 1 LT '2' and/or 1 OBR '1' and/or 1 OBR '2'	10	20
None as above but at least 1 LT '3' and/or 1 LT '4' and/or 1 OBR '2'	21	10
No independent events or independent difficulties/ or no events	4	5

TABLE 8.6 (B)

The above separation of patients resulted in a non-significant distribution for Table 8.6 (A) (raw χ^2 = 4·5, df = 2). For Table 8.6 (B) however (raw χ^2 = 7·35, df = 2), a significant difference ($p < .05$) was found between the two groups of patients separated by their follow-up scores on the BDI.

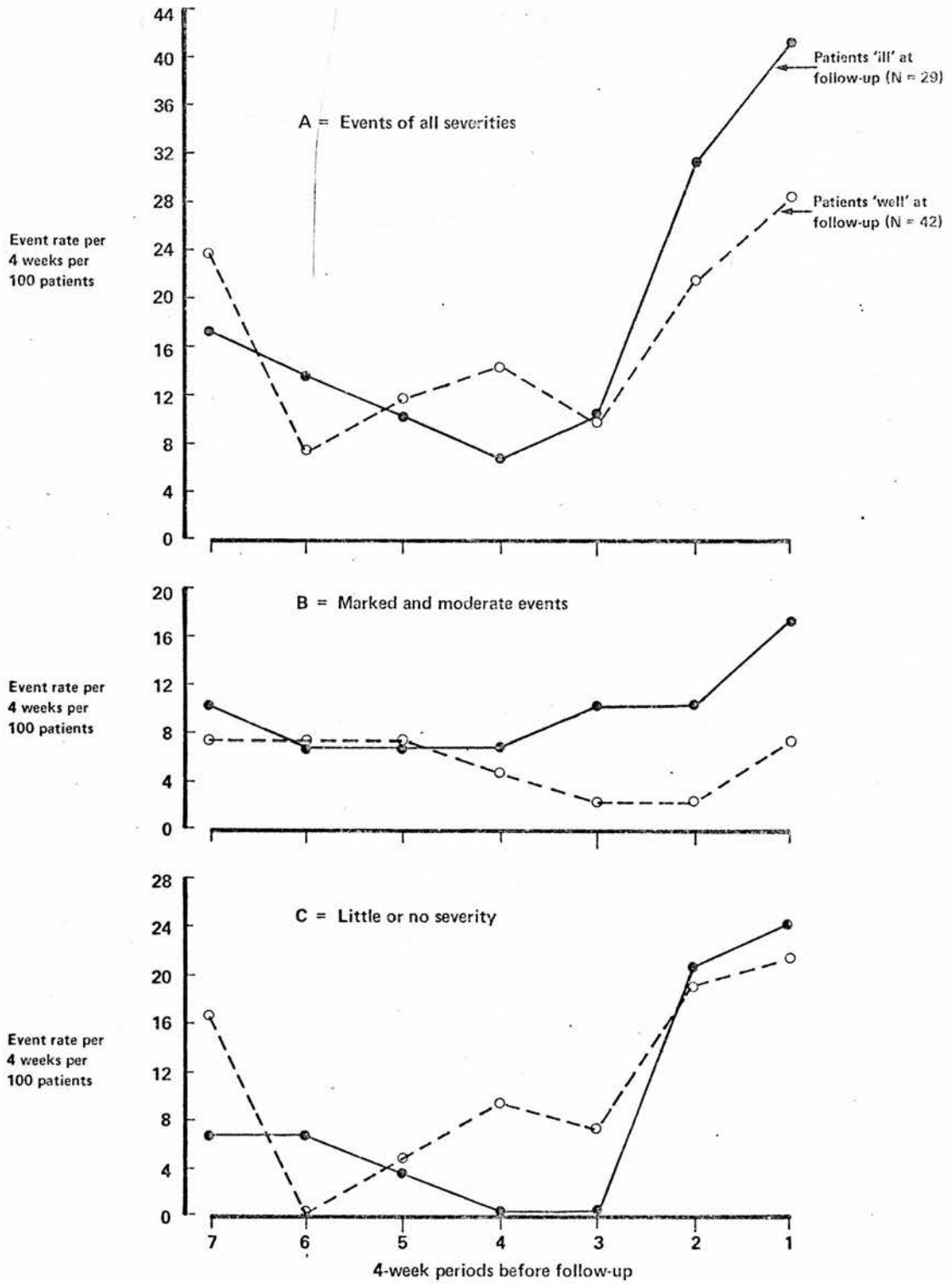
The last two categories for both sub-tables of Table 8.6 were then combined such that all patients with events and/or difficulties having a rating of '1' or '2' were compared to all other patients on follow-up symptoms. The following statistics resulted: for the HRS condensed table (corrected χ^2 = 3·49, df = 1) a non-significant relationship was shown but for the condensed BDI table (corrected χ^2 = 4·73, df = 1) a significant relationship ($p < .05$) was again revealed. These results therefore provide partial support for Hypothesis 4.

(e) An analysis of those life events, independent and possibly independent of the original illness, considered by their rating, and by the time during the follow-up period when they occurred in relation to symptom severity levels at follow-up.

In order to perform this analysis, the 28 week follow-up period was divided into seven equal periods each of four weeks. All the patients successfully administered Interview D were then divided into two groups on the basis of their follow-up HRS scores, the point of division being as previously (at 11). Initially the individual event severity ratings were ignored and the life event rate calculated for the two patient groups on the basis of all independent or possibly independent events that had occurred for members of each group, for every four week period of the follow-up. For rate profile comparison purposes (there being unequal numbers of patients in each group) each rate was pro-rated to that for 100 patients. The resulting profile for both groups of patients, for all event severities is shown in Figure 8.1 (A).

During the four week period prior to follow-up, 10 of the 29 patients (34.48%) with a score of $\geqslant 11$ on the Hamilton compared to 9 of the 42 patients (21.42%) with few or no symptoms at follow-up, had at least one independent or possibly independent life event. The event rate was 41.37 per 100 patients for that group with symptoms at follow-up compared to a rate of 28.57 per 100 patients for the 'well' patients at follow-up - a non-signficant difference. This trend for patients with symptoms at follow-up to have experienced a higher rate of independent events during the four weeks preceding the symptom assessment than the patients 'well' at follow-up was also present for that four week period preceding the final period. This difference in event rates was also non-significant. The rates for all the other four week periods were very similar as was the overall rate for the two patient subgroups for the whole 28 week period. While these results showed apparent trends in the direction indicated in Hypothesis 4,

Figure 8.1 Rate of stressful life events in the 7 4-week periods before follow-up for patients 'ill' and 'well' at follow-up and by event severity



the hypothesis was not supported by statistically significant results.

A further analysis was then performed which considered the long term threat ratings of the events as well as the time period in which they occurred. Figure 8.1 (B) presents the event profiles of the two patient sub-groups divided as in Figure 8.1 (A) but with the profiles based on the rates of the markedly and moderately threatening events only.

Figure 8.1 (B) revealed that for five out of the seven four week periods the severe event rate was higher in that group of patients who had symptoms at follow-up than in those who were 'well' at follow-up. The event rate difference between these two groups was in fact greatest during the four week period prior to follow-up assessment, but this difference was non-significant. For the whole of the follow-up period (28 weeks) the event rate was 69 per 100 patients for those who had symptoms at follow-up, compared to 38 per 100 patients for those 'well' at follow-up (corrected $\chi^2 = 5{\cdot}36$, df = 1, $p < {\cdot}05$). Over 48% of the 'ill' patient sub-group had experienced at least one markedly or moderately threatening event during the follow-up period as compared to 29% of the 'well' sub-group. This difference was, however, non-significant. These results provide partial support for Hypothesis 4.

Figure 8.1 (B) indicated that for the 'ill' sub-group of patients the experience of severe life events throughout the follow-up period was relatively commonplace as compared to those who were considered 'well' at follow-up, a result found by Brown et. al. (1973) for the period <u>preceding</u> the onset of illness. The possible significance of this finding will be discussed and further analysed in a later chapter.

The above analysis was then repeated for those patients with events rated as having 'little or no' threat and the results are presented in Figure 8.1 (C).

An examination of the two event rate profiles indicated little difference for the two patient sub-groups. The difference in event rates which was apparent in Figures 8.1 (A) and 8.1 (B) for the four week period prior to follow-up assessment was not shown to any degree in Figure 8.1 (C). Indeed the event rate for the whole of the follow-up period was slightly higher in the patient sub-group who were 'well' at follow-up as compared to those who were 'ill' (79 per 100 patients as compared to 62 per 100 patients). The event rates presented graphically by their long-term threat ratings for the full follow-up period and per 100 patients, are shown in Figure 8.2.

Figure 8.2 Rate of stressful life events in the 28 week study period related to severity of long term threat for patients 'ill' or 'well' at follow-up.

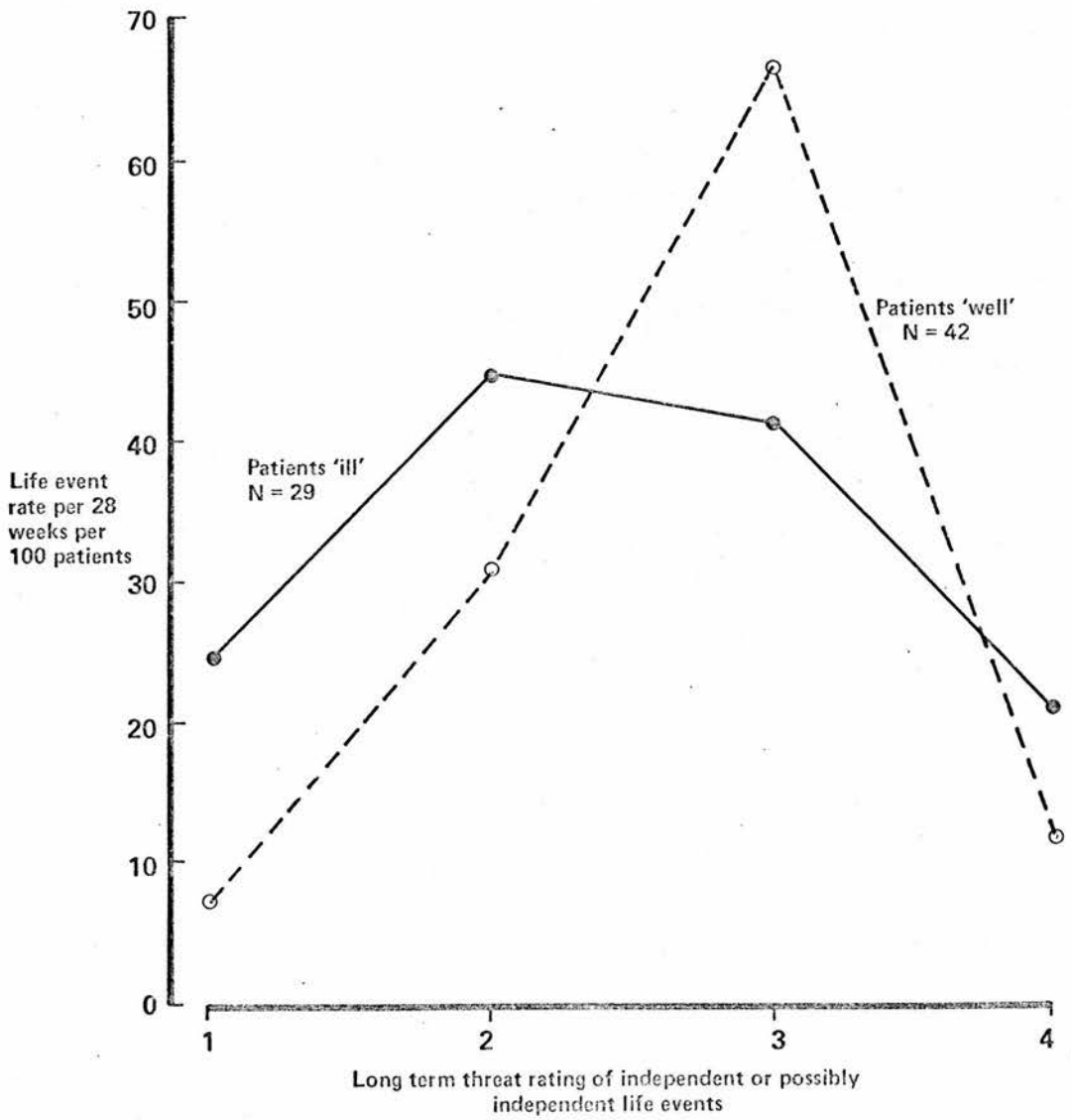
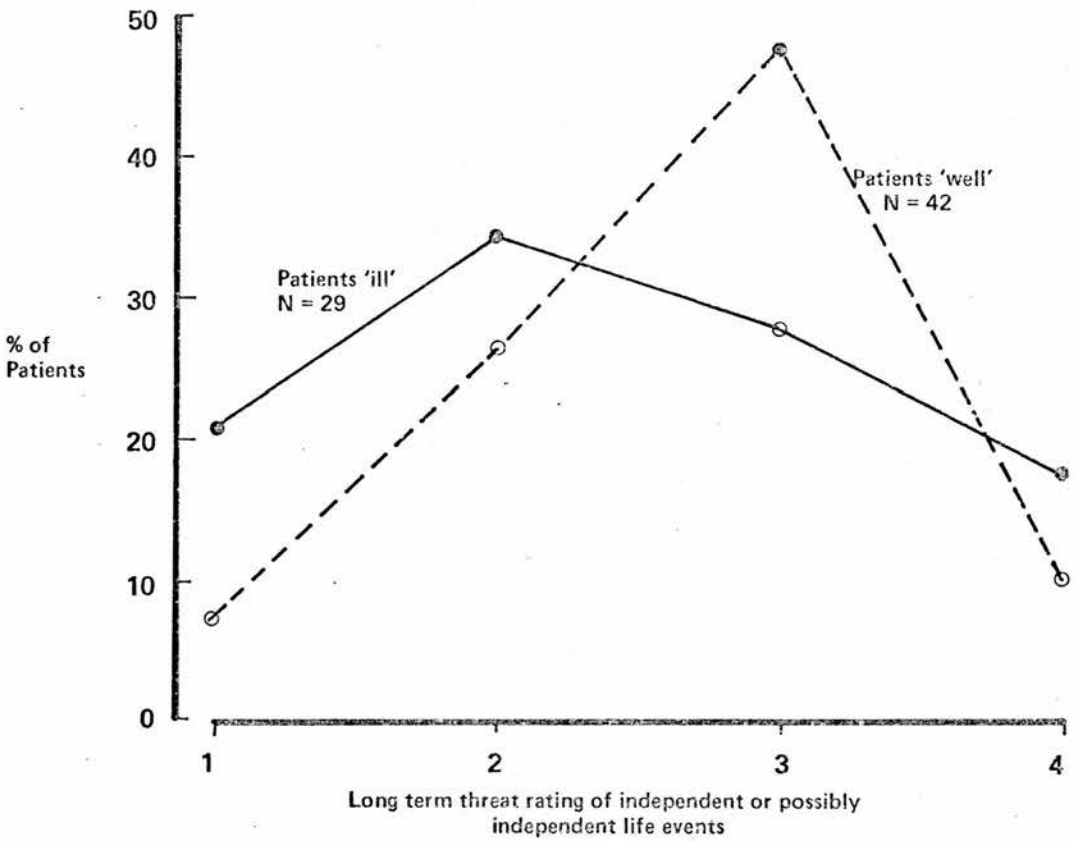


Figure 8.2 clearly indicated the extent to which the marked and moderate event rates for the patient group who had symptoms at follow-up were higher than those patients who were 'well'. The figure also clarified the difference in rates for the less severe events between the two groups. As Figure 8.3 indicates, this difference in event rates was not accounted for by only a few patients experiencing most of the events.

Figure 8.3 Percentage of patients 'ill' or 'well' at follow-up who experienced at least one independent or possibly independent stressful life event within the 28 week study period related to the severity of event threat



The configuration of Figure 8.3 was very much the same as that of Figure 8.2 indicating that the difference in event rates was a real difference. Patients who had symptoms at follow-up had indeed experienced a greater number of severe events than patients 'well' at follow-up.

Chapter 8: Summary

In brief, the results presented in this chapter suggested that:

(i) The actual number of events and difficulties experienced did not distinguish those patients with 'high' from those with 'low' symptom levels at follow-up.

When the relatedness of events and difficulties to the key illness was examined;

(ii) The actual number of illness independent events and difficulties experienced was unrelated to follow-up symptom levels.

When illness relatedness and event/difficulty ratings were examined;

(iii) Those patients experiencing the most severe events during the follow-up period were not differentiated by follow-up symptom levels from those patients who had experienced less severe events.

(iv) When further fine distinctions were made between patients' experience of stressful life events during the follow-up period no significant associations were demonstrated between these event threat levels and follow-up symptoms.

(v) When fine distinctions were made between ratings of events and of difficulties a significant discrimination was achieved (at $<.05$ level) between patients with moderate or severe events or difficulties and self-reported follow-up symptom state.

When the time of event occurrence was also examined;

(vi) There was a marked trend for patients 'ill' at follow-up to have suffered a higher rate of independent events of all severities during the previous month than had those patients

'well' at follow-up.

(vii) When events were considered by their threat rating, there was a trend for patients 'ill' at follow-up to have suffered a marked and moderate event rate higher in five out of the seven four week periods than had patients 'well' at follow-up. Over the full 28 week period this trend became statistically significant.

This chapter clearly demonstrated that both the time of event occurrence and the rated severity were of critical importance when examining relationships between stressful life events and symptomatic outcome at follow-up. In view of this a new model for quantifying adversity, relying entirely on 'time' and event severity, was developed specifically for the study. The development of this model and the relationship between its computed indices of adversity and follow-up symptom severity levels will be presented in the next chapter of these results.

CHAPTER 9

Derivation of the adversity indices

This chapter will present a new model for estimating the adversity to which an individual is still subject at a given time, based on knowledge of the occurrence of life events and the existence of long term difficulties preceding that time. The model is speculative but owes part of its development to the clear demonstration by Brown, Sklair, Harris and Birley (1973), and to the results obtained in the previous chapter, that the time of event occurrence is of critical importance when examining event/illness relationships. The model to be presented however, differs radically from the probabilistic model relating life events to illness onset which was developed by Brown, Harris and Peto (1973).

A primary assumption of the present model is that the tension or strain produced in individuals subjected to stressful life events dissipates with time. It is intended to examine this internal, event induced, stressful effect by consideration of the threat severity (made only on the basis of objective contextual information surrounding the occurrence of each event) of all life events suffered. When the 'stressful effect' of life events is referred to in the derivation of the model below this should be understood to mean the internal response of the individual to the occurrence of (objectively measured) events.

Detailed assumptions of the model.

(a) The stressful effect of life events dissipates with time at a constant rate and this rate is the same for all events.

(b) Life events summate in their stressful effect.

(c) For life events rated as having the greatest stressful effect, the effect dissipates completely in a given (fixed) period of time (e.g. six months, one year etc.).

(d) For life events rated as having a less stressful effect than those in (c) above, the effect dissipates in a time equal to a measure of that effect multiplied by that dissipation period associated with the most stressful event.

The above list of assumptions are the basis for the simplest representation of the model and are in a number of respects naive. However they will now be used as the foundation for a general procedure which will allow an estimation of the adversity to which a given individual is subject to at any point in time within a particular study period.

Derivation of the model

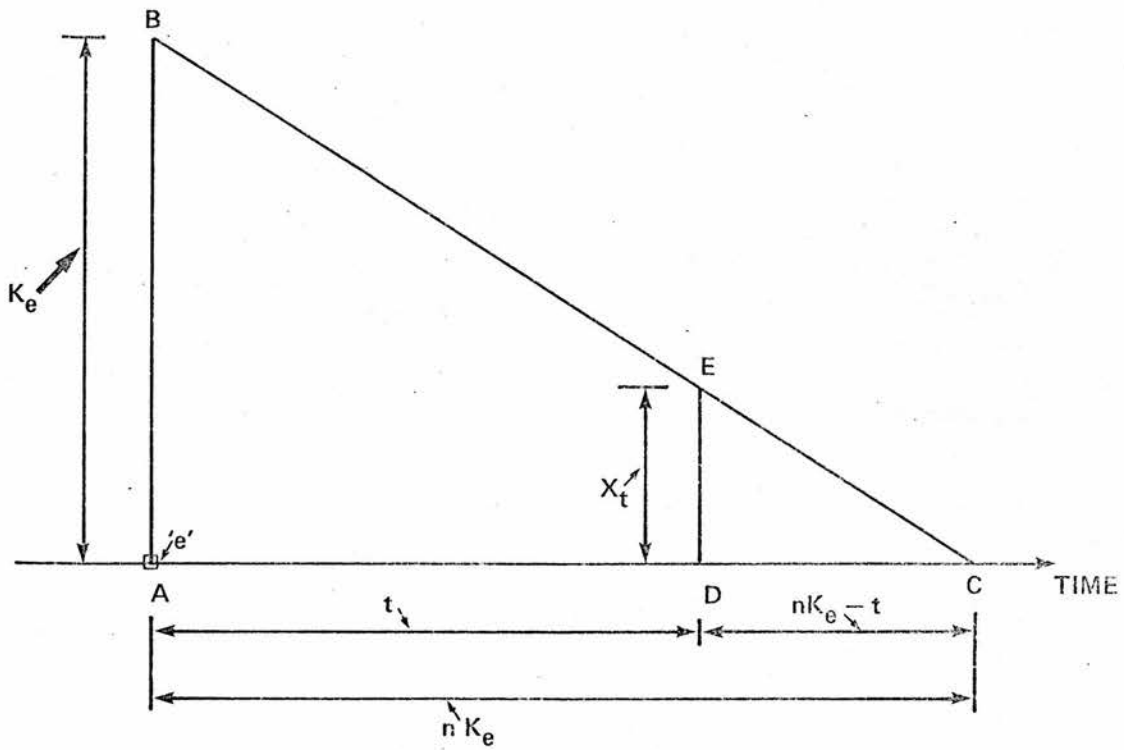
Let 'n' be equal to that time period those life events with greatest stressful effect take to dissipate totally in their action.

Let K_e be a measure of the assessed stressful effect of a given life event 'e'.

Let K_e equal unity for those life events assessed as having the greatest stressful effect on the scoring scale used.

Now if an event 'e' of rated stressful effect K_e has been experienced by an individual for a time 't', then the stressful effect of that event remaining (X_t) after time 't' is given by equation (1) below and derived from Figure 9.1.

Figure 9.1 Schematic representation of the dissipation in stressful effect of a single life event 'e'



Considering triangles ABC and DEC:-

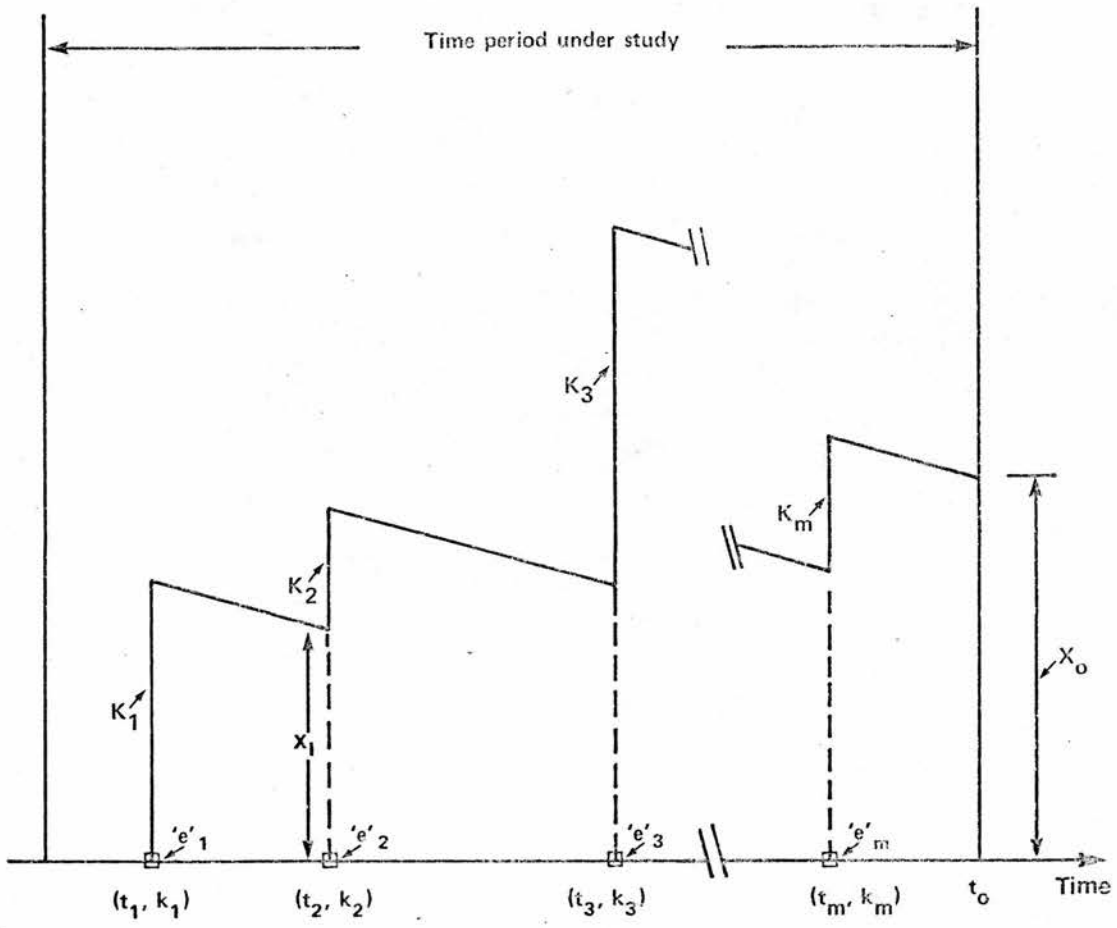
$$\frac{K_e}{nK_e} = \frac{X_t}{nK_e - t}$$

therefore $$X_t n = nK_e - t$$

hence $$X_t = K_e - \frac{t}{n} \quad \text{.....} \quad (1)$$

In general, for a series of life events e_1 ..... e_m with time and stressful effect parameters (t_1, K_1) ..... (t_m, K_m) etc. and such that the stressful effect of any single event or summation of events is not allowed to dissipate below zero, then the stressful effect of events e_1 ..... e_m remaining (X_o) at the time point of concern (e.g. at follow-up assessment) is given by equation (2) below with all time periods measured <u>from</u> t_o . Figure 9.2, below, presents the sequence of events schematically.

Figure 9.2 Schematic representation of the linear dissipation in stressful effect of a series of life events 'e_1' to 'e_m'



Now considering events e_1 ..... e_m in Figure 9.2 and applying equation (1) such that the stressful effect remaining of each event is summated to that of every other event as they occur.

i.e. At 't_2' the stressful effect of 'e_1' remaining (X_1) is given by:- $K_1 - \frac{(t_1 - t_2)}{n}$ which is then added (as long as the term ≥ 0) to that contributed by 'e_2'.

Hence the final estimate of the stressful effect of events e_1 ..... e_m at time t_o, (X_o), is given by:-

$$X_o = X_{m-1} + (K_m - \frac{t_m - t_o}{n})$$

but t_o is equal to that time point from which all other events have been timed, hence $t_o = 0$.

As a result $X_o = X_{m-1} + (K_m - \frac{t_m}{n})$ ..... (2)

Note equation (2) above only holds as long as $X_{m-1} \geqslant 0$; if $X_{m-1} < 0$, term set equal to zero.

Equation (2) above is intended to provide an estimate of the stressful effect remaining of a series of life events occurring during a given time period under study. However that estimate includes no consideration of the stressful effect of long term difficulties which may also have been present during the same time period. As with the events, it is intended that the stressful effect attributed to difficulties should be assessed only on the basis of objective contextual information independent of a given individual's feelings toward or experience of the difficulty. By definition, the application of the present model to rated difficulties will include no attrition element, as it is assumed that the difficulties are ongoing and constant in their stressful effect.

The additional contribution of stressful effects (Z_o) due to difficulties d_1 ..... d_j with individual stressful effect R_1 ..... R_j is given by:-

$$Z_o = R_1 + R_2 + R_3 + \ldots\ldots + R_j$$

$$- \sum_{p=1}^{p=j} R_p \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

Note that R equals unity for those difficulties assessed as having the greatest stressful effect.

The procedure just described therefore provides an estimate of the adversity (A) to which an individual is still subject to at

a given point in time based on the stressful nature of the events and difficulties which preceded that time point.

This adversity equals the addition of equations (2) and (3),

i.e. $A = X_o + Z_o$

$$= X_{m-1} + (K_m - \frac{t_m}{n}) + \sum_{p=1}^{p=j} R_p \quad \ldots\ldots\ldots\ldots (4)$$

Practical application of equation (4)

In order to test the goodness of fit of the model just described to the information collected in the present study, decisions need to be made concerning the choice of a dissipation rate and of the form in which stressful effect measures of events and difficulties are to be substituted in the derived equation.

Dissipation rate

The decision regarding the choice of an appropriate dissipation rate was entirely based on personal and colleagues' clinical experience as no other suitable yardstick could be found which afforded assistance in making a judgement. As a result, a period of six months (26 weeks) was adopted as that time by which the stressful effect of the most severely rated life events would have completely dissipated. It is acknowledged that this time will, under certain circumstances, be far too short and that its appropriateness can only be ascertained by further research.

Choice of the measure of the stressful effect of events and difficulties

The use of the Edinburgh version of the Brown life event interview resulted in two, four point threat ratings being made for each life event and two, six point severity ratings for each long term difficulty. These scales thus provided only a very narrow range in which to place all possible events and difficulties.

In an attempt to retain information reflected in the ratings and to avoid the inverted relationship between event threat or difficulty severity and scale score value commonly used in the Brown scales, it was proposed that the stressful effect measures of events and difficulties substituted in equation (4) be those of the reciprocal of the product of the short term and long term threat ratings for events and the reciprocal of the product of the objective and general severity ratings for difficulties. The result of this decision was to produce a scale range of one to 1/16 for events and one to 1/36 for difficulties; a high score value on either of these scales now commensurate with a given event or difficulty being of a severe nature.

This decision gave weight to both short term and long term threat ratings of events and was decided upon as the simplest means of providing an extended event range which would take into account all the rated information surrounding a given event. For the difficulty rating, a similar decision was made in spite of the general severity rating including a concerned individual's reactions to a particular difficulty.

The extent to which this decision resulted in contaminated ratings being substituted in equation (4) can be indicated by the fact that 78% of all difficulties were rated equal on objective and general severity. It was felt therefore that in this way the resultant product ratings would include all the available information about a given difficulty through including a greater number of mid-scale points than would the alternative objective score squared alone.

The decision regarding the choice of a dissipation rate and the decision concerning the range of event ratings have direct

implications for the duration for which events of a given rating remain with a real stressful effect. (See Table 9.1 below).

STxLT product	Time to total dissipation (weeks)
1	26
2	13
3	8·67
4	6·5
6	4·34
8	3·25
9	2·89
12	2·17
16	1·62 (approx 11 days)

TABLE 9.1

Equation (4) above was now applied to the information collected in Interview D of the study in such a way that it incorporated the decisions embodied in Table 9.1. In particular it was applied to:-

(a) all life events

(b) only those life events which were considered to be independent or possibly independent of the key illness

and with no attrition element to:-

(c) all long term difficulties

(d) only those long term difficulties considered completely independent of the key illness.

Such an application resulted in four separate adversity indices, each one based on (a), (b), (c) and (d) above.

Finally two global indices were computed. The first was based on all life events and long term difficulties ((a) + (c) above), while the second relied entirely for its computation on assessed independent or possibly independent life events and independent difficulties ((b) + (d) above). This last global index, considered the most important of all those derived will be denoted by AI in all remaining analyses.

Distribution of the adversity indices

Prior to analysing the above indices in relation to other study variables, their distributions will be examined with particular emphasis on the index AI. The four basic indices (X1000) have the following means and standard deviations shown in Table 9.2 below:-

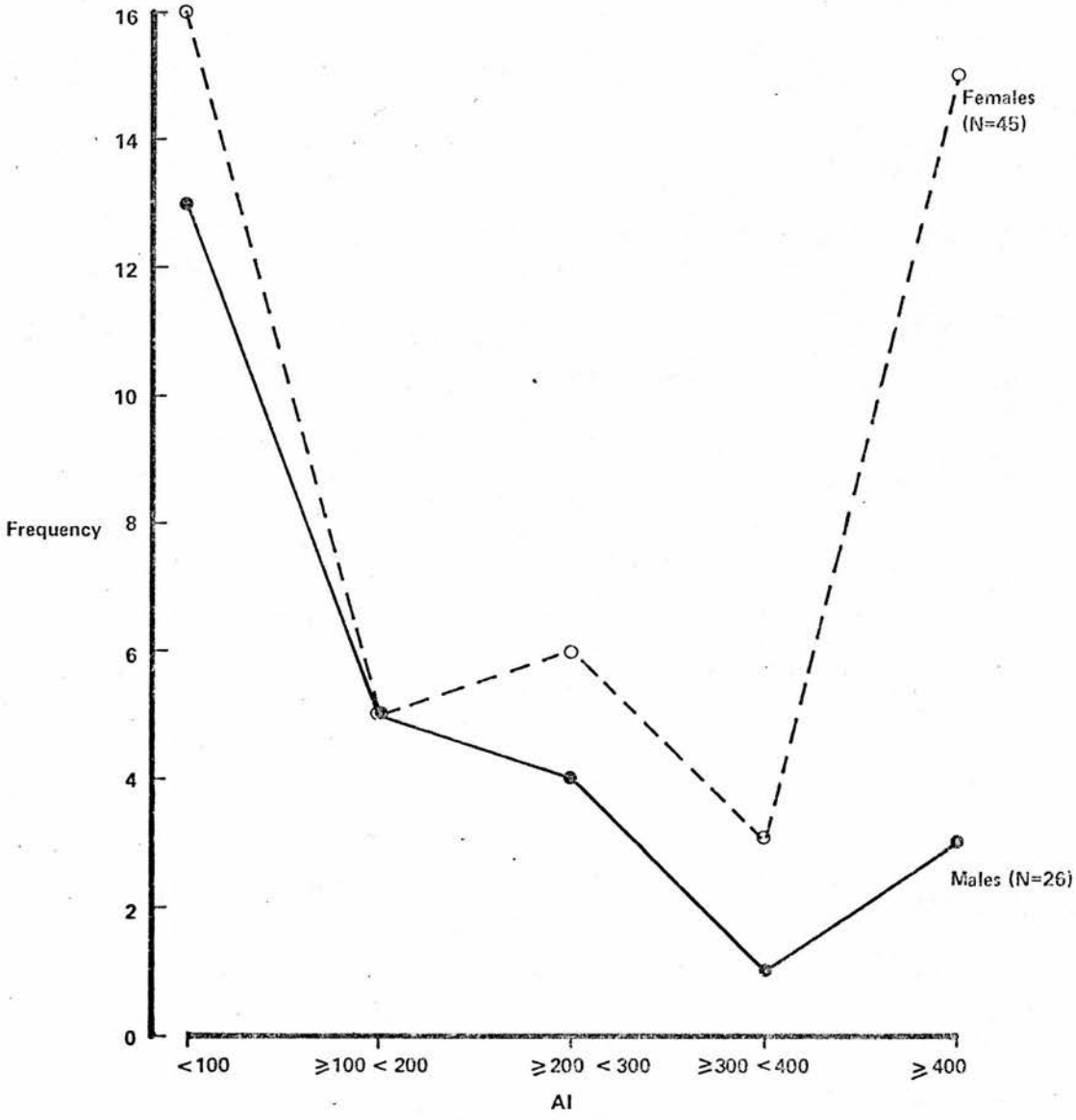
Adversity index based on;	Mean	Standard deviation
All events	370·2	669
Independent/possibly independent events	155·2	340
All difficulties	444·9	506
Independent difficulties	179·4	285

TABLE 9.2

AI has a mean value of 334·6 with standard deviation 480. The derived indices therefore have distributions which depart substantially from a normal distribution. Figure 9.3 below presents the distribution of AI for both sexes.

Inspection of Figure 9.3 indicated that the distribution of AI was different for the sexes with neither resembling a normal distribution. Analysis of the two distributions revealed that of the females to be significantly different from that of the males (Mann-Whitney U Test, corrected for ties, $z = 2{\cdot}07$ $p = {\cdot}019$). One third of the female patients in fact obtained an index value $\geqslant 400$ as compared to only about one tenth

Figure 9.3 Frequency distribution of male and female patients subjected to differing levels of adversity



of the males.

An analysis of the adversity indices in relation to follow-up symptom severity levels.

A re-test of Hypothesis 4; relative absence of adversity during the follow-up period is associated with lower symptom severity levels at follow-up assessment.

For the initial test of Hypothesis 4, Spearman correlations were obtained for those patients on whom Hamilton, Beck and adversity indices were available. The correlations and their level of significance are presented in Table 9.3 below:-

Adversity index based on;	Correlation with follow-up Hamilton scores	Significance level N = 71	Correlation with follow-up Beck scores	Significance level N = 70
All events	0·29	·008	0·22	·035
Independent/possibly independent events	0·28	·008	0·24	·021
All difficulties	0·60	< ·001	0·51	< ·001
Independent difficulties	0·15	·102	0·11	·176
All events + all difficulties	0·59	< ·001	0·49	< ·001
All independent/ possibly independent events + all independent difficulties (AI)	0·30	·005	0·24	·023

TABLE 9.3

The above table clearly indicates that there was a considerable association between follow-up symptom severity levels and almost all the computed adversity indices. Hypothesis 4 was therefore strongly supported. Of particular interest however was the lowering which occurred in the correlations for difficulties but not for events when the respective illness related components were removed. This difference

perhaps provides a clue to the relative importance of events as compared to difficulties in relation to the follow-up symptom levels in this study. Finally the index, which was based entirely on assessed independent or possibly independent events and independent difficulties (AI), was correlated significantly with follow-up symptom severity levels. It is this index of adversity which will be used in much of the analysis to follow.

Before analysing AI in relation to other study variables a further examination of both global indices in comparison to follow-up symptom severity levels will be undertaken.

Initially, for the global index based on <u>all</u> events and <u>all</u> difficulties the patient group was distributed as in Table 9.4 (A) and (B) below, for both the Hamilton (HRS) and Beck (BDI) scores at follow-up.

		Follow-up HRS scores	
		<11	$\geqslant 11$
Index based on <u>all</u> events and <u>all</u> difficulties	$\leqslant 800$	38	9
	>800	4	20

Corrected $\chi^2 = 24{\cdot}5$ with 1 df

$p < {\cdot}0001$

<u>TABLE 9.4 (A)</u>

Index based on all events and all difficulties	Follow-up BDI scores < 15	≥ 15
≤ 800	32	15
> 800	4	19

Corrected $\chi^2 = 13{\cdot}92$ with 1 df

$p = {\cdot}0002$

TABLE 9.4 (B)

In considering the results revealed by Table 9.4 it must be recalled that the global adversity index used in the table includes those events and difficulties which were considered related to the original illness episode. However, if a similar analysis is now performed for the index AI, the distribution as presented in Table 9.5 (A) and (B) below is obtained.

AI	Follow-up HRS scores < 11	≥ 11
≤ 250	32	13
> 250	10	16

Corrected $\chi^2 = 5{\cdot}98$ with 1 df

$p = {\cdot}015$

TABLE 9.5 (A)

AI	Follow-up BDI scores < 15	≥ 15
≤ 250	29	16
> 250	7	18

Corrected $\chi^2 = 7{\cdot}15$ with 1 df

$p = {\cdot}008$

TABLE 9.5 (B)

Both the above sub-tables indicate that patients differentiated in terms of assessed illness independent adversity by the model developed in this chapter were further differentiated in terms of their follow-up symptom severity levels. Patients tending to have high adversity levels (> 250 units) also had higher symptom levels. The mean Hamilton score for the high adversity group was 12·5 (SD 6·62) and for the low adversity group 6·16 (SD 6·8). Testing the significance of the difference of these means gave a 't' value of 3·82, df = 69, $p < .001$. A similar analysis for the Beck scores revealed a mean symptom score for the high adversity group of 21·8 (SD 11·99) and for the low adversity group 12·18 (SD 11·32). The resulting 't' value was 3·35, df = 68, $p < .001$. The results of this chapter therefore provide very strong support for Hypothesis 4.

Chapter 9: Summary

This chapter presented a new model for estimating the adversity to which an individual is still subject to at a given time, based on the occurrence of life events and long term difficulties preceding that time. The model was applied to the information obtained in Interview D of the study. A considerable statistical association was found between a measure of adversity and follow-up symptom severity levels. These results appeared encouraging, particularly in comparison to those obtained by the traditional type of analysis presented in Chapter 8.

CHAPTER 10

Adversity, social support and symptom severity

This chapter will be devoted to an examination of the relationship between the main index of adversity (AI) as derived by the model in the preceding chapter, social support as outlined in Chapter 7 of the results, and the symptom severity levels of patients as assessed at follow-up. The following hypothesis, Hypothesis 5, will be tested in this chapter.

Hypothesis 5: Social support and adversity when present together in the following combinations result in the following order of outcome, ranked by the percentage of patients 'ill' at follow-up assessment.

Best outcome:

That patient group with social support available to them prior to follow-up assessment and subjected to 'little or no' adversity during the follow-up period.

Intermediate outcome:

That patient group with social support prior to follow-up assessment and experiencing adversity during the follow-up period.

and

That patient group relatively lacking in social support prior to follow-up assessment subjected to 'little or no' adversity during the follow-up period.

Worst outcome:

That patient group relatively lacking in social support prior to follow-up assessment and experiencing adversity during the follow-up period.

Initially a correlation (Spearman) was obtained between follow-up support (SSB) and AI. This was found to be non-significant ($r = \cdot 06$). Further examination of the distribution of patients suffering high and low levels of adversity and having presence or absence of support failed to indicate any relationship between the two indices. An analysis of the indices in relation to follow-up symptoms was therefore undertaken.

For this analysis two levels of adversity were considered, a high (>200 units) and a very high (>250 units) level. The purpose of examining two levels was to provide some information on the changes in the proportions of patients exhibiting symptoms at follow-up assessment under different degrees of adversity. Results will be presented for each level of AI and for both the Hamilton Rating Scale (HRS) and Beck Depression Inventory (BDI), criterion levels for all variables being identical to those used in previous chapters. The relationship between follow-up symptom levels, adversity (high level) and follow-up social support is presented below in Table 10.1 (A) and (B).

SSB	AI	Follow-up HRS scores < 11	≥ 11	
≥ 7	> 200	1	11	←
	≤ 200	9	6	(1)
< 7	> 200	14	6	←
	≤ 200	18	6	

TABLE 10.1 (A)

	AI	Follow-up BDI scores < 15	≥ 15
SSB ≥ 7	> 200	1	10
	≤ 200	7	8
SSB < 7	> 200	11	9
	≤ 200	17	7

TABLE 10.1 (B)

Inspection of the sub-tables above indicates considerable similarities in terms of the proportions of patients within each cell. Examination of Table 10.1 will therefore be restricted to an analysis of sub-table (A) but comments made will broadly apply to both. It will be recalled from Chapter 7 of the results that a score of ≥ 7 on the index SSB was taken to represent the relative absence of social support while a score of < 7 the relative presence.

Considering therefore the inter-relationship of support and levels of adversity in Table 10.1 (A) the following emerges. Patients lacking support who had experienced adversity had significantly more symptoms at follow-up than patients lacking support but not experiencing adversity (top half Table 10.1 (A), corrected $\chi^2 = 5{\cdot}58$, df = 1, $p < {\cdot}02$). Now if adversity levels are controlled but individuals differed in availability of support, the extent to which presence of support is associated with lower follow-up symptom levels can be examined (comparison (1) in Table 10.1 (A) above). This comparison reveals a corrected $\chi^2 = 9{\cdot}11$, df = 1, p ·01, indicating that patients suffering high levels of adversity but having social support were more likely to have lower symptom severity levels at follow-up than those who had little or no support.

When all combinations of support and adversity were considered together, (Table 10.1 (A)) the following rank order of outcome resulted. (HRS scores less than 11 being equated with 'well').

RANK		CONDITION
1 Worst outcome	(8·3% 'well')	Relative absence of social support and presence of adversity.
2	(60% 'well')	Relative absence of social support and relative absence of adversity.
3	(70% 'well')	Presence of support and presence of adversity.
4 Best outcome	(75% 'well')	Presence of support and relative absence of adversity.

These results strongly support Hypothesis 5.

Part of the above analysis will now be repeated, with the level of adversity raised to the very high level (AI > 250 units). The resulting relationships are presented in Table 10.2 (A) and (B) below.

SSB	AI	Follow-up HRS scores < 11	⩾ 11	
⩾ 7	> 250	1	10	←
	⩽ 250	9	7	(1)
< 7	> 250	9	6	←
	⩽ 250	23	6	

TABLE 10.2 (A)

SSB	AI	Follow-up BDI scores <15	≥ 15
≥ 7	>250	1	9
	≤ 250	7	9
<7	>250	6	9
	≤ 250	22	7

TABLE 10.2 (B)

While certain similarities between the sub-tables of Table 10.2 remain, differences have also arisen with the increase in the adversity threshold; patients having a tendency to report themselves as having more symptoms at follow-up (under two adversity/support conditions) than the observer - based (HRS) ratings. In spite of this difference, for the comparison of results with the preceding analysis comments will be restricted to Table 10.2 (A). The statistical relationships revealed in Table 10.1 (A) were still preserved in Table 10.2 (A) (the corrected χ^2 for the top half of Table 10.2 (A) equals 4·36, df = 1, $p < .05$, while comparison (1) in the same table reveals a corrected $\chi^2 = 4{\cdot}97$, df = 1, $p < .05$) thus indicating that the relationships examined were once again significant. The rank order of outcomes was also preserved, (again providing strong support for Hypothesis 5) however differences in the percentages of patients 'well' under each condition had emerged as compared to those revealed by Table 10.1 (A). Again only one patient was reported as being 'well' under the condition of very high adversity and absence of support (in fact this patient, who had just been discharged from a long second admission during the study period denied all symptoms asked apparently as a result of paranoid feelings regarding the purpose of the interview. This patient

since committed suicide).

Of particular interest was the group of patients who had suffered a very high level of adversity but had social support available to them. By the criteria used in this analysis, 60% of these were 'well' as compared to 70% revealed by analysis of Table 10.1 (A) - a trend in the expected direction. These results provided further confirmation of the relative protective importance of social support.

The stability or change in assessed support which occurred for some patients between the initial and follow-up assessments and the relationship between this change, levels of adversity experienced, and follow-up symptoms was then examined. The notation used in Chapter 7 of the results part (d) will again be used here to denote the way in which social support changed. Table 10.3 below presents details of the change in support in relation to the presence or absence of a 'high' (AI $>$ 200 units) level of adversity and in relation to follow-up HRS scores.

		Follow-up HRS scores <11		$\geqslant 11$	
		$\leqslant 200$	>200	$\leqslant 200$	>200
Continuous 'absence' of support	'A'	7	1	4	10
Gain in support	'B'	6	2	1	2
Loss in support	'C'	2	0	2	1
Continuous 'presence' of support	'D'	12	12	5	4

TABLE 10.3

The above table indicates that patients lacking support throughout the duration of the study (group 'A' above) who had experienced

adversity, had significantly more symptoms at follow-up than patients lacking support throughout the study but not experiencing adversity (Fisher exact probability test $p < .025$). The outcome of those patients who had support continuously available to them throughout the period of the study (group 'D' above) was compared to the outcome of group 'A'. Of the 16 patients in group 'D' who were subjected to high adversity, 12 were considered 'well' at follow-up as compared to only one patient out of the 11 in group 'A'; a significant difference (corrected $\chi^2 = 8.86$, df = 1, $p < .01$).

No statistical difference was apparent between groups 'A' and 'D' in terms of outcome for those subjected to 'little or no' adversity ($AI \leqslant 200$ units). The table therefore provided additional evidence to indicate that the presence of social support serves to reduce the severity of symptoms when adversity is experienced. However in the absence of adversity, presence or absence of support did not differentiate the group at follow-up in terms of symptom severity. Groups of patients who experienced loss, (group 'C' above) or gain (group 'B' above) of social support during the study period were unfortunately too few in number to be able to make comment or statistical comparison.

The analysis of the above results was then repeated with the level of adversity suffered by the patients dichotomised at the 'very high' ($AI > 250$ units) level. The results of this division proved very similar to those of Table 10.3.

To provide a further insight into the relationship between support, adversity and follow-up symptoms, an analysis was undertaken of the main component of support (the confidant ratings) in relation to these other variables. Table 10.4 below presents the

follow-up confidant ratings in relation to the follow-up HRS scores and also to whether patients were subjected to a very high level (AI > 250 units) of adversity or not. The percentage of patients 'well' (HRS < 11) at each point is also presented.

Confidant ratings	AI	Follow-up HRS scores < 11	Follow-up HRS scores ≥ 11	Percentage of patients 'well' (HRS < 11)
0/1	> 250	6	4	60
	≤ 250	20	4	83·34
2	> 250	4	5	44·45
	≤ 250	8	6	57·14
3/4	> 250	0	7	0
	≤ 250	4	3	57·14

TABLE 10.4

It will be recalled that the confidant ratings '0' and '1' refer to a close, reciprocating relationship while a '2' indicates lack of reciprocity and a '3' or a '4' a very poor or no relationship at all.

Table 10.4 indicated that the confidant relationship was of considerable importance in relation to follow-up symptom severity levels if a very high level of adversity had occurred. Of those patients who had a '0' or a '1' relationship and suffered adversity, 60% were 'well', while of the seven patients who lacked a 'good' confidant and had suffered a very high level of adversity all obtained scores of 11 or more on the HRS. Examination of the outcome of all patients with confidant ratings of '3' or '4' in relation to the level of adversity, revealed that the distribution of patients was significantly different from that of a random distribution. (Fisher Exact Probability Test $p = .035$).

When part of the above analysis was repeated for the follow-up BDI scores the following percentages of patients were 'well' (BDI <15).

	Confidant rating		
	0/1	2	3/4
Percentage 'well' with AI> 250	50	25	0
Percentage 'well' with AI≤ 250	79·2	50	42·9

TABLE 10.5

The pattern of percentages in Table 10.5 is very similar to that revealed in the preceding analysis of the Hamilton ratings except that every cell percentage in the Beck table is reduced. Only half the patients having a '0' or '1' confidant relationship and subjected to a very high level of adversity reported themselves to be 'well' by the study criteria as compared to almost 80% of those with a '0' or '1' relationship but who had not been subjected to a very high level of adversity.

This percentage difference became even more pronounced for those patients having a 'poor' or no confiding relationship but differing in the extent to which adversity had been experienced. Almost 43% were 'well' with 'little or no' adversity as compared to 0% of those subjected to a very high level of adversity.

Chapter 10: Summary

This chapter has provided further details on the relationship between the main index of adversity (AI) developed in the preceding chapter and follow-up symptoms but with the additional variable social support also considered. The results indicated the extent to which the presence or absence of support general or specific (i.e. availability

of a confidant) was associated with the follow-up symptom state of patients when levels of adversity were also considered. It would appear from the results that the presence of social support confers partial immunity against the recurrence of symptoms when adverse events or difficulties occur. The next chapter will investigate the relationship between another factor, medication (which may confer some protection against stressful events), adversity, social support and follow-up symptom levels.

CHAPTER 11

Adversity, social support, medication and symptom severity

This chapter is concerned with the inter-relationship between adversity (AI), social support at follow-up (SSB), whether patients had been taking medication continuously or discontinuously during the period of follow-up, and follow-up symptom severity. Both the high (AI > 200 units) and the very high (AI > 250 units) levels of adversity will be included where appropriate in the analysis. Only the Hamilton Rating Scale scores (HRS) will be considered as the main dependent variable.

For the analysis a decision was taken regarding what constituted 'continuous' and 'discontinuous' medication. This decision resulted in all those patients who had taken any one or combination of the major tricyclic preparations, MAOIs, L-tryptophan, lithium or major tranquillizers (e.g. thioridazine) for a period equal to or exceeding 24 weeks of the study period being assigned to the continous medication (CM) group. All other patients, whether they had taken no medication, or indeed had taken up to 23 weeks of medication were assigned to the discontinuous medication group (DM). This division was very arbitrary and was made as a compromise since the alternative of attempting to analyse the results by medication type and/or dosage level would have been extremely difficult and a futile exercise for a study with relatively few patients. This decision resulted in the CM group having 36 patients and the DM group 35 for those analyses which included the measures of adversity (Interview D, it will be recalled, was only administered to 71 patients).

The first analysis of this chapter concerns the inter-relationship between patients' experience of the high (AI > 200 units) level of

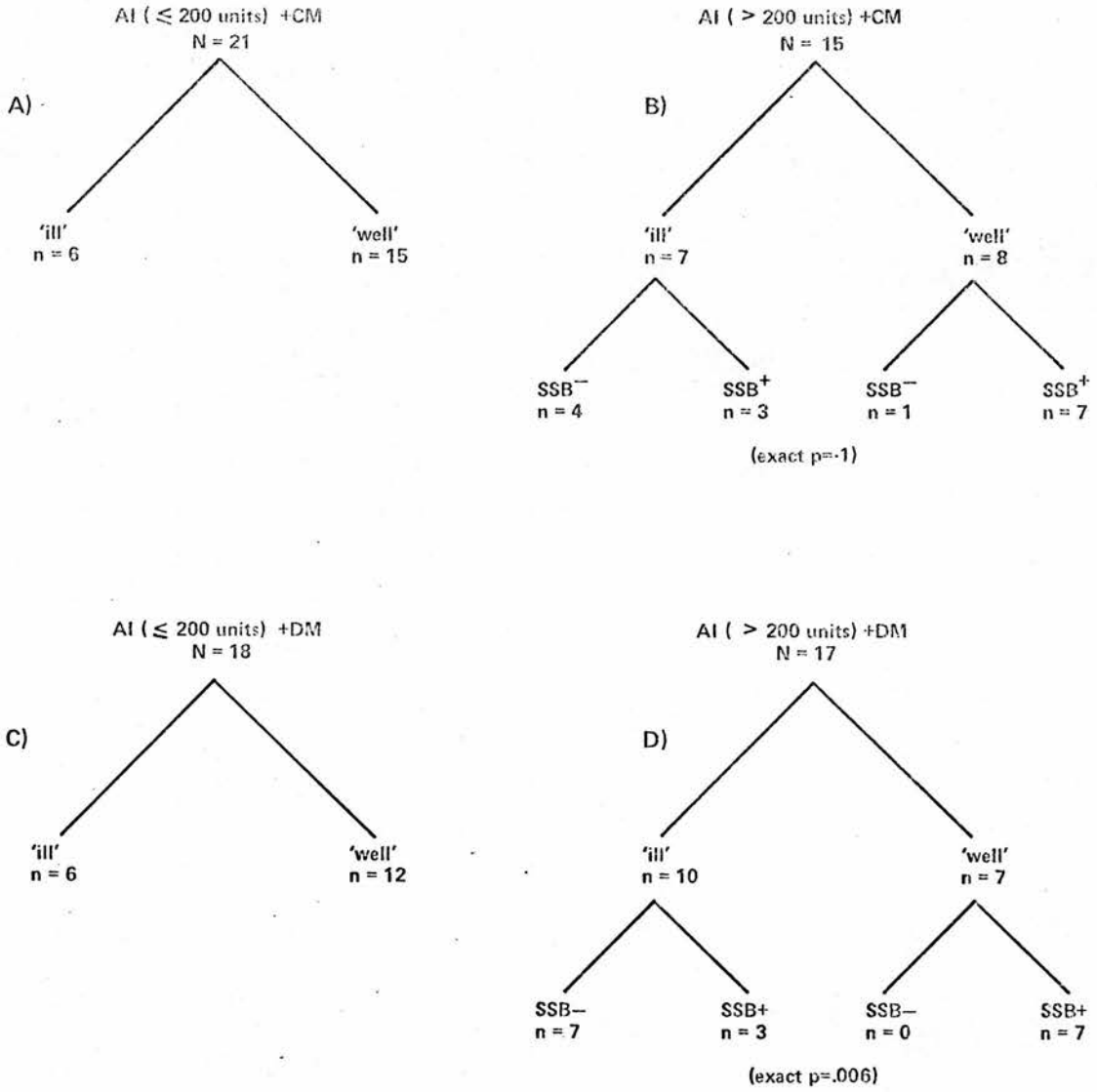
adversity, follow-up social support (SSB), medication and follow-up HRS scores. The results are presented in Figure 11.1 below.

Figure 11.1 (A) and (C) indicate that while the two groups differed in respect to the extent to which they had taken medication and while they were assessed as having suffered a low level of adversity (AI $\leq$ 200 units), both groups had approximately the same proportion of patients 'well' at follow-up assessment; the CM group 71·43% and the DM group 66·67%. However, Figure 11.1 (B) and (D) demonstrate that while 41·18% of the patient group subjected to high adversity on DM were 'well', only 53·34% of the high adversity CM group were 'well' at follow-up.

When the patients in (B) and (D) were further divided with respect to availability of social support, the results revealed that of the eight patients who were 'well' under high adversity and CM, seven (87·5%) had social support available to them, while of the seven patients who were 'ill', four (57%) had little or no support. (The exact probability of obtaining a distribution as in (B) above by chance alone is given by p = ·1). When this analysis was repeated for the patients in (D), all seven patients who were 'well' were found to have had social support available to them, while of the 10 patients who were 'ill', seven (70%) had little or no social support. (The probability of obtaining this distribution by chance alone is given by an exact p = ·006).

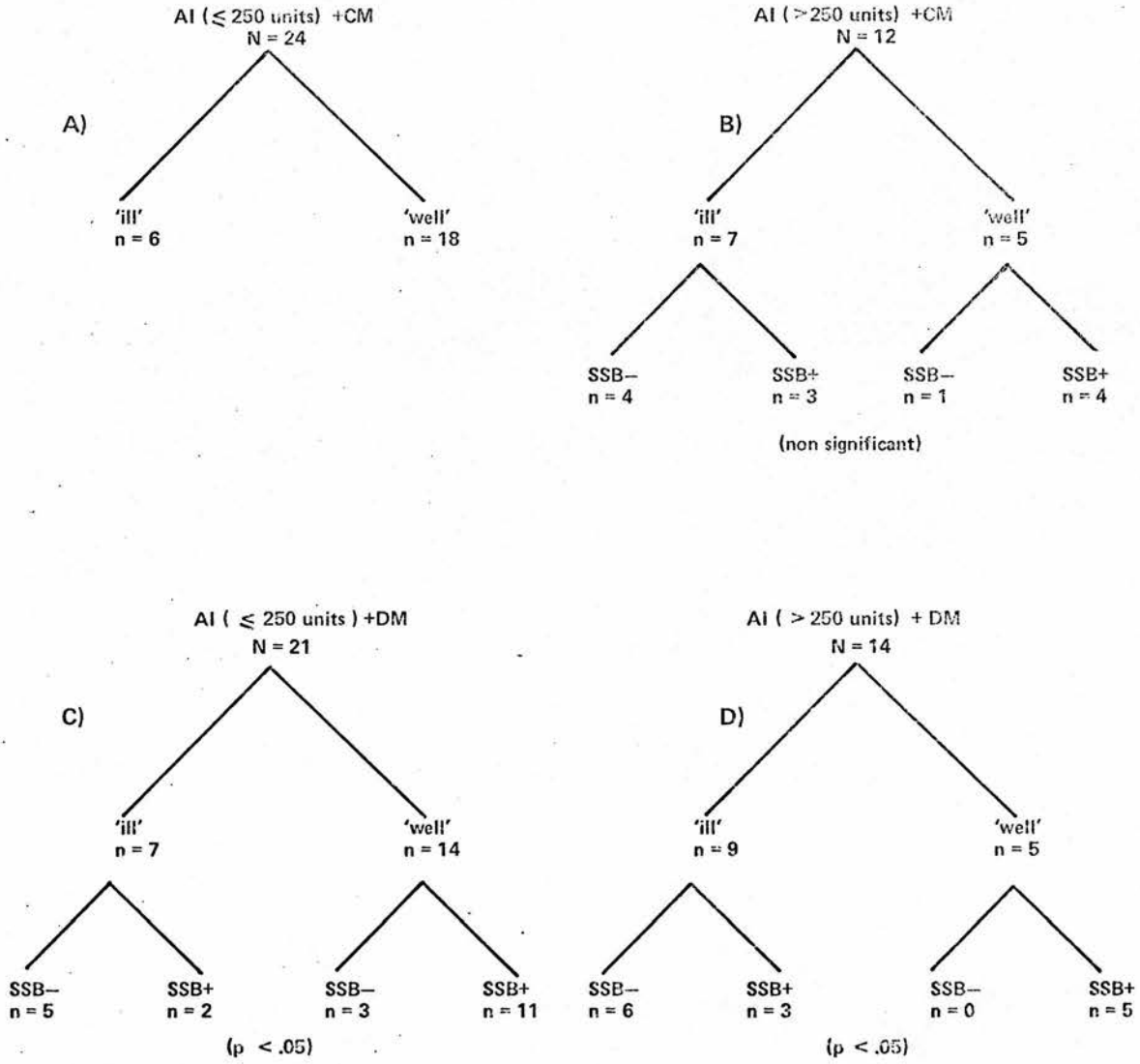
To further examine the above relationships, the same analysis was repeated with adversity raised to the very high level (AI > 250 units). The resulting distribution of patients is presented in Figure 11.2.

Figure 11.1 The interrelationship between a high level of adversity, follow-up social support, medication and follow-up Hamilton scores



'ill' indicates HRS ≥ 11
'well' indicates HRS < 11
SSB– indicates relative absence (≥ 7) of support
SSB+ indicates relative presence (<7) of support

Figure 11.2 The interrelationship between a very high level of adversity, follow-up social support, medication and follow-up Hamilton scores



'ill' indicates HRS ≥ 11
'well' indicates HRS < 11
SSB– indicates relative absence (≥7) of support
SSB+ indicates relative presence (< 7) of support

Figure 11.2 restates the relationships which were initially revealed in Figure 11.1. The main difference between the two figures is in respect to the proportion of patients considered 'well' under each condition of medication, support and adversity.

For both levels of adversity and for the two medication groups the following percentages of patients were 'well':-

(AI > 200 units) + CM	(AI > 250 units) + CM
53·34%	41·67%
(AI > 200 units) + DM	(AI > 250 units) + DM
41·18%	35·71%

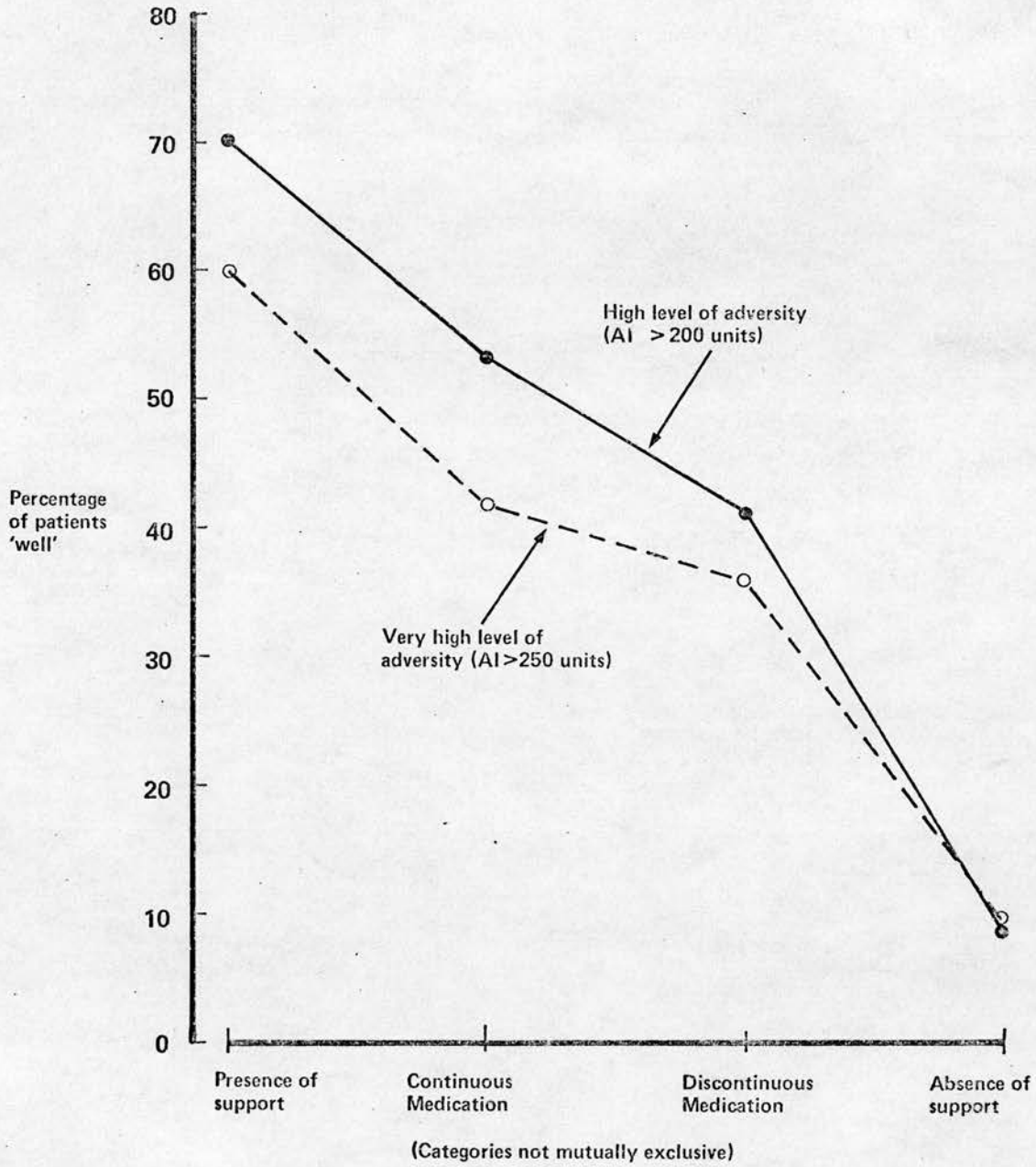
The above percentages clearly indicate the extent to which the higher levels of adversity resulted in reduced proportions of patients remaining 'well' at follow-up under both CM and DM regimes.

When both levels of adversity were examined in relation to presence or absence of social support at follow-up the following percentages of patients were considered 'well' (HRS 11).

(AI > 200 units) + (SSB < 7)	(AI > 250 units) + (SSB < 7)
70%	60%
(AI > 200 units) + (SSB ≥ 7)	(AI > 250 units) + (SSB ≥ 7)
8·34%	9·09%

These percentages indicate that even when patients were subjected to a very high level of adversity, presence of support continued to be associated with more than half of those patients remaining 'well' at follow-up.

Figure 11.3 Percentage of patients 'well' under 'high' and 'very high' levels of adversity related to availability of social support and taking of medication



The relative proportions of patients who were 'well' at follow-up under each of the above conditions is presented in Figure 11.3.

Figure 11.3 however does not allow a true examination of the relative proportions of patients 'well' taking medication or having support as there were patients who fell into both categories. An examination was therefore made of all patients 'well' under both levels of adversity but divided by all combinations of the variables. The results are presented in Table 11.1 below:-

High level of adversity (AI > 200 units) AND...	Patient percentage 'well'	Very high level of adversity (AI > 250 units) AND...	Patient perecentage 'well'
+ CM + SSB < 7	70	+ CM + SSB < 7	57·14
+ DM + SSB < 7	70	+ DM + SSB < 7	62·5
+ CM + SSB ⩾ 7	20	+ CM + SSB ⩾ 7	20
+ DM + SSB ⩾ 7	0	+ DM + SSB ⩾ 7	0

TABLE 11.1

Table 11.1 indicates that there is little or no difference between the percentage of patients 'well' with social support available who had taken medication continuously and the percentage of those with social support available who had been taking medication discontinuously. Availability of social support appeared to be the crucial factor. Of those patients who had little or no support but differed as to whether they had taken medication continuously or not, few were 'well' at follow-up under either level of adversity experienced. Taking continuous medication (as earlier defined), was therefore not associated with reduced levels of symptoms at follow-up in those patients subjected to either a high or a very high level of adversity.

To further examine the issues raised above, part of the analysis was repeated with the main follow-up index of social support (SSB) replaced by the confidant ratings. It will be recalled from previous sections of these results that ratings of '0' or '1' were given to those patients with a close, reciprocating relationship, while a '2' indicated absence of reciprocity and a '3' or a '4' a very poor or no confidant relationship at all.

The relationship between the patients' confidant ratings at follow-up, medication, and follow-up Hamilton Rating Scale scores (HRS) is presented in Tables 11.2 (A) and (B). The percentage of patients 'well' under each medication condition is also shown below.

		Follow-up HRS scores <11 CM	≥11 CM	Patient percentage 'well' (<11)
Confidant rating	0/1	12	5	70·59
	2	8	5	61·54
	3/4	3	3	50

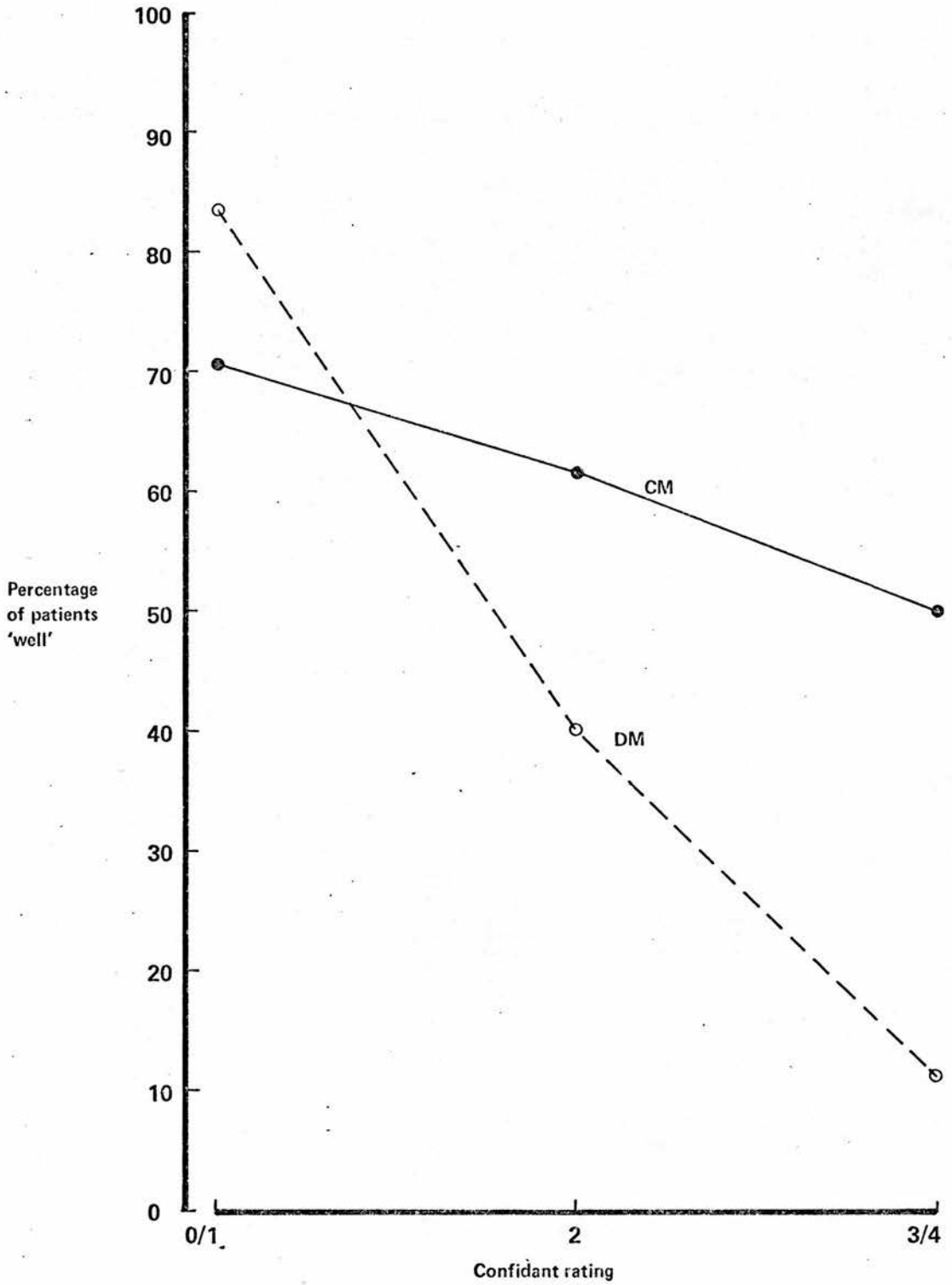
TABLE 11.2 (A)

		Follow-up HRS scores <11 DM	≥11 DM	Patient percentage 'well' (<11)
Confidant rating	0/1	15	3	83·34
	2	4	6	40
	3/4	1	8	11·11

TABLE 11.2 (B)

This information is also presented graphically in Figure 11.4.

Figure 11.4 Percentage of patients 'well' (HRS) ≤11) at follow-up related to confidant rating and to taking of medication



Both Figure 11.4 and Table 11.2 indicate that the importance of taking medication appears to increase as the quality of an available confidant relationship decreases. Patients with a poor or no confiding relationship who had taken medication discontinuously had higher (though just not significantly higher) symptom severity levels at follow-up than those patients with a similar confiding relationship who had taken continuous medication. However patients who had available to them a close confiding relationship but differed as to whether they had taken medication continuously or not were found to be mostly 'well' at follow-up; indeed a slightly higher percentage of the patients who had taken medication discontinuously were 'well' at follow-up as compared to those who had taken it continously.

The above results were obtained without considering the occurrence of stressful events. It was important therefore to establish whether the taking of continuous medication was associated with reduced symptom severity levels in patients who had no available confidant and were subjected to very high levels of adversity. Table 11.3 below presents the results of the analysis.

	AI	Follow-up HRS scores <11		$\geqslant 11$		Percentage of patients 'well' (<11)	
		CM	DM	CM	DM	CM	DM
Confidant rating	0/1 >250	2	4	2	2	50	66·7
	0/1 $\leqslant 250$	10	10	3	1	76·92	90·91
	2 >250	3	1	2	3	60	25
	2 $\leqslant 250$	5	3	3	3	62·5	50
	3/4 >250	0	0	3	4	0	0
	3/4 $\leqslant 250$	3	1	0	3	100	25

TABLE 11.3

Individual cell frequencies are extremely small in Table 11.3 but some hint of possible relationships between the variables can be deduced. The situation where patients were taking medication continuously, had a poor or no confidant and had been subjected to a very high level (AI > 250 units) of adversity was initially examined. The three patients who fell into this category were all assessed as having a high symptom level at follow-up assessment. The four patients who were similarly placed with respect to confidant and adversity but who had not been taking medication continuously were all similarly assessed as having high symptom severity levels at follow-up. These results therefore weakly suggest that taking medication continuously does not in itself afford protection against the development of depressive symptoms in the face of adversity. For those patients (three) who were not subjected to adversity but who had no confidant and had taken medication continuously, all were 'well' at follow-up.

An examination of the percentage of patients 'well' at each of the confidant rating points revealed that for those patients on continuous medication subjected to a very high level of adversity there was a considerable improvement in the percentage of patients 'well' with only a slight improvement in the quality of a confidant. This increase in the proportion of patients 'well was in fact hardly maintained as the confidant rating further improved. This percentage change was in contrast to that of the very high adversity and DM patient group. For those patients with a confidant '2' rating, 25% were 'well'. However for those with '0' or '1' ratings, two-thirds were 'well'. These results weakly suggest that the availabil ity of a confidant was important for all the patients, but that the quality of that confidant was less important for those patients taking medication continuously than for those who were not.

This conclusion was to some extent strengthened by an examination of those patients again differentiated by medication and confidant but who had been subjected to lower levels of adversity (AI $\leqslant$ 250 units). A relatively high (never less than 60%) proportion of the CM group were 'well' for all confidant rating categories. This was in marked contrast to the percentage profile of the DM patient group. Over 90% of the DM group subjected to little or no adversity with a confidant rating of '0' or '1' were 'well' at follow-up but this dropped to 50% for the confidant '2' rating and to 25% for the '3' or '4' rating. These figures again suggest that of those subjected to little or no adversity confidant quality was more important for the DM group than for the CM group.

Finally, to restate some of the results presented in this chapter, the combinations of variables examined were ranked according to the percentage of patients 'well' at follow-up assessment for both levels of adversity and in relation to follow-up symptom severity levels ('well' = HRS < 11 and BDI < 15). In Table 11.4 below, a low rank indicates a higher percentage of patients 'well' at follow-up assessment.

	AI level 'set' at 200 units		AI level 'set' at 250 units	
Combination of variables	HRS	BDI	HRS	BDI
(SSB^+) + DM + (AI^+)	1	1	1	1
(SSB^+) + CM + (AI^+)	5	4	2·5	2
(SSB^-) + CM + (AI^+)	2	3	2·5	3
(SSB^+) + DM + (AI^-)	3·5	5	4	5·5
(SSB^+) + CM + (AI^-)	3·5	2	5	4
(SSB^-) + DM + (AI^+)	6	6	6	5·5
(SSB^-) + CM + (AI^-)	7	8	7	8
(SSB^-) + DM + (AI^-)	8	7	8	7

TABLE 11.4

Key to Table 11.4

SSB^+ = Presence of social support at follow-up (Score < 7).

SSB^- = Relative absence of support at follow-up (Score ≥ 7).

CM = ≥ 24 weeks of medication during follow-up period.

DM = < 24 weeks of medication during follow-up period.

AI^- = AI > 200 or > 250 units (high or very high levels of adversity).

AI^+ = AI ≤ 200 or ≤ 250 units (very low or low levels of adversity).

In spite of the relatively small size of the study population as a whole the above analysis of variables revealed an outcome hierarchy which conformed almost exactly to that which was expected. The extremes of the hierarchy were broadly consistent for both symptom assessment methods and for the two levels of adversity.

Chapter 11: Summary

This chapter suggested that:-

(i) Of those patients subjected to adversity during the follow-up period there was no significant difference between the proportions of patients 'well' at follow-up who had taken continuous or discontinuous medication.

(ii) Availability of social support appeared to provide considerably more protection against a symptomatic response to adversity than did the taking of continuous medication.

(iii) The quality of an available confidant was more important for those patients taking medication discontinously than for those taking continuous medication.

CHAPTER 12

Adversity, extraversion, social support and symptom severity

The variables examined so far in these results have been those which were computed specifically for the study. In addition, however, a self-report personality questionnaire, the Eysenck Personality Inventory (EPI) (Eysenck and Eysenck, 1964), was administered to all the patients after they had undergone considerable remission of the symptoms of the illness which admitted them to the study. Selection of the EPI for inclusion in this study rested on the availability of norms resulting from its considerable previous administration to a wide variety of subject populations. The encouraging results obtained by the Newcastle group of researchers (e.g. Kerr et. al., 1972) on the ability of the scales of the EPI to predict outcome of depressive disorders also influenced the use of this questionnaire in the present study.

The EPI purports to measure two dimensions of personality, Extraversion - Introversion and Neuroticism. It also includes a lie scale. Form B of the EPI was administered to all 80 patients in this study. The resulting mean scores and standard deviations (SD) of the scores are presented below in Table 12.1.

	Mean Score	SD
Neuroticism (N)	16·35	4·93
Extraversion (E)	12·24	4·35
Lie (L)	2·48	1·71

TABLE 12.1

While all the study patients were administered the inventory close to or just after discharge (or for out-patients after consultation with their doctor), the higher mean score of the N scale for the study

group in comparison to that published in the norms of the scale for an appropriate comparison group (10·53 was the mean of a normal population), suggested that the patients probably had residual symptoms when completing the inventory. This interpretation follows from the demonstration of a reduction in N scale scores when the scale was administered on two occasions separated by considerable symptomatic change in a depressed patient population (Kendell and DiScipio, 1968). The mean score of the E scale in Table 12.1 more closely resembles that of the normal population (mean 14·12) and reflects the greater stability of the E scale as compared to that of the N.

As a further indication of the extent to which both E and N were related to the symptom state of the patients in this study, a correlation matrix for the two scales against the initial and follow-up symptom severity assessments is presented in Table 12.2 below.

	Key illness assessments		Follow-up assessments	
	HRS	BDI	HRS	BDI
N	·12(ns)	·2(·049)	·38(<·001)	·5(<·001)
E	-·09(ns)	-·11 (ns)	-·14(ns)	-·19(ns)

TABLE 12.2

As Table 12.2 indicates, none of the correlations between E and the symptom severity measures were significant. Three out of the four correlations with N however were significant, with highly significant correlations found between N and the follow-up symptom severity measures. In view of these results, further analysis will be restricted to E, the most stable of the two measures.

(i) <u>An examination of the inter-relationships between levels of adversity, extraversion and follow-up symptom severity levels.</u>

For the purposes of this and other analyses to follow, a score of 12 or above on the E scale (this being the approximate mean score on the scale for the patient group) divided the patients into two groups.

Table 12.3 below presents the distribution of patients according to whether they were subjected to a high level of adversity, their E scale scores and follow-up Hamilton Rating Scale (HRS) scores. The percentage of patients 'well' (HRS < 11) under each condition is also indicated.

	E	Follow-up HRS scores < 11	⩾11	Percentage of patients 'well'
AI > 200	⩾12 'a'	12	5	70·6
	<12 'b'	3	12	20
AI ⩽ 200	⩾12 'c'	16	7	69·57
	<12 'd'	11	5	68·75

TABLE 12.3

Table 12.3 indicates that a similar percentage of patients with high E scores were 'well' at follow-up as those with low E scores under conditions of little or no adversity experienced. However for those patients who were subjected to a high level of adversity (AI > 200 units), E scores successfully differentiated those patients 'well' from those 'ill' at follow-up assessment. When the four adversity by E groups, denoted by 'a', 'b', 'c' and 'd' in Table 12.3 above are statistically examined the following results emerge:

(1) Corrected χ^2 ('a', 'b') = 6·28 df = 1 $p < .02$

(2) Corrected χ^2 ('b', 'c') = 7·05 df = 1 $p < .01$

(3) Corrected χ^2 ('b', 'd') = 5·59 df = 1 $p < .02$

An E score of 12 or above was therefore associated with a significantly reduced risk of developing depressive symptoms in the presence of stressful social and environmental circumstances. There was no difference between the percentage of patients 'well' who scored $\geqslant 12$ on E but differed in respect of whether they had been subjected to adversity or not (groups 'a' and 'c' in Table 12.3 above).

To investigate these relationships further, this analysis was repeated with the level of adversity raised to the very high level (AI > 250 units). Table 12.4 below presents this distribution. The percentage of patients 'well' for each condition is again indicated.

	E	Follow-up HRS scores < 11	Follow-up HRS scores $\geqslant 11$	Percentate of patients 'well'
AI > 250	$\geqslant 12$ 'a'	8	5	61·54
	< 12 'b'	2	11	15·39
AI $\leqslant 250$	$\geqslant 12$ 'c'	20	7	74·07
	< 12 'd'	12	6	66·67

TABLE 12.4

The relationships revealed in Table 12.3 and discussed above were again shown in Table 12.4. However a score of $\geqslant 12$ on the E scale was associated to a reduced extent with patients being 'well' at follow-up assessment. The proportion of patients 'well' who had

scored <12 on the E scale and had been subjected to a very high level of adversity was also reduced as compared to those who were subjected to the high level of adversity in Table 12.3.

A statistical examination of the groups 'a', 'b', 'c' and 'd' in Table 12.4 revealed the following significant relationships.

(1) Corrected χ^2 ('a', 'b') = 4·06 df = 1 $p < .05$

(2) Corrected χ^2 ('b', 'c') = 9·96 df = 1 $p < .01$

(3) Corrected χ^2 ('b', 'd') = 6·08 df = 1 $p < .02$

These results are very similar to those obtained in Table 12.3 and serve to reinforce the point that those patients who obtained an E score above the mean and were subjected to a very high level of adversity did not develop depressive symptoms to the same degree as those who had lower E scores and were similarly subjected to adversity.

(ii) <u>An examination of the inter-relationships between levels of adversity, social support, extraversion and follow-up symptom severity levels.</u>

The relationship between the derived index of social support at follow-up (SSB) and extraversion (E) scores was first examined as it might be expected that there would be a strong positive association between the two measures; the extraverted patients tending to have a greater number of acquaintances and perhaps more able to establish and sustain both close and diffuse social networks. The correlation between E and SSB was however negative and non-significant (-·10). When patients were divided on the basis of their E scores at approximately the mean (12) and their follow-up support scores at 7 then the corrected χ^2 was almost zero.

Having established these two measures were not statistically related, a series of analyses was performed in order to examine the inter-relationships between the levels of adversity examined previously, social support at follow-up, extraversion and follow-up symptom state (Hamilton ratings only).

For this analysis, patients' scores on the main index of follow-up social support (SSB) were again divided at 7. Table 12.5 and Table 12.6 below present the distribution of patients on the variables of adversity, extraversion and social support as related to follow-up Hamilton scores. Table 12.5 examines the high level of adversity (AI > 200 units) while Table 12.6 examines the very high level (AI > 250 units). Both tables also present the percentages of patients 'well' under each adversity, support, extraversion condition.

	E	Follow-up HRS scores < 11 SSB		Follow-up HRS scores ⩾ 11 SSB		Percentage of patients 'well' with SSB	
		⩾ 7	< 7	⩾ 7	< 7	⩾ 7	< 7
AI > 200	⩾ 12	1	11	3	2	25	84·61
	< 12	0	3	8	4	0	42·86
AI ⩽ 200	⩾ 12	7	9	4	3	63·64	75
	< 12	2	9	2	3	50	75

TABLE 12.5

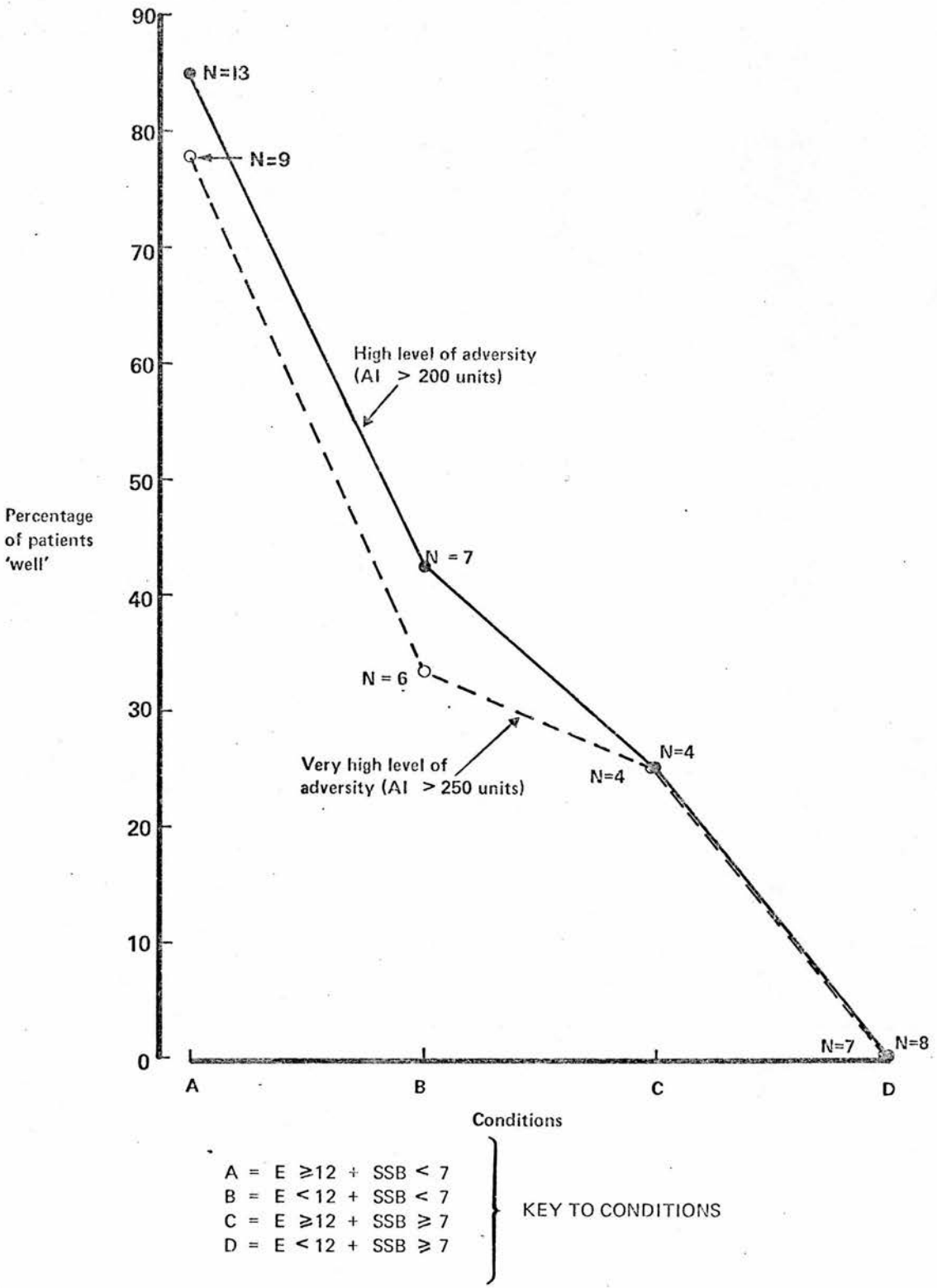
AI	E	Follow-up HRS scores 11 SSB ⩾7	Follow-up HRS scores 11 SSB <7	Follow-up HRS scores 11 SSB ⩾7	Follow-up HRS scores 11 SSB <7	Percentage of patients 'well' with SSB ⩾7	Percentage of patients 'well' with SSB <7
>250	⩾12	1	7	3	2	25	77·78
	<12	0	2	7	4	0	33·34
⩽250	⩾12	7	13	4	3	63·64	81·25
	<12	2	10	3	3	40	76·92

TABLE 12.6

Examination of Tables 12.5 and 12.6 reveal that those patients who were subjected to adversity and remained 'well' at follow-up formed four groups in each table based on E scores and available support. The percentage of patients 'well' within each of these four groups can be arranged in a hierarchy. This allows a more precise assessment of the relative importance of E and support as factors associated with a low symptom level at follow-up. The hierarchical order of the groups was retained as the level of adversity was increased from >200 units in Table 12.5 to >250 units in Table 12.6

To clarify the score levels of the variables within each group and to make clear the identification of the groups derived from Tables 12.5 and 12.6 Figure 12.1 was produced. Figure 12.1 indicates that the percentage of patients 'well' under condition B was greater than under condition C for both levels of adversity (see Figure 12.1 for key to conditions). Hence presence of social support (SSB <7) was more potent than a high E score (E ⩾12) as a factor associated with reduced symptom levels at follow-up assessment. Figure 12.1 also indicates that for those patients who had available social support and

Figure 12.1 Percentage of patients 'well' under 'high' and 'very high' levels of adversity related to available social support and scores obtained on the EPI extraversion (E) scale



had scored ⩾12 on the E scale (A), almost eight out of 10 were considered 'well' at follow-up, even when they had been subjected to a very high level of adversity during the study period.

The above analyses were then repeated with the main follow-up social support index (SSB) replaced by the confidant rating only. Analysis repetition of these variables was based on their potential importance in the treatment setting as aids to identifying those patients at increased risk of developing psychiatric symptoms.

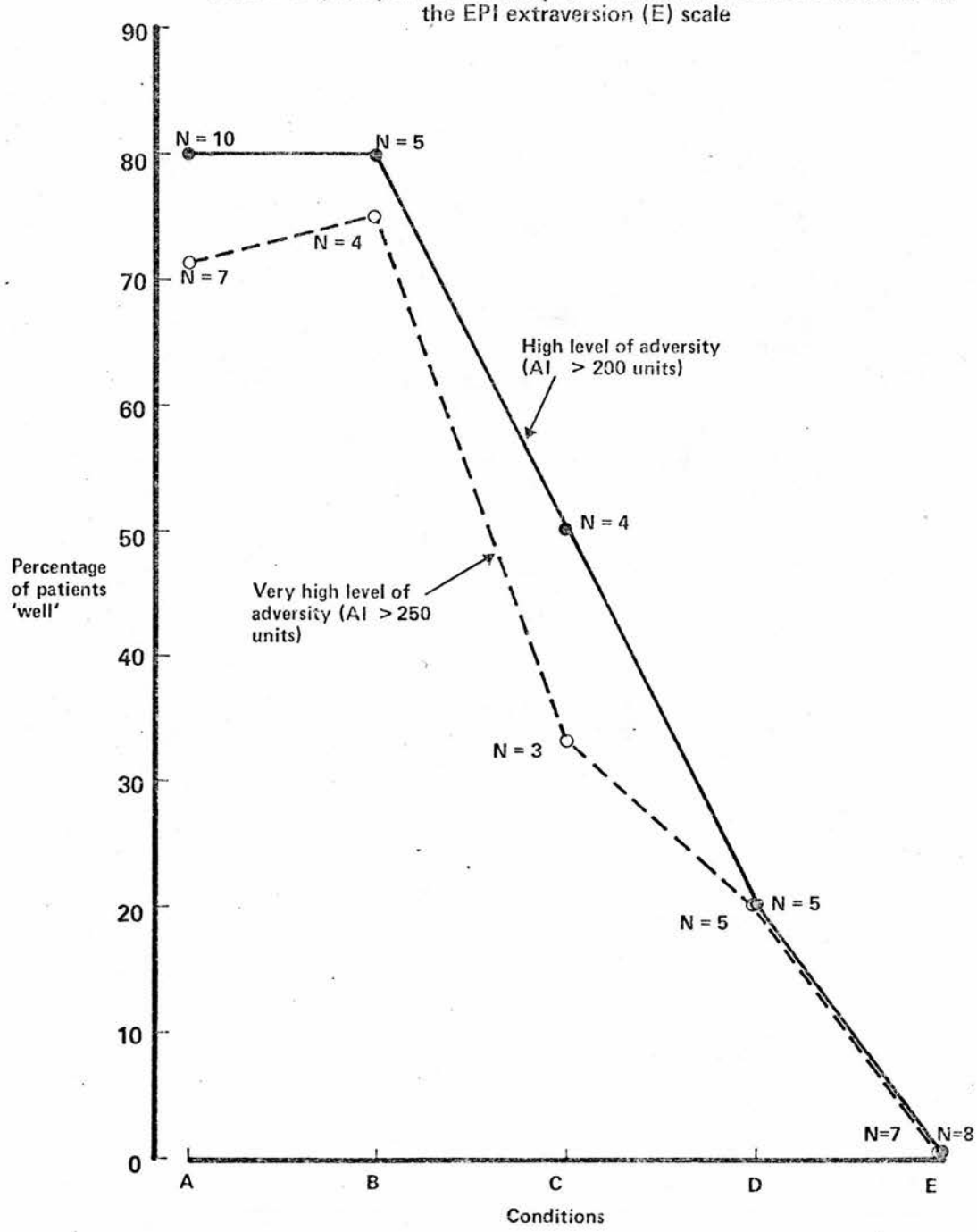
(iii) An examination of the inter-relationships between levels of adversity, confidant quality, extraversion and follow-up symptom severity.

The ratings to be used in this section for the availability and quality of a confidant are identical to those that were used in the previous chapters of these results. A rating of '0' or '1' indicates a close and reciprocating relationship with a confidant, a '2' indicates availability but not reciprocity in the relationship, and a rating of '3' or '4' indicates a very poor or no relationship at all.

As in the preceding sub-section of these results the particular interest here lies in the percentage of patients 'well' at follow-up who were subjected to adversity but differed both in their access to a confidant and in their scores on the E scale of the EPI.

Inevitably, extremely small cell frequencies resulted from a 6 X 4 matrix based on only 71 patients. However, the matrix did reveal that the percentage of patients 'well' within each of the E by confidant rating sub-groups subjected to adversity could be arranged in a hierarchy which was broadly consistent with that obtained when the main support variable (SSB) was similarly examined. These results

Figure 12.2 Percentage of patients 'well' under 'high' and 'very high' levels of adversity related to quality and availability of a confidant and scores obtained on the EPI extraversion (E) scale



A = E ≥12 + Conf. 0/1
B = E ≥12 + Conf. 2
C = E <12 + Conf. 0/1
D = E <12 + Conf. 2
E = E (any score) + Conf. 3/4

} KEY TO CONDITIONS

are presented in Figure 12.2 which is based on matrices for both the high (AI > 200 units) and very high (AI > 250 units) levels of adversity.

Figure 12.2 confirms the finding detailed in Figure 12.1 but is more specific regarding the additive effects of the variables upon symptomatic outcome. Having available a confiding relationship (even with someone who does not necessarily reciprocate personal feelings), and obtaining a score ⩾12 on the E scale of the EPI was associated with only a relatively small risk of psychiatric symptom recurrence when subjected to a very high level of adversity. Figure 12.2 also indicates that the relative importance of condition B (E ⩾12 and a confidant rating of 2) was greater than that of condition C (E <12 and a confidant rating of 0 or 1) in terms of the percentage of patients 'well' at follow-up assessment. This finding suggests therefore that patients scoring ⩾12 on the E scale and having a close but not reciprocating confidant relationship were at a reduced risk of developing symptoms when subjected to adversity as compared to those who scored less on the E scale but had available a very close and reciprocating confidant.

Chapter 12: Summary

This chapter suggested that:-

(i) An E score of 12 or above was associated with a significantly reduced risk of the recurrence of depressive symptoms in the presence of adversity.

Trends shown requiring confirmation.

(ii) Availability of social support and obtaining an E score ⩾12 decreased the risk of the recurrence of depressive symptoms in the presence of adversity beyond that of (i) above.

(iii) When the relative protective potency of available social support and high E was compared in patients subjected to adversity, support was found to confer greater immunity from symptom recurrence than E.

CHAPTER 13

A re-examination of the relationship between the main study variables and symptom severity

To conclude the analysis of adversity and follow-up symptom severity relationships presented in the preceding chapters, this chapter will re-examine variables in a number of patient groups selected on the basis of the level of adversity to which they had been subjected and outcome symptom state. Using the criteria for group division that has been adopted throughout this study, four patient groups were produced, these being:

'0' = A patient group subjected to a very high level of adversity (AI > 250 units) the members of which were assessed as being 'ill' (HRS $\geq$ 11) at follow-up assessment. Group size = 16.

'1' = As '0' above except that the members of this patient group were assessed as being symptomatically 'well' (HRS < 11) at follow-up assessment. Group size = 10.

'2' = A patient group subjected to little or no adversity (AI $\leq$ 250 units) but who were assessed as being 'ill' at follow-up (HRS $\geq$ 11). Group size = 13.

'3' = As '2' above except that all patients in this group were assessed as being 'well' (HRS $\leq$ 11) at follow-up. Group size = 32.

The analysis below compares these patient groups on the following set of variables; extraversion scores, amount of time spent alone during the week before follow-up, follow-up social support (SSB), follow-up confidant rating, paired statement marital rating at follow-up, and the number of weeks that medication was taken during the

follow-up period.

The comparison potentially of the greatest interest was that between groups '0' and '1' above. Both these groups of patients were subjected to a very high level of adversity but only the members of group '1' were 'well' at follow-up. Table 13.1 below presents the results of a comparison between these two groups on the mean scores of the above variables.

Variable	Group '0'	Group '1'	Significance of the difference between group '0' and group '1' scores
E	Low	High	•024
Time alone	High	Low	•016
Social support (SSB)	Absence	Presence	•015
Confidant rating	Absence	Presence	•007
Marital rating	Poor	Good	•030
Medication	-	-	ns

TABLE 13.1

Table 13.1 indicates that significant differences were detected between the two patient groups on all variables except medication. These results therefore confirm the findings presented in previous chapters of these results when most of the variables were divided at a criterion level rather than actual raw scores being utilised. Table 13.1 also indicates the association between the marital and time variables in terms of the particular patient groups' resistiveness to adversity. However the extent to which the assessment of these two variables was contaminated by the patients' symptomatic state at the time of their reporting remains unknown. This therefore implies that

interpretation of the significance of these findings should be undertaken with considerable caution.

The results contained in Table 13.1 suggest that relative immunity from developing psychiatric symptoms in the face of a very high level of adversity was possessed by those patients who had higher extraversion scores, more social support available, who spent more time with other people and who were more satisfied with their marriage than those patients who did not have such relative immunity. It appears that the duration for which medication had been taken was not associated with immunity from a symptomatic response to a very high level of adversity.

The second comparison concerns groups '1' and '2'. These groups differed in that while group '1' was subjected to adversity and remained 'well' at follow-up, group '2' was not subjected to adversity but was assessed as being 'ill' (HRS $\geq$ 11) at follow-up. Comparison between these two groups on all the variables listed above revealed that only the social support variables (SSB and confidant rating) discriminated between them ($p < .05$ in both cases), group '1' having significantly more support than group '2'. This result re-emphasises the strength of the association between absence of social support and increased symptom severity levels at follow-up even in a patient group that was subjected to little or no adversity.

Finally the two groups '0' and '3' were compared on the above variable list. Group '3', the largest group, was assessed as being subjected to little or no adversity and being 'well' (HRS $<$ 11) at follow-up assessment. The results of the comparison are presented in Table 13.2 below:-

Variable	Group '0'	Group '3'	Significance of the difference between group '0' and group '3' scores
E	Low	High	•031
Time alone	High	Low	•007
Social support (SSB)	Absence	Presence	•006
Confidant rating	Absence	Presence	•002
Marital rating	Poor	Good	•010
Medication	-	-	ns

TABLE 13.2

Table 13.2 above reveals that the comparison between the two patient groups resulted in an identical set of variable differences to those revealed by Table 13.1. For both comparisons all variables except medication distinguished between the groups. As no significant differences were detected in respect of the above list of variables between groups '1' and '3', it appeared that being 'well' at follow-up assessment was consistently associated with obtaining a higher extraversion score, spending more time with other people, having more support and a better marriage than those who were 'ill' at follow-up. The duration for which medication was taken was consistently unrelated to symptomatic outcome for these groups of patients.

Chapter 13: Summary

The findings of this chapter, based on the actual raw scores of the variables concerned, confirmed the findings of previous chapters in which variables had been divided at criterion levels. In particular, this chapter suggested that relative immunity from suffering psychiatric symptom recurrence in the face of a high level of adversity was possessed by those patients who had higher E scores, more support available, who spent more time with others and who were more satisfied with their marital relationship than those who lacked such immunity.

DISCUSSION OF THE RESULTS

CHAPTER 14

The main study variables

Outcome assessment

Throughout the analysis quality of outcome was equated directly with criterion scores on both the Hamilton Rating Scale (HRS) and the Beck Depression Inventory (BDI). Comparisons are thus possible between the results of this study and those of other studies which have used the scales (e.g. Kay et. al., 1969). However both outcome measures carry with them certain disadvantages which need to be clearly stated to avoid misinterpretation of the study results. Criticisms have already been made of the self-report technique of symptom assessment for depression in Chapter 3 of this thesis and the points made here will therefore apply mainly to the HRS.

The HRS was chosen in the hope that it would provide a reliable indicator of ex-patients' symptom severity at follow-up; the study not being primarily concerned with the assessment of illness recurrence. This aim was born of the belief that outcome studies of depression had previously required patients to exhibit considerable symptomatic disability at follow-up before assigning them to an 'unfavourable' outcome group. It is possible that through adopting this strategy, an over-optimistic view of the percentage of patients obtaining a favourable outcome has been gained in the past.

However the disadvantage of selecting an outcome measure (such as the HRS) which reflects the severity of a considerable range of symptoms is that 'unfavourable' outcome can mean different things for different patients - particularly if an arbitrary criterion score on the scale is equated with such an outcome, as is the case in this study. Indeed, since the HRS relies heavily on somatic and anxiety items and

since an 'unfavourable' outcome in this study was not specified by a particular group of symptoms, it is possible for patients not only to have been assigned to the 'unfavourable' outcome group on the basis of vastly different symptom profiles but also on the basis of reporting somatic and anxiety items only.

Having made these points however, it is important to recognise that a symptom severity score at or beyond the criterion level chosen for an 'unfavourable' outcome in this study represents a considerable degree of disability at follow-up.

Adversity and outcome

Relationships revealed by this study between the assessment of adversity experienced during the follow-up period and outcome were of considerable interest. The sequence of within-group analyses performed, examined in turn the actual number of events and difficulties suffered, their level of severity (as suggested in Brown et. al., 1973) and their relative independence from the key illness; all in relation to criterion follow-up symptom severity levels. These analyses were performed without any consideration of the time at which the events had occurred during the study period and almost all revealed non-significant results.

Analyses subsequently performed included consideration of the time period during which the events had been experienced. The results obtained from these analyses were of particular interest in comparison to those of Brown et. al., (1973). In spite of considerable differences in design (Brown's study was retrospective to illness onset and was a between group comparison while this study was prospective to onset and was a within group comparison), the results of both studies showed remarkable similarities when patients 'ill' at follow-up in this study

were compared to 'the patient group' in Brown's study.

Over the 28 week follow-up period in this study there was no significant difference between the percentage of patients 'ill' at follow-up who had suffered at least one independent or possibly independent event during the period and the percentage of patients 'well' at follow-up who had suffered such events. During the four week period prior to outcome assessment however, those patients who were 'ill' at follow-up suffered a higher percentage of stressful events than those 'well' at follow-up but this trend was non-significant. The London study obtained similar non-significant results for the one year period prior to illness onset but revealed significant differences in the percentage of patients having at least one event compared to the control group during a three week period prior to illness onset.

When both time of event occurrence and event severity were considered, similarities between the results of the two studies were again revealed. The present study showed that patients at follow-up with high symptom severity levels had experienced a significantly higher severe (marked or moderate) event rate for the whole of the study period than those patients with low follow-up symptom severity levels. This difference was also present (though not significant) in five of the seven four week periods with the most marked difference being during the four week period prior to follow-up. The London depressed group also had a significantly higher rate of markedly threatening events during the whole of the year preceding illness onset than had the community comparison group.

With respect to the relationship between events of little or no threatening implications and either illness onset (Brown's study) or outcome (this study), comparison revealed that such events appeared to have no bearing on either illness onset or outcome respectively.

Both the present study and that of Brown et. al., (1973) demonstrated that the time of an event's occurrence as well as its severity rating were of crucial importance in the analysis of event/illness relationships. Event rate differences between 'ill' and 'well' groups were not present in either study for events with little or no severity in contrast to events of marked or moderate severity. It appeared probable from the results of both these studies that events were 'time critical' in the sense that their stressful effects were sustained for time periods possibly related to their assessed severity.

As a consequence, a second analysis of the life event information was performed on the basis of a speculative model. This model was applied to the Brown type ratings of stressful life events. The model provided a method for combining events of different severities which had occurred over a period of time in such a way that an index of adversity suffered could be computed for any time within the study period. The model reflected a commonly held belief (e.g. see Horowitz et. al., 1974) that the adverse effects of stressful life events do not remain constant over long periods but dissipate gradually over time in their stressful effects. It was hoped that this method would allow an examination of the basic Brown type event ratings in such a way which would give maximal value to the information they contained.

An Adversity Index (AI) was computed for every patient on the basis of the model from the information obtained on the stressful events and difficulties for the time when the symptomatic outcome of the patient was assessed. There was a significant relationship between this index and outcome; patients who had high AI levels also had high symptom levels at follow-up. These initial results therefore

appeared to provide support for the procedure of computing AI and indicated once again that the time factor was of critical importance in the analysis of these relationships.

The extent to which the computed AI possessed discriminative ability beyond that of the basic event ratings to distinguish patients with a good or a poor symptomatic outcome at follow-up, remained difficult to assess as a direct comparison of the two methods was not possible. However, comparative consideration of the results of using each method provided sufficient information to warrant tentative conclusions.

Figure 8·1(A) compared the rates of all independent/possibly independent events of all severities for patients 'ill' and 'well' at follow-up. For the whole 28 week period no significant difference was obtained. Table 9·3 presented details of the correlations between the computed indices (including the basis for their computation) and follow-up symptom state. That index based only on independent/possibly independent events (of all severities) correlated significantly with follow-up symptoms.

Table 9·5(A) presented the main computed index AI (this included a consideration of independent difficulties but, as Table 9·3 showed, they did not correlate significantly with follow-up symptoms) in relation to follow-up symptoms divided as in Figure 8·1(A). Patients were again discriminated significantly. It appeared therefore that the procedure for computing adversity did possess discriminative ability superior to that of the basic ratings in distinguishing patients' symptomatic outcome.

Adversity, support and outcome

This study next examined a group of social support variables

alone and in combination with the main Adversity Index in relation to criterion follow-up symptom levels. Variables considered to have social support properties were selected and combined in such a way as to reflect their assumed importance. Decisions made regarding the combinations were based on previous research and on clinical experience. Most of the social support results of the study were concerned with symptom/support relationships and with examining support as a moderator of adversity. The principal support index was designed to include variables which reflected the close and diffuse social support available to an individual over a given period of time; an attempt being made to consider both qualitative and quantitative aspects of each of these sub-areas in constructing the index. The only individual support variable which was examined separately in the analysis was that assessing a confiding relationship.

The above support indices were computed for two time periods; the three months prior to initial contact and the three months prior to follow-up. Relationships were then examined, firstly between the support assessments and symptom severity as assessed on the two occasions and, secondly, between the changes in support which had occurred over the study period in relation to follow-up symptom levels. Almost all analyses revealed significant results. These results will therefore be discussed in conjunction with the few other published reports which have examined social support variables and also in relation to those other variables examined in the study.

While the initial assessment of all support variables was made when patients had considerably recovered from their key illness episode, the follow-up support assessment was made in almost all cases at the same time as the symptomatic outcome assessment. It was therefore

possible for a patient's symptoms to influence his reporting of available support. The possibility of such an influence was substantially reduced by relating many of the support measures to objective factors (e.g. living group over the past three months) but in others qualitative judgements were involved which were open to such influence. The extent to which this influence may have modified the support results cannot be reliably gauged but the finding that the mean scores of the two support assessments were not significantly different over a time period when substantial symptomatic change occurred goes some way to indicating that the influence may have been minimal.

A further possibility was that the reporting of available support, particularly as it involved in part a measure of outside contacts could have been related to measures of personality. The finding that the EPI extraversion scores were not correlated significantly with the main social support index did not however substantiate this view.

The results examined up to this point indicated the crucial importance of both the adversity and the social support indices in relation to symptomatic outcome. However the results of perhaps greatest interest and potential importance were those concerning the <u>combination</u> of social support and adversity measures in relation to outcome. Few studies have examined the importance of social support in relation to psychiatric health; even less have attempted to investigate the extent to which support resources confer protection against psychiatric symptom occurrence when individuals are subjected to adversity. An original study within this latter group was that of Brown et. al., (1975), the results of which may be compared in a number of respects to those of this study.

The principal, though not exclusive, support variable considered by Brown and colleagues concerned the nature of the confiding relationship. The quality of such a relationship, rated on a four point scale, was then examined in a group of women who had experienced a severe event or a major difficulty. Brown's results clearly indicated that those women with an intimate confiding relationship were largely protected from the effects of stressful events and difficulties in terms of their vulnerability to an onset of illness (mainly depressive) during the study period.

The results of the present study partially confirmed those of Brown in indicating that the availability of a close confiding relationship was of critical importance to an individual subjected to adversity. Further, it appeared in the present study that, for those patients subjected to little or no adversity, the absence of such a relationship was associated with a substantial proportion of patients (over 40%) being ill.

The study has extended this focus of research by examining the extent to which a composite index of social support moderated adversity in terms of a patient's symptomatic outcome. The results obtained for the confiding relationship above were generally restated in these results though with some refinements. Use of the Adversity Index (AI) allowed levels of adversity to be examined and repeat analyses of support/adversity relationships to be performed. The results suggested that available support could indeed moderate the effects of quite high levels of adversity and that the potency of the support factor was not entirely attributable to the confidant ingredient; diffuse support factors were also of importance.

This latter result, though in some contrast to that of Brown et.al.,

(1975) was in broad agreement with the results reported in Miller and Ingham (1976), and Miller et. al., (1976) in which diffuse social support was found to confer at least partial protection against symptom recurrence in a general practice community population.

A further issue of interest was the possible comparison of results with those obtained by Brown and colleagues and later by Vaughn and Leff on schizophrenic and depressive relapse patterns. One interpretation of their findings was that the measure of expressed emotion (EE) used by them and found to be a potent predictor of both schizophrenic and depressive relapse might reflect a number of components of intrafamilial support available to those patients studied. Their index of EE consisted of three main components: critical comments made about the patient, hostility, and emotional over-involvement.

Criterion scores on the overall index enabled prediction of schizophrenic relapse to be made. However the most potent predictor of depressive relapse was the criticism index (a measure of the number of critical comments made about the patient by close relatives). It is probable therefore that those families with a member who made clear statements of "resentment, disapproval, dislike or rejection" (Vaughn and Leff, 1976, page 125), (i.e. scoring high on the criticism index) regarding the patient when depressed, did not provide a supportive emotional relationship. Conversely the close relatives assessed as being low on the index were probably supportive. If such a view is an accurate interpretation of the variables then the results of the London studies on schizophrenic and depressive relapse are in many respects similar to those obtained in this study.

Adversity, support, medication and outcome

Recent studies (e.g. Brown et. al., 1972; Cobb, 1976; Paykel and Tanner, 1976; Vaughn and Leff, 1976) have suggested that the maintenance of recovery from a psychiatric condition was not only dependent upon the continued taking of medication but was additionally affected by a patient's home circumstances, whether stressful life events occurred and whether social support was available to a patient subsequent to recovery. The present study also investigated the extent to which the continuous ingestion of anti-depressant medication and the availability of social support was associated with a reduced risk of an unfavourable outcome when recovered patients were subjected to adversity.

The analysis performed, however, was based on information which was unsatisfactory in a number of ways. To examine the question of medication/adversity relationships adequately, some control over the type and amount of medication ingested is required, and since medication was not a principal variable in this study, such control was not possible. A substantial proportion of patients did take anti-depressants throughout the study period but only some of these (e.g. those entering the multi-centre lithium/amitriptyline trial) had sequential blood plasma estimations of their medication taken. Further a wide range of medications was taken by the patient group, with many changing their medication during the course of the study and it was considered unfeasible to attempt to equate medication of one type at a certain dosage with other medications and dosages.

However detailed information had been collected on the type, dosage and duration for which each medication had been taken and as a result the analysis was performed on the actual time in weeks for

which each patient had taken anti-depressant medication during the study period at a dosage level which was considered adequate. The implication of such an analysis was that there would be an approximately linear relationship between amount of medication consumed and the duration of ingestion. The results therefore had to be based on this calculation.

Although a very arbitrary division was made regarding what constituted continuous (CM) and discontinuous (DM) medication, such a division provided results which allowed tentative conclusions regarding the potency of medication in protecting individuals from symptomatic relapse when subjectedto adversity. Of those patients who were subjected to a high level of adversity, very little difference was detected between the percentage 'well' at follow-up who had been taking medication continuously and the percentage 'well' who had been taking medication discontinuously.

The results provided some confirmation of those of Paykel and Tanner (1976) who suggested that maintenance amitriptyline was not effective in protecting recovered depressed patients from relapse when subjected to stressful life events. However the present study also examined the extent to which available support in combination with the above measure of medication intake related to symptomatic outcome. The results indicated that availability of support was of critical importance to all study patients regardless of their recent medication intake. Indeed the study demonstrated that of those patients subjected to a very high level of adversity and having available support, a slightly larger proportion of the DM sub-group were 'well' at follow-up than the CM sub-group.

It must be emphasised that these results are tentative as no

controls for original illness severi y, previous history or demographic variables were possible within the small cell groupings. When these results were re-examined with the main support index replaced by that of the confidant ratings then the importance of taking medication appeared to be increased as the quality of an available confiding relationship decreased. For those patients with no confiding relationship or with only a poor one, the taking of medication continuously appeared to offer no protection from the effects of adversity. Such results could in part be interpreted to indicate that the taking of continuous medication retained patient contact with health care personnel with the medication serving as the link for eliciting support. No confirmation of this view, however, could be provided by the results.

Adversity, support, extraversion and outcome

The final variable which was examined in some detail in relation to social support, adversity and symptomatic outcome was the personality measure, extraversion (E) - a sub-scale of the EPI (Eysenck and Eysenck, 1964). The mean score of the scale obtained closely resembled that expected from the published norms. The inclusion of personality measures in the study was in the hope that they could be interpreted as reflections of intrinsic coping resources which may be mobilised to master adversity. Such a view requires that individuals differ in the way in which they perceive their environment and that personality type distinguishes the mode and reaction to that appraisal. Such views have been frequently expressed before (e.g. Lazarus et. al., 1974; French et. al., 1974) but examination of individual personality measures in combination with other resource measures and in relation to psychiatric outcome have been neglected. Research studies (e.g. Kerr et. al., 1972;

Kerr, 1974) have already indicated that Eysenck's E scale contributed substantially to the proportion of variance explained when attempting to predict outcome in depression and anxiety states. It was principally because of this finding that the scale was examined in this study in combination with the other variables already found to be potent predictors of outcome.

The E scale was initially correlated with the main social support index and follow-up symptom levels. These proved non-significant - a surprising finding for the support index in view of its reliance on some factors (particularly diffuse support) on which 'outgoing' personality types would have been expected to have scored highly. For the main analysis a criterion score on E (its mean) separated the patients into two groups. Relationships were then examined between E, support, adversity and symptomatic outcome. The results confirmed and extended those obtained by Kerr and colleagues above. The recording of a high E score was associated with a favourable outcome, but more importantly it was clearly associated with a reduced risk of having high symptoms at follow-up when a patient had been subjected to adversity. A high E score appeared therefore to reflect intrinsic resources which conferred some protection from the effects of adversity.

A central question, however, was to attempt to assess the relative potency of social support and E in providing protection from the effects of adversity. The results showed that while possession of both resources provided the greatest immunity against the stressful effects of adversity, support appeared to be superior to E when separately considered. The combined consideration revealed striking differences in the percentage of patient sub-groups who were 'well'

at follow-up. For those patients subjected to adversity with neither high E nor support, all were 'ill' at follow-up, whilst for those with both high E and support, almost 80% were 'well'. Such marked divisions in outcome pose the question of what exactly E represents since within this explanation may reside therapeutic possibilities for helping patients to cope with stressful circumstances.

Over the last 25 years the Eysenckian personality measures have been the focus of a considerable volume of research with much of the early work being laboratory based. Eysenckian personality theory resulting from this research has suggested that extraverted behaviour is related to the rate at which reactive inhibition is produced (rapidly in the case of extroverts), the strength of that inhibition and its rate of dissipation (slowly in the case of extroverts). These processes are assumed to correspond with neural structures. In the present study context, however, the mechanism of how high E is associated with increased immunity from the effects of adversity is entirely speculative.

A possibility is that those patients who scored highly on the E scale may also be those who actively seek social support, if they are subjected to adversity thereby conferring relative immunity from symptoms. This hypothesis is testable on the basis of present study information though in a restricted sense as patient sub-group sizes are small. However for the 15 patients who had support at follow-up (SSB<7) and had been subjected to a very high level of adversity (AI>250 units) the rank correlation coefficient between their E and HRS scores was $-\cdot37$, $p = \cdot08$. While not quite significant, this correlation provides some confirmation of the hypothesis. A separate study would, however, be required to replicate this result and to examine in detail the above suggestions.

Qualifications to the study results

Whilst many of the relationships between the study variables discussed above were of interest and had demonstrable parallels in certain other studies, the context and the statistical power of the relationships must not be lost sight of when attempting to draw conclusions from them. The results were based almost entirely on an in-patient sample of depressed patients, many of whom had suffered previous severe episodes and the majority of whom entered the study with a psychotic episode of depression. The study group was therefore biased towards the severe end of a continuum of the depressive disorders. The illnesses were atypical of those commonly seen in general practice and also for the most part of those seen in hospital out-patient clinics. Further, the study results rest on information obtained from a relatively small total patient group thus making it inevitable that the analysis of most of the study relationships could not be controlled for patient variables such as sex, social class, previous psychiatric history, key illness severity, etc. since cell sizes in many of the analyses were already very small. Such relationships as were clearly demonstrated were those obtained within the follow-up assessments - these relationships were associative only and carried no implications for causal ordering. The study while of a short term prospective design only, clearly demonstrated that initial social support was predictive of later outcome.

Having made the above qualifications to the study results, the question remains as to the extent to which the results are generalisable to other psychiatric populations. The above discussion has already indicated that relationships between intrafamilial factors and outcome originally observed in a schizophrenic population were later observed

in a small neurotically depressed group (Vaughn and Leff, 1976) thus indicating that such relationships were not specific to schizophrenia. It was also proposed that the measures used may in part reflect degrees of support available to the patients in their homes. Such results demonstrate that family social factors influence outcome in patient groups differentiated not only by diagnosis but also by the relative severity of their illnesses. Other studies reviewed indicated that social support had been shown to be a potent protective agent against a variety of physical and psychiatric illnesses considered to be related to adversity. The present study has now extended many of these results and demonstrated relationships in a patient group previously thought to be mainly responsive to endogenous factors. It is therefore probable that relationships shown in the patient group, in spite of the study qualifications listed above, are generalisable within the spectrum of unipolar depressive disorders and perhaps to certain minor physical and psychiatric disorders seen in general practice. The results of a pilot study already reported by Miller et. al., (1976) provide support for this view. The question itself, however, can only be reliably answered by further research.

Implications of the results

(i) The question of causality

The causal relationship between life events and the onset of psychiatric illnesses, depression in particular, has not been firmly established. As Brown (1974) has pointed out, even when a prospective study is undertaken and rigid design controls introduced, the possibility remains that the significant associations that may be found between a given illness state at one point in time and stressful events prior to that time could still be explained by other factors, thus making the associations spurious.

Results obtained in the present study have been compared to those of a number of others, but in examining the question of causal order the comparison with Brown et. al., (1973) was of most interest. It will be recalled that results obtained in the present study almost mirrored those obtained by Brown with respect to event rates before illness onset for all his patients and after onset in that Edinburgh patient sub-group later found to have a high level of symptoms. One explanation could be that events actually do precipitate/trigger/cause depressive illness and that this sub-group of patients were unfortunate enough to have been subjected to severe (illness independent) events following their discharge. It is also possible that these patients might live in environments characterised by raised event rates and that somehow this increases their chances of suffering events which in turn results in symptomatic recurrence or illness onset. Paykel (1974), however, has noted that event frequencies reported by recovered depressed patients fail to fall to that of controls and that this phenomenon may be "... due to habitual maladaptive patterns tending to produce events" (page 141). Such an explanation could conceivably

provide a clue to interpreting the present results but without providing any information on the mechanism of this relationship.

To investigate whether the relationship hypothesised by Paykel was founded in fact in the present study, non-parametric correlations were computed between the assessed severity of the initial (key) illness episode, Hamilton and Beck ratings, and the range of derived adversity indices. These indices, it will be recalled, were based on life stresses occurring following the illness episode (the full results are reproduced in Appendix 7). The results revealed that almost all the correlations were positive and significant. Indeed that correlation obtained for the index based entirely on illness independent events occurring after the key episode and that correlation based on independent events and difficulties achieved coefficients substantially higher than had been obtained with follow-up symptom levels. Differences in the distribution parameters of the two separate symptom assessments probably account for a proportion of the difference in the correlations but even after considering this possibility, significant correlations would remain.

These results prompted a further examination of specific study variables in an attempt to account for them. Patient sex and social class were chosen as the most likely characteristics which might enable a statistical explanation of the results (on the basis of Brown et. al., 1975). The degree of association between severity of initial illness episode and derived adversity indices was found to differ considerably for the patients divided by sex alone. For the males, none of the correlations were significant; for the females, almost all were significant (e.g. correlations between Hamilton ratings

of key illness and index of independent events occurring during follow-up: Males r = 0.02, N = 26; Females r = 0.63, N = 45).

When the female patients were then further grouped by their social class, the results indicated that female patients of the lower social class groupings tended to have suffered illness independent stresses following their key illness episode to a greater degree than females of higher social classes. The above results, while providing a degree of statistical explanation of the results of the analysis undertaken as a consequence of Paykel's statement, appear to be broadly consistent with those obtained by Brown et. al., (1975). Further studies are, however, required to determine whether the relationships revealed above are to be found in other patient populations. If such findings are replicated, an explanation is needed as to how this apparent self-generation of adverse circumstances arises in these patient groups.

(ii) Practical relevance of the study

The present study has indicated that the occurrence of stressful life events and difficulties following recovery from a depressive episode is related to an unfavourable symptomatic outcome. This result, as has been shown, is consistent with the findings obtained by others. However, the study has also pointed to certain social support and personality factors which, if present, provided a degree of immunity from the effects of adversity. The role of medication was also examined in this connection but its value as a protective agent was found to be questionable.

As the study was based on a relatively small patient sample and as it was not an investigation of the relative effectiveness of different treatment regimes, the results obtained can at best provide only suggestions for the focus and form of intervention which may be therapeutically beneficial for patients consulting with depressive disorders.

Traditionally, the treatment of severe depressive illness has emphasised correcting a 'fault in the machine' by medication or electro-convulsive therapy, in spite of the awareness of health care personnel that depressive illnesses may be precipitated by social and environmental precursors (Russell Davis, 1970).

The present study has been relatively successful in identifying factors associated with both favourable and unfavourable outcome but few suggestions for intervention arise naturally from these factors. Information could initially be elicited concerning a patient's resistance resources, principally the support available to him from within and outside of his family. Similarly an attempt could be made to establish as accurately as possible current and near future events and difficulties which are likely to arise. Based on this information the task of the health care personnel could be to attempt to modify circumstances through direct intervention or advice, such that resources are always sufficient to combat current problems.

The maintenance of such a dynamic status quo would, of course, be extremely difficult to achieve through its dependence upon the potency of the intervention procedures and on the observance of advice given. However it is clear from this and other research that the availability of a close confiding relationship serves to reduce the probability of symptomatic relapse even when an individual is subjected to adversity. Assessments of patients' personal relationships which reveal their poverty or inadequacy could become therefore a principal target for attention. If such problems are evident within a marital or cohabiting relationship, where one partner has become the declared patient, then conjoint sessions designed to develop an understanding in the partner of the critical mutual protective function they could serve may be found to be useful. Such sessions could attempt

to provide advice on the development of coping strategies which may serve to act as anxiety reducers for both parties when adverse circumstances arise.

As a further suggestion in the case of individuals for whom there is no possibility of improving existing relationships, advice aimed at preventing future recurrence of illness could be given in the form of encouragement to develop new social resources through employment and social activities. As the present research has demonstrated that patients with few social resources remain vulnerable to adversity, it may be particularly important that they are recognised as such by health care staff and that follow-up sessions with the patients devote attention to ascertaining stressful circumstances likely to arise and also to resource changes occurring.

The appropriateness of continued medication with respect to the sub-group of patients lacking in social resources also remains tentative but the results do suggest that as long as severe adverse circumstances do not arise, some benefit appears to be gained from medication. This benefit may in fact be due to continued health care contact retained because of the necessity of monitoring medication intake rather than the medication itself, but this question remains to be answered by future research.

(iii) Future research

The main contribution of this study has been in demonstrating important relationships between the additivity of certain variables and a measure of outcome in a depressed population. Necessarily the research has distinct developmental possibilities which have occasionally been suggested in the body of the thesis. Only two of these possibilities will be considered in detail below, both fundamental to this study and both worthy of continued research along the lines to be suggested.

Adversity assessment and quantification

The present study provided a new model for the quantification of adversity based on the stressful event and difficulty ratings obtained from the Brown type interview. This model requires further development and the results it has produced need to be replicated. (A recently completed community study in Edinburgh will attempt that replication.) Of some importance, however, is determining the relative predictive potency of the basic and modified Brown ratings. Evidence already presented in this discussion has suggested that the new model describes event/illness relationships more clearly than do the basic ratings. Further, comparisons need to be undertaken in other studies to establish whether use of the new model consistently describes such relationships more clearly.

Certain refinements to the model are however suggested preparatory to its further use. In particular the determination of adversity attrition rates appropriate to given stressful events needs to be undertaken. The rate chosen for the present study was based as far as was possible on personal and colleagues' clinical experience. A derived rate could then be obtained from one study such that the correlation between the adversity index produced and the dependent variable(s) was a maximum. This rate could then be used in other studies.

The use of a linear rate of attrition in this study was for relative ease of analysis, but further studies may find that a non-linear rate (e.g. logarithmic) would be more appropriate to the actual change in distress levels. The model, though applied to the Brown type event ratings in the present study, could also be used with event list techniques in which case minor modifications to the

method of obtaining information would be required (in particular regarding the timing of the events). Such a change may enhance the power of the list techniques though the considerable basic criticisms would remain. Also, due to the freedom the model allows in computing adversity indices at any time within a study period, relationships could be examined between such indices and hospital readmission or suicide attempts even if they occur before the follow-up assessment.

Computed adversity indices based on stressful events may be open to modification by computing further indices based on any desirable events which may also have occurred during a given study period. Such possibilities however while reflecting an equilibrium notion regarding adversity are not as yet founded on hard evidence. These issues require further study.

Social support assessment and quantification

The future direction of research on social support is more difficult to determine than that on adversity. While much is alleged to be known regarding the potency of support factors in aiding recovery from physical illness, reducing medication requirements and moderating the effects of adversity (e.g. Cobb, 1976) few studies have provided hard evidence justifying these claims amongst psychiatric populations. What is now known is that the availability of a close confidant confers a considerable degree of protection from stressful life events in a variety of groups of individuals (a community sample, a GP consulting population and in a patient population recovered from depression). What is not yet known is the mechanism through which that relationship operates. Similarly the evidence provided by this study and others (e.g. Miller et. al., 1976) suggests that availability of diffuse social support strengthens the resistance resources possessed by an individual

but again the operating mechanism remains unknown. Further research in this area, specifically addressed to identifying the modus operandi of the separate support components found to be of value in this study, would therefore seem justifiable.

APPENDICES

APPENDIX 1

(Interview A material)

CLINICAL RATINGS OF PRESENT ILLNESS

A semi-structured interview based on the items of the Hamilton Rating Scale for depression (Hamilton, 1960; 1967) but relying on the Present State Examination (Wing et. al., 1974) and the Clinical Interview for Depression (developed by Paykel and Klerman, 1968) for interview questions related to those items.

CLINICAL RATINGS OF PRESENT ILLNESS

1. Feelings of Depressed Mood

Rate the average severity of the subjective feelings of depressed affect, as judged by verbal complaints of depression sadness, gloom, dejection, etc. Do not include such aspects as pessimism, worthlessness, suicide, depressed appearance. Where feelings fluctuate, take into account frequency.

"NOW, I WOULD LIKE TO ASK YOU ABOUT THE WAY YOU HAVE BEEN FEELING DURING THE LAST MONTH".
"DO YOU KEEP REASONABLY CHEERFUL OR HAVE YOU FELT DEPRESSED OR LOW SPIRITED RECENTLY? HOW WOULD YOU DESCRIBE IT? HOW OFTEN? DOES IT COME AND GO? HOW LONG DOES IT LAST? MOODY? DOWNHEARTED? DEJECTED? SAD? HAVE YOU WANTED TO CRY? DOES CRYING RELIEVE IT? DO YOU FEEL BEYOND TEARS? HOW BAD IS IT? SO BAD IT IS EXCRUCIATING OR VERY PAINFUL?"

0 = Absent or very mild or occasional feelings.
1 = Mild. Persistent feelings described as moody, downhearted, dejected or in similar ways; more intense occasional feelings.
2 = Moderate. Persistent or frequent feelings of depression, blueness, etc; often feels like crying, may cry occasionally.
3 = Marked. More intense feelings; may be frequent tears.
4 = Severe. Persistent severe feelings. May be described as usually beyond tears, painful, little relief.
or
Extremely severe. Excruciating, agonizing, persistent, unrelieved feelings.

2. Guilt, Lowered Self-Esteem and Worthlessness

This refers to patient's verbal expressions which indicate the extent to which his evaluation of himself and his self-esteem are abnormally lowered, and the degree to which hefeels to blame for a variety of acts and omissions. Consider intensity and pervasiveness of both guilt and worthlessness.

"HAVE YOU HAD A LOW IMPRESSION OF YOURSELF? HAVE YOU BLAMED YOURSELF FOR THINGS YOU HAVE DONE IN THE PAST OR RECENTLY? HAVE YOU FELT GUILTY ABOUT THINGS? HAVE YOU FELT YOU HAVE LET YOUR FRIENDS AND FAMILY DOWN? HAVE YOU FELT YOU ARE TO BLAME FOR YOUR

ILLNESS? IN WHAT WAY? A LOT? A LITTLE?"

0 = Absent or very mild or occasional feelings of self-blame on borderline of normality, feeling of having let people down.

1 = Mild. Lowered opinion of self without self-blame or guilt. May include some guilt over consequences of illness or realistically regrettable past actions.

2 = Moderate. More intense or pervasive feelings of being a failure, or of guilt or self-blame.

or

Marked. Persistent, exaggerated feelings of self-blame, guilt. Intense feelings of failure without self-blame.

3 = Severe. Pervasive feelings of self-blame, guilt, worthlessness, regarding many areas. Near delusional. Isolated delusional ideas without similar ideas in other content. Feeling that present illness is a punishment.

4 = Several clear-cut delusions or hallucinations of self-reproach, guilt, worthlessness.

3. Suicidal Tendencies

This refers to the maximum degree of suicidal thought and behaviour experienced over the last month.

"HAVE YOU FELT THAT LIFE WAS NOT WORTH LIVING? HAVE YOU WISHED YOU WERE DEAD? HAVE YOU HAD ANY THOUGHTS OF TAKING YOUR LIFE? HAVE YOU GONE SO FAR AS TO MAKE ANY PLANS TO DO SO? HAVE YOU ACTUALLY MADE AN ATTEMPT ON YOUR LIFE?"

(Start with the first question, and stop when two consecutive questions are negative).

0 = Absent or very mild.

1 = Has felt life not worth living.

2 = Has wished he were dead but no suicidal thoughts.

3 = Has thoughts of taking his life, but would not, and has no plans.

or

More intense suicidal thoughts reaching height where has mentally rehearsed a plan.

or

Has prepared to implement a plan, i.e. has collected pills. Has made a suicidal gesture of a communicative rather than potentially harmful type, i.e. has stood on a bridge, or held a gun or pills in hand, or taken up to two pills.

4 = Suicidal attempt of any but most minor kind.

4. Initial Insomnia

Difficulty falling asleep. For all sleep disturbances consider average disturbance over the last month. If variable, make allowance for frequency. If patient is taking sleeping tablets, rate the disturbance described when he does not take a tablet.

"HAVE YOU BEEN TAKING SLEEPING PILLS? HAVE YOU HAD ANY DIFFICULTY SLEEPING OR GETTING OFF TO SLEEP? WHEN YOU DO GET TO SLEEP DO YOU SLEEP WELL? ARE YOU RESTLESS, OR DO YOU KEEP WAKING?"

(Amplify and ascertain pattern of a typical night).

0 = Absent. Falls asleep within half an hour of retiring. or
Very mild. Occasional delay over half an hour or postpones going to bed because of difficulty falling asleep at usual time.

1 = Mild. Regular delay of half to one hour in falling asleep.

2 = Moderate. Regular delay of up to two hours in falling asleep.
or
Severe. Regular delay of up to five hours.
or
Extremely severe. Does not fall asleep until more than five hours after retiring.

5. Middle Insomnia

Sleep difficulty occurring up to five hours after retiring, provided it is preceded and followed by a spell of sleep. If the latter criteria are not met, code as initial or delayed insomnia.

0 = Absent. Sleep normal in the middle of the night.
or
Very mild. Occasional middle insomnia. Regular waking to void which is habitual. Restless sleep without wakening.

1 = Mild. Wakes once or twice during the night but falls asleep.

2 = Moderate. Wakes three or four times but falls asleep again during the period.
or
Marked. Wakes more than four times. Regularly gets out of bed at least once other than to void.
or
Severe. Spends greater portion of middle period of night awake.

Extremely severe. Regular total absence of sleep during middle period but preceded and followed by sleep.

6. Delayed Insomnia

Early wakening. Include all difficulty occurring between five and eight hours after retiring, and also final awakening earlier than five hours after retiring, provided in both cases patient has been asleep at some earlier stage.

0 = Absent. Sleeps until usual time for awakening.
or
Very mild. Reports morning sleep restless without awakening. Wakes once or more then falls asleep until usual wakening hour. Occasional early wakening.

1 = Mild. Regularly awakens up to an hour earlier than usual and stays awake.

2 = Moderate. Regularly awakens up to two hours earlier than usual and stays awake.
or
Marked. Regularly awakens up to three hours earlier than usual and stays awake.
or
Severe. Regularly awakens up to five hours earlier than usual and stays awake.
or
Extremely severe. Regularly awakens more than five hours earlier than usual and stays awake.

7. Work and Interests

Rate actual performance during last month in work, housework, outside interests, social life, etc., irrespective of feelings of inadequacy; i.e. this is a scale of general functional capacity. With hospitalised patients, consider overall function in all these areas; (e.g. the patient may have some function in areas of social life in hospital, housework at weekends, but total impairment in work through absence; assign an appropriate rating in the impaired range accordingly).

"HAVE YOU BEEN AFFECTED AT ALL IN YOUR CAPACITY TO DO YOUR WORK AND OTHER ACTIVITIES? WHAT HAVE YOU ACTUALLY BEEN DOING IN WORK, HOUSEWORK, HOBBIES, AND INTERESTS AND IN SOCIAL LIFE?"

Explore details.

0 = Absent. Full normal activity.
or
Very mild or minimal impairment. Reports impaired concentration but activity full.

1 = Mild. Definite but mild impairment of activities in work, hobbies, housework, social life.

2 = Moderate. More intense impairment.

3 = Marked impairment. Does half or less than half normal activities.

4 = Severe. Not working. Little housework if housewife; only a little activity outside home.
or
Extremely severe. Unable to care for self. Patient admitted to hospital because symptoms render him unable to carry on. Stopped work because of present illness.

8. Retardation

Slowing and diminution of thought, speech, and movement. Assess solely on basis of observation at interview, not subjective complaint of slowing.

0 = Absent, or very mild or minimal.

1 = Mild retardation.

2 = Moderate. Greater degree of slowing.

3 = Marked. Sufficiently slow for interview to be difficult.

4 = Severe slowing or diminution in speech or movement.
or
Stupor.

9. Agitation

Motor restlessness associated with subjective discomfort or tension. Typical features include moving in chair, biting or pursing of lips, tapping fingers, moving feet, pulling at skin or hair, nail-biting, pulling on handkerchief or clothing, biting pencil or pen, handwringing, pacing. Should be differentiated from anxiety. It refers to observable phenomena. Rate on basis of behaviour throughout interview.

0 = Absent or very mild or minimal restlessness which may be doubtfully outside normal limits.

1 = Mild. Moves excessively in chair, taps fingers, moves feet, bites pen or pencil.

2 = Moderate restlessness, e.g. pulls at hair, tugs handkerchief.

3 = Marked, e.g. pulls at skin, wrings hands, may get up from chair.

4 = Severe. Paces up and down.
or
Extremely severe. Continual pacing and activity throughout entire interview.

10. Anxiety - Psychic

Subjective feelings of dread, fear, apprehension, tension, worry; inability to relax, whether unfocused or focused (phobic). Average considering frequency and intensity of symptoms during last month.

"HAVE YOU BEEN FEELING NERVOUS, ANXIOUS, OR FRIGHTENED? HAVE YOU FELT TENSE OR FOUND IT HARD TO RELAX? HAVE YOU HAD A FEELING OF DREAD, AS THOUGH SOMETHING TERRIBLE WERE ABOUT TO HAPPEN?"

0 = Absent or very mild or occasional minor symptoms.

1 = Mild but persistent, or occasional more intense symptoms.

2 = Moderate. Greater intensity or frequency.

3 = Marked. Persistent or fairly frequent symptoms of considerable degree. Isolated phobias leading to severe panic or avoidance.

4 = Severe. Frequent panic attacks or persistent state of intense anxiety. Phobia necessitating complete avoidance of situation with some background anxiety.
or
Extremely severe. Persistent symptoms of near panic, which dominates patient's thought and talk at interview.

11. Anxiety - Somatic

This encompasses a number of somatic complaints common in anxious patients, and presumed to represent autonomic concomitants of anxiety. Consider frequency, intensity, and number of symptoms.

"HAVE YOU SUFFERED FROM ANY OF THE FOLLOWING: TREMBLING, SHAKINESS, EXCESSIVE SWEATING, FEELINGS OF SUFFOCATION OR CHOKING, ATTACKS OF SHORTNESS OF BREATH, DIZZINESS, PALPITATIONS, FAINTNESS, HEADACHES, PAIN AT THE BACK OF THE NECK, BUTTERFLIES OR TIGHTNESS

IN THE STOMACH? HOW OFTEN? HOW BADLY?"

0 = Absent or very mild or occasional minor symptoms.
1 = Mild but persistent, or occasional more intense episodic symptoms, few in number.
2 = Moderate. Greater intensity or frequency.
3 = Marked. Several symptoms, persistent or frequent, and of considerable degree. One severe and frequent episodic symptom.
4 = Severe. Several persistent or very frequent symptoms, one or more of which occurs in disabling attacks.
or
Many persistent and frequent, extremely severe symptoms.

12. Somatic Symptoms: Gastro-Intestinal

Reported changes in appetite over last month, compared with usual. Where appetite has fluctuated, average.

"HOW HAS YOUR APPETITE BEEN? HAVE YOU SUFFERED FROM CONSTIPATION?"

0 = Absent, i.e. appetite normal or increased.
or
Very mild. Reports less desire for food but eats normal amount.
1 = Mild impairment of food intake.
2 = Moderate. Food intake more impaired.
or
Marked. Food intake less than half normal.
or
Severe, greater impairment.
or
Extremely severe. Little food eaten.

13. Energy and Fatigue (Somatic Symptoms: General)

Subjective feelings of fatigue, tiredness, lethargy, lack of energy. Consider average in intensity and frequency.

"DO YOU FEEL TIRED EASILY? ALL THE TIME? HAVE YOU MUCH ENERGY? IS IT AN EFFORT TO DO ANYTHING? DO YOU SPEND A LOT OF TIME RESTING? IN BED?"

0 = Absent or very mild or minimal.
1 = Mild but definite tiredness, lack of energy or easily tired by effort.

2 = Moderate. Persistent or frequent feelings of tiredness.
or
Marked. Tired all the time; an effort to do anything; exhausted; may spend extra time resting.
or
Severe. Spends much time resting or in bed.
or
Extremely severe feelings of fatigue leading to spending most of the day resting.

14. Reduced Sexual Interest

Degree of reduction in usual sexual interest and activity. Code only where regular sexual activity preceded illness. For those for whom sexual opportunity or interest were previously lacking, such as the unmarried, separated, or elderly, code as not applicable.

"HAS THERE BEEN ANY CHANGE IN YOUR INTEREST IN SEX DURING THE PAST MONTH? HAVE YOU LOST INTEREST IN THE OPPOSITE SEX RECENTLY? HAVE YOU HAD LESS SEXUAL DRIVE THAN USUAL? SEXUAL RELATIONS LESS OFTEN?"

0 = Absent (Usual sexual interest) or very mild. Diminution in sexual interest without reduction in activity.
1 = Mild. Reduced interest with mild diminution in activity or responsiveness.
2 = Moderate. Greater reduction in activity.
or
Marked. Much reduced activity.
or
Severe. Great reduction or absence of any sexual desire or activity. Active refusal.
or
Extremely severe. Change from full sex life to complete inactivity.

15. Hypochondriasis

This refers to patient's spontaneous concern at interview with bodily complaints and their part in his illness, irrespective of whether or not these appear to have a realistic basis. The hypochondriacal patient is concerned with and keeps coming back to bodily symptoms rather than psychic complaints. It may include somatic anxiety symptoms as well as other bodily symptoms. When

dealing with depressive delusions of bodily illness, consider particularly the force and frequency with which they are expressed.

0 = Absent or very mild or minimal.
1 = Mild absorption with bodily functions or symptoms.
2 = Moderate. Greater pressure of concern.
3 = Marked. Frequent mentioning of somatic complaints. May request special tests.
4 = Severe. Forceful and frequent complaints of somatic illness or demands for tests.
or
Extremely severe. Forceful complaints of physical symptoms dominate the interview.

16. Loss of insight

Do you think there is anything the matter with you?
(What do you think it is?)
(Could it be a nervous condition?)
(What do you think the cause is?)
(Why did you need to come to hospital?)
(Do you think (specify delusions or hallucinations) were part of a nervous condition?)

0 = Full insight (in intelligent subject, able to appreciate issues involved).
1 = Partial or doubtful loss. (Agrees to a nervous condition but examiner feels that subject does not really accept the explanation in terms of a nervous illness).
2 = Loss of insight. Denies nervous condition entirely.

17. Loss of weight

Have you lost any weight during the past three months? (Rate loss of weight due to poor appetite, do not include changes due to physical illness).

0 = Doubtful or no weight loss or up to two pounds.
1 = Three to ten pounds.
2 = More than a ten pound loss. (Obvious or severe weight loss).

18. Diurnal variation

Is the depression worse at any particular time of day?
(Note whether morning on waking (M) or evening(E)).

0 = Absent/no depression.
1 = Doubtful presence, not specially marked (M) or (E).
2 = Clear presence in (M) or (E).

19. Derealisation and depersonalisation

Have you had the feeling recently that things around you were unreal? (As though everything was an imitation of reality, like a stage set, with people acting instead of being themselves?)
(What is it like? How do you explain it?)

Rate derealisation (DR)

0 = Absent.
1 = Doubtful or trivial.
2 = Mild.
3 = Moderately intense. (Symptoms occurred and persisted for hours. Things appear colourless and artificial, people appear lifeless and seem to act rather than being themselves).
4 = Severe. (Symptoms occurred and persisted for hours. e.g. Whole world appears like a gigantic stage set, with imitation instead of real objects and puppets instead of people).

Have you yourself felt unreal, that you were not a person, not in the living world?
(Or that you were outside yourself, looking at yourself from outside?)
(Or that you look unreal in the mirror?)
(Or that some part of your body did not belong to you?)
(How do you explain it?)

Rate depersonalisation (DP)

0 = Absent.
1 = Doubtful or trivial.
2 = Mild
3 = Moderately intense. (Symptoms occurred and persisted for hours. Subject feels himself unreal, a sham, a shadow).
4 = Severe. (Symptoms occurred and persisted for hours. Subject feels he is dead, not a person, living in a parallel existence, a hollow shell, even that he does not exist).

20. Paranoid symptoms

Rate ideas of reference and persecution elicited at interview which do not have a depressive component, i.e. are not associated with guilt, and a feeling that the persecution is deserved. If paranoid ideas exist and do have such a component, rate instead under the most suitable heading e.g. guilt.

Are you self conscious in public?
(Do you get the feeling that other people are taking notice of you in the street or in a bus or a restaurant?)
(Do they ever seem to laugh at you or talk about you critically?)
(Do you consider that people really are looking at you, or is it perhaps the way you feel about it?)
(Do people seem to drop hints about you or say things with a double meaning, or do things in a special way so as to convey a meaning?)

0 = Absent or very mild feeling that people are against subject.
1 = Mild paranoid feelings that are outside the range of normal, or indicate undue sensitivity.
2 = Moderate. More intense abnormal paranoid feelings which may be accompanied by specific instances e.g. that people occasionally follow the subject.
3 = More pervasive suspicions of reference and persecution.
4 = Suspicion of borderline delusional intensity or clear cut and pervasive delusions or hallucinations of reference and persecution.

21. Obsessional symptoms

Obsessional ruminations and rituals. Thoughts, mental contents, and acts which the patient resists and struggles against, and which are felt as alien but originating within rather than externally. Consider intensity and frequency.

Do you find that you have to keep on checking things that you know you have already done? (like gas taps, doors, switches etc.)
(Do you have to touch or count things many times or repeat the same action over and over again?)
(Do you spend a lot of time on personal cleanliness, like washing over and over though you know you are clean? What about tidiness?)

(Do you find it difficult to make decisions even about trivial things?)

(Do you constantly have to question the meaning of the Universe?)

(Do you get awful thoughts coming into your mind even when you try to keep them out? What happens when you try to stop?)

0 = Absent or minimal.

1 = Mild (occasional thoughts or rituals).

2 = Persistent rituals or thoughts occurring each day for several hours.

HAMILTON RATING SCALE

NAME OF PATIENT:

RATER:

DATE:

Item No.	Score Range	Symptoms	Score
1	0-4	Depressed mood	
2	0-4	Guilt	
3	0-4	Suicidal tendencies	
4	0-2	Insomnia, initial	
5	0-2	Insomnia, middle	
6	0-2	Insomnia, delayed	
7	0-4	Work and interests	
8	0-4	Retardation	
9	0-4	Agitation	
10	0-4	Anxiety, psychic	
11	0-4	Anxiety, somatic	
12	0-2	Somatic symptoms, gastro-intestinal	
13	0-2	Energy and fatigue (S.S. general)	
14	0-2	Somatic symptoms, genital	
15	0-4	Hypochondriasis	
16	0-2	Loss of insight	
17	0-2	Loss of weight	
18	0-2	Diurnal variation Morning, afternoon and evening	
19	0-4	Derealisation/depersonalisation	
20	0-4	Paranoid symptoms	
21	0-2	Obsessional symptoms	

B.D.I.

NAME _____ DATE _____

AGE _____ MARITAL STATUS _____

On this questionnaire are groups of statements (A, B, C, D etc.). I would like you to pick out and tick the one statement in each group which best describes the way you feel today, that is, right now.

GROUP A

I do not feel sad ---------- 0

I feel blue or sad ---------- 1

I am blue or sad all the time and I can't snap out of it ----- 2a

I am so sad or unhappy that it is quite painful ---------- 2b

I am so sad or unhappy that I can't stand it ---------- 3

GROUP B

I am not particularly pessimistic or discouraged about the future ------ 0

I feel discouraged about the future ---------- 1

I feel I have nothing to look forward to ---------- 2a

I feel that I won't ever get over my troubles ---------- 2b

I feel that the future is hopeless and that things cannotimprove 3

GROUP C

I do not feel like a failure ---------- 0

I feel I have failed more than the average person ---------- 1

I feel I have accomplished very little that is worthwhile or that means anything ---------- 2a

As I look back on my life all I can see is a lot of failures - 2b

I feel I am a complete failure as a person (parent,husband,wife) 3

GROUP D

I am not particularly dissatisfied ---------- 0

I feel bored most of the time ---------- 1a

I don't enjoy things the way I used to ---------- 1b

I don't get satisfaction out of anything any more ---------- 2

I am dissatisfied with everything ---------- 3

GROUP E

I don't feel particularly guilty ---------- 0

I feel bad or unworthy a good part of the time ---------- 1

I feel quite guilty ---------- 2a

I feel bad or unworthy practically all the time now ---------- 2b

I feel as though I am very bad or worthless ---------- 3

GROUP F

I don't feel I am being punished ---------- 0
I have a feeling that something bad may happen to me -------- 1
I feel I am being punished or will be punished ---------- 2
I feel I deserve to be punished ---------- 3a
I want to be punished ---------- 3b

GROUP G

I don't feel disappointed in myself ---------- 0
I am disappointed in myself ---------- 1a
I don't like myself ---------- 1b
I am disgusted with myself ---------- 2
I hate myself ---------- 3

GROUP H

I don't feel I am any worse than anybody else ---------- 0
I am critical of myself for my weaknesses or mistakes ------- 1
I blame myself for my faults ---------- 2
I blame myself for everything bad that happens ---------- 3

GROUP I

I don't have any thoughts of harming myself ---------- 0
I have thoughts of harming myself but I would not carry them out 1
I feel I would be better off dead ---------- 2a
I feel my family would be better off if I were dead -------- 2b
I have definite plans about committing suicide ---------- 3a
I would kill myself if I could ---------- 3b

GROUP J

I don't cry any more than usual ---------- 0
I cry more now than I used to ---------- 1
I cry all the time now. I can't stop it ---------- 2
I used to be able to cry but now I can't cry at all even thought I want to -- 3

GROUP K

I am no more irritated now than I ever am ---------- 0
I get annoyed or irritated more easily than I used to ------- 1
I feel irritated all the time ---------- 2
I don't get irritated at all at the things that used to irritate me -------- 3

GROUP L

I have not lost interest in other people ---------- 0

I am less interested in other people now than I used to be -- 1

I have lost more of my interest in other people and have little feeling for them ----- 2

I have lost all my interest in other people and don't care about them at all ---------- 3

GROUP M

I make decisions about as well as ever ---------- 0

I try to put off making decisions ---------- 1

I have great difficulty in making decisions ---------- 2

I can't make any decisions at all any more ---------- 3

GROUP N

I don't feel I look any worse than I used to ---------- 0

I am worried that I am looking old or unattractive --------- 1

I feel that there are permanent changes in my appearance and they make me look unattractive 2

I feel that I am ugly or repulsive looking ---------- 3

GROUP O

I can work about as well as before ---------- 0

It takes extra effort to get started at doing something ----- 1a

I don't work as well as I used to ---------- 1b

I have to push myself very hard to do anything ---------- 2

I can't do any work at all ---------- 3

GROUP P

I can sleep as well as usual ---------- 0

I wake up more tired in the morning than I used to --------- 1

I wake up 1-2 hours earlier than usual and find it hard to get back to sleep ---------- 2

I wake early every day and can't get more than 5 hours sleep 3

GROUP Q

I don't get any more tired than usual ---------- 0

I get tired more easily than I used to ---------- 1

I get tired from doing anything ---------- 2

I get too tired to do anything ---------- 3

GROUP R

My appetite is no worse than usual ---------- 0

My appetite is not as good as it used to be ---------- 1

My appetite is much worse now ---------- 2

I have no appetite at all any more ---------- 3

GROUP S

I haven't lost much weight, if any, recently ---------- 0

I have lost more than 5 pounds ---------- 1

I have lost more than 10 pounds ---------- 2

I have lost more than 15 pounds ---------- 3

GROUP T

I am no more concerned about my health than usual ---------- 0

I am concerned about aches and pains or upset stomach or constipation -------- 1

I am so concerned with how I feel or what I feel that it's hard to think of much else ------- 2

I am completely absorbed in what I feel ---------- 3

GROUP U

I have not noticed any recent change in my interest in sex -- 0

I am less interested in sex than I used to be ---------- 1

I am much less interested in sex now ---------- 2

I have lost in erest in sex completely ---------- 3

APPENDIX 2

(Material obtained during illness episode from case notes, hospital staff and from the patient at post-improvement interview (Interview B)).

Card Number ___

S Code Number ___

Hospital Number _____

Patient Category at Key Contact

1. I/P
2. D/P
3. O/P ___

Sex

1. Male
2. Female ___

Age at Key Contact

_____ yrs ___/___/___ d.o.b.

Social Class

Definitions: MALE: Usual (or previous occupation)

FEMALE: Single, divorced & separated: usual occupation. Married & widowed: husband's occupation.

1. SC 1
2. SC 2
3. SC 3
4. SC 4
5. SC 5
6. No Usual Occupation ___

Work Status at Key Contact

0. Unemployed
1. P/T off work
2. F/T off work
3. P/T working (until admission)
4. F/T working (until admission)
5. Student
6. Housewife
7. Retired ___

Civil Status at Key Contact

0. Single.
1. Divorced, separated, living apart.
2. Widowed.
3. Single and cohabiting.
4. Divorced, separated and cohabiting.
5. Widowed and cohabiting.
6. Married with spouse. ___

If married and living with spouse

Length in years of this marriage.

_____ yrs.

Living Group at Key Contact

(In order of priority)

0. Alone
1. Lodgings/Hostel/Institution/Hospital
2. Friend(s)
3. Other relatives
4. Child(ren)
5. Sibling(s)
6. Parent(s)
7. Spouse ___

Size of household (including S.)

Include those that are normally domiciled with the patient even if working away from home.

_____

Total Numbers of living close relatives

Include: Parents
Parents-in-law (only include if still living with spouse)
Siblings
Spouse
Fiancee
Children _____

Parents at Key Contact

1. Both dead
2. Father alive; mother dead
3. Mother alive; father dead
4. Both alive ____

If natural mother dead; number of years from key contact with S. that she died. ____

Age of S. at death of mother (years) ____

If natural father dead; number of years from key contact with S. that he died ____

Age of S. at death of father (years) ____

Age of S's spouse at key contact (years) ____

Age difference between S. and spouse (years) ____

If spouse dead, number of years ago died (years). Refers to most recent spouse if more than one. ____

Age of S. at death of spouse (years) ____

Number of S's children living at home at key contact

Aged < 5 yrs ____
5 - 10 yrs ____
11 - 15 yrs ____
16 - 20 yrs ____
21 + ____

Number of S's children living outside home ____

Total number of siblings that ever existed ____

Number of siblings currently living ____

If death(s) of any sibling(s), enter actual number of years prior to key contact that death(s) occurred (Give sequential retrospective account of deaths)

1st death ____
2nd ____
3rd ____
4th ____

Age of S. at 1st psychiatric referral (earliest known contact with psychiatric services anywhere)

____

Age at 1st psychiatric admission (anywhere) ____

Number of admissions to psychiatric hospitals prior to key contact ____

Total duration of previous admissions to psychiatric hospitals (in weeks) ____

Time since last in psychiatric I/P care (calculated from date of last discharge)

0. Never
1. Up to and including 1/12
2. $>$ 1/12 $\leqslant$ 3/12
3. $>$ 3/12 $\leqslant$ 6/12
4. $>$ 6/12 $\leqslant$ 1 yr
5. $>$ 1 yr $\leqslant$ 2 yrs
6. $>$ 2 yrs $\leqslant$ 3 yrs
7. $>$ 3 yrs $\leqslant$ 4 yrs
8. $>$ 4 yrs $\leqslant$ 5 yrs
9. $>$ 5 yrs
X. NK
Y. N/A

____

Total time in I/P care during 52 weeks prior to key admission
(enter total number of whole weeks)

___

Poisoning contributing to admission

0. None
1. Accidental
2. Due to assault
3. Self-inflicted
8. N/A
9. Other causes

___

Hospital diagnosis (principal) for key admission

ICD code

___

Hospital diagnosis (other)

ICD code

___

SOCIAL CONTACTS

1. CLOSE RELATIVES

Determine frequency of contact with close relatives during the three months prior to key contact /this interview.

ASK: Can you tell me how often you have been in contact with .....?

Relative	Living with S	S visited		S visited by		Availability
		(f)	Coding	(f)	Coding	
Mother						
Father						
M-in-law						
F-in-law						
Spouse						
Sisters						
Brothers						
Daughters						
Sons						
Fiancee						

'f' Table

1 = not in last three months

2 = one, two or three times during last three months

3 = four to nine times during last three months

4 = ten to 23 times during last three months

5 = two or more times a week

SOCIAL CONTACTS

2. WORK

If Appropriate

How many people do you regularly come into contact with in the course of your work?
If more than 20 put > 20 ☐

How many of these do you frequently talk to?
If under 20 try to get exact number - otherwise > 20 ☐

Are there any people from work who you see out of work hours?
Try to get exact number. ☐

3. NEIGHBOURS

Neighbours and people who live close by.
How many do you regularly talk to and get on well with? ☐

4. CLUBS/ASSOCIATIONS/etc.

Club/Assoc/etc.	f of attendance	No. of people who you regularly meet there that you would otherwise not meet

5. OTHER SOCIAL CONTACTS NOT SO FAR COVERED SEEN ONCE/WEEK

(e.g. friends etc.)

Number	f of contact

This scale is intended to estimate the satisfaction you feel in your marriage. You are to circle one of the numbers (1-5) beside each aspect of married life listed. Numbers toward the top end of the five-unit scale indicate varying degrees of dissatisfaction and numbers toward the bottom end of the scale reflect varying degrees of satisfaction with each particular aspect of your marriage. PLEASE CONSIDER HOW YOUR PARTNER HAS BEEN ACTING OVER THE MONTH BEFORE ENTERING HOSPITAL / THE PAST MONTH AND HOW SATISFIED OR DISSATISFIED YOU HAVE FELT ABOUT THIS.

PARTNER'S HELP WITH HOUSEHOLD RESPONSIBILITIES

e.g. cleaning the house (sweeping, dusting, cleaning the bathroom); grocery shopping; cooking the meals; washing the dishes; doing the laundry; caring for the car; working in the garden; doing the household repairs.

1 completely dissatisfied
2 moderately dissatisfied
3 no opinion
4 moderately satisfied
5 completely satisfied

PARTNER'S HELP WITH REARING OF CHILDREN

e.g. feeding the children; bathing the children; disciplining the children; watching the children; playing with the children; helping the children when needed.

1 completely dissatisfied
2 moderately dissatisfied
3 no opinion
4 moderately satisfied
5 completely satisfied

EXTENT OF INVOLVEMENT IN SOCIAL ACTIVITIES WITH PARTNER

e.g. going out to films together; going out to dinner together; going to parties together; going to night clubs together; going to sports activities together.

1 completely dissatisfied
2 moderately dissatisfied
3 no opinion
4 moderately satisfied
5 completely satisfied

PARTNER'S HANDLING OF MONEY

e.g. budgeting of money;
buying and/or receiving of presents;
buying of clothes;
saving not enough or too much;
amount spent on personal pleasure.

1 completely dissatisfied
2 moderately dissatisfied
3 no opinion
4 moderately satisfied
5 completely satisfied

AMOUNT OF COMMUNICATION YOU HAVE WITH PARTNER

e.g. extent of willingness
to talk things over; amount
of tact shown; frankness;
willingness to discuss problems

1 completely dissatisfied
2 moderately dissatisfied
3 no opinion
4 moderately satisfied
5 completely satisfied

SEXUAL RELATIONSHIP WITH PARTNER

e.g. frequency of sexual contact;
location; type;
amount of affection shown;
faithfulness

1 completely dissatisfied
2 moderately dissatisfied
3 no opinion
4 moderately satisfied
5 completely satisfied

PARTNER'S PROGRESS AT WORK

e.g. amount of time spent on it;
amount of money earned;
location;
sense of satisfaction gained;
hours worked

1 completely dissatisfied
2 moderately dissatisfied
3 no opinion
4 moderately satisfied
5 completely satisfied

EXAMPLE SHEET

A I like it to be fairly warm
I dislike warm weather

B I like the weather to be pretty hot
I like it best when there is a sizzling heat wave

C I like it best when there is a sizzling heat wave
I like it to be fairly warm

D I like the weather to be pretty hot
I like it to be fairly warm

E I dislike warm weather
I like the weather to be pretty hot

A^{+}_{-}	E^{-}_{+}	D^{+}_{-}	C^{+}_{-}	B^{-}_{+}

REMEMBER. THINK ABOUT HOW YOU HAVE BEEN FEELING DURING THE MONTH BEFORE ENTERING HOSPITAL / THE PAST MONTH

I have had no feelings of affection for my spouse whatsoever
I have only had occasional feelings of affection for my spouse

I have felt reasonably happy with my marriage most of the time
I have been completely happy with my marriage

I have felt reasonably confident in my spouse most of the time
I have felt absolutely no confidence in my spouse

I have been extremely unhappy with my marriage
I have felt reasonably happy with my marriage most of the time

I have felt affection for my spouse most of the time
I have had no feelings of affection for my spouse whatsoever

I have only occasionally felt any confidence in my spouse
I have felt reasonably confident in my spouse most of the time

I have felt absolutely no confidence in my spouse
I have only occasionally felt any confidence in my spouse

I have always felt very affectionate towards my spouse
I have only had occasional feelings of affection for my spouse

REMEMBER. THINK ABOUT HOW YOU HAVE BEEN FEELING DURING THE MONTH BEFORE ENTERING HOSPITAL / THE PAST MONTH

I have been extremely unhappy with my marriage
I have been unhappy with my marriage most of the time

I have felt affection for my spouse most of the time
I have only had occasional feelings of affection for my spouse

I have felt reasonably confident in my spouse most of the time
I have had complete confidence in my spouse

I have been unhappy with my marriage most of the time
I have been completely happy with my marriage

I have had complete confidence in my spouse
I have only occasionally felt any confidence in my spouse

I have felt reasonably happy with my marriage most of the time
I have been unhappy with my marriage most of the time

I have always felt very affectionate towards my spouse
I have felt affection for my spouse most of the time

EXAMPLE SHEET

I dislike warm weather

I like it to be fairly warm

I like the weather to be pretty hot

I like it best when there is a sizzling heat wave

FEELINGS OF HAPPINESS WITH MARRIAGE

REMEMBER. THINK ABOUT HOW YOU HAVE BEEN FEELING DURING THE MONTH BEFORE ENTERING HOSPITAL / THE PAST MONTH

I have been extremely unhappy with my marriage

I have been unhappy with my marriage most of the time

I have felt reasonably happy with my marriage most of the time

I have been completely happy with my marriage

FEELINGS OF AFFECTION TOWARDS SPOUSE

REMEMBER. THINK ABOUT HOW YOU HAVE BEEN FEELING DURING THE MONTH BEFORE ENTERING HOSPITAL / THE PAST MONTH

I have had no feelings of affection for my spouse whatsoever

I have only had occasional feelings of affection for my spouse

I have felt affection for my spouse most of the time

I have always felt very affectionate towards my spouse

FEELINGS OF CONFIDENCE IN SPOUSE

REMEMBER. THINK ABOUT HOW YOU HAVE BEEN FEELING DURING THE MONTH BEFORE ENTERING HOSPITAL / THE PAST MONTH

I have felt absolutely no confidence in my spouse

I have only occasionally felt any confidence in my spouse

I have felt reasonably confident in my spouse most of the time

I have had complete confidence in my spouse

FORM T

NAME _____ DATE _____

VERTICAL SOLID LINES TO BE DRAWN BETWEEN THE APPROPRIATE HOURS OF THE DAY IN ORDER TO INDICATE THE TIME PERIODS SPENT WITHIN EACH OF THE THREE CATEGORIES.

Time of day	At home	Alone	Together with Spouse/ Confidant
6am			
9am			
12am			
3pm			
6pm			
9pm			
12pm			

EYSENCK PERSONALITY INVENTORY

by H. J. Eysenck and Sybil B. G. Eysenck

PERSONALITY QUESTIONNAIRE

FORM B

NAME..... AGE.....

OCCUPATION..... SEX.....

N= ☐ E= ☐ L= ☐

Instructions

Here are some questions regarding the way you behave, feel and act. After each question is a space for answering "YES" or "NO".

Try to decide whether "YES" or "NO" represents your usual way of acting or feeling. Then put a cross in the circle under the column headed "YES" or "NO". Work quickly, and don't spend too much time over any question; we want your first reaction, not a long-drawn out thought process. The whole questionnaire shouldn't take more than a few minutes. Be sure not to omit any questions.

Now turn the page over and go ahead. Work quickly, and remember to answer every question. There are no right or wrong answers, and this isn't a test of intelligence or ability, but simply a measure of the way you behave.

UNIVERSITY OF LONDON PRESS LTD

E ○ N ○ L ○ ☐☐☐☐☐☐☐☐☐☐

FORM B

		YES	NO
1.	Do you like plenty of excitement and bustle around you?	○	○
2.	Have you often got a restless feeling that you want something but do not know what?	○	○
3.	Do you nearly always have a "ready answer" when people talk to you?	○	○
4.	Do you sometimes feel happy, sometimes sad, without any real reason?	○	○
5.	Do you usually stay in the background at parties and "get-togethers"?	○	○
6.	As a child, did you always do as you were told immediately and without grumbling?	○	○
7.	Do you sometimes sulk?	○	○
8.	When you are drawn into a quarrel, do you prefer to "have it out" to being silent, hoping things will blow over?	○	○
9.	Are you moody?	○	○
10.	Do you like mixing with people?	○	○
11.	Have you often lost sleep over your worries?	○	○
12.	Do you sometimes get cross?	○	○
13.	Would you call yourself happy-go-lucky?	○	○
14.	Do you often make up your mind too late?	○	○
15.	Do you like working alone?	○	○
16.	Have you often felt listless and tired for no good reason?	○	○
17.	Are you rather lively?	○	○
18.	Do you sometimes laugh at a dirty joke?	○	○
19.	Do you often feel "fed-up"?	○	○
20.	Do you feel uncomfortable in anything but everyday clothes?	○	○
21.	Does your mind often wander when you are trying to attend closely to something?	○	○
22.	Can you put your thoughts into words quickly?	○	○
23.	Are you often "lost in thought"?	○	○
24.	Are you completely free from prejudices of any kind?	○	○
25.	Do you like practical jokes?	○	○
26.	Do you often think of your past?	○	○
27.	Do you very much like good food?	○	○
28.	When you get annoyed, do you need someone friendly to talk to about it?	○	○
29.	Do you mind selling things or asking people for money for some good cause?	○	○
30.	Do you sometimes boast a little?	○	○
31.	Are you touchy about some things?	○	○
32.	Would you rather be at home on your own than go to a boring party?	○	○
33.	Do you sometimes get so restless that you cannot sit long in a chair?	○	○
34.	Do you like planning things carefully, well ahead of time?	○	○
35.	Do you have dizzy turns?	○	○
36.	Do you *always* answer a personal letter as soon as you can after you have read it?	○	○
37.	Can you usually do things better by figuring them out alone than by talking to others about it?	○	○
38.	Do you ever get short of breath without having done heavy work?	○	○
39.	Are you an easy-going person, not generally bothered about having everything "just-so"?	○	○
40.	Do you suffer from "nerves"?	○	○
41.	Would you rather plan things than do things?	○	○
42.	Do you sometimes put off until tomorrow what you ought to do today?	○	○
43.	Do you get nervous in places like lifts, trains or tunnels?	○	○
44.	When you make new friends, is it usually *you* who makes the first move, or does the inviting?	○	○
45.	Do you get very bad headaches?	○	○
46.	Do you generally feel that things will sort themselves out and come right in the end somehow?	○	○
47.	Do you find it hard to fall asleep at bedtime?	○	○
48.	Have you sometimes told lies in your life?	○	○
49.	Do you sometimes say the first thing that comes into your head?	○	○
50.	Do you worry too long after an embarrassing experience?	○	○
51.	Do you usually keep "yourself to yourself" except with very close friends?	○	○
52.	Do you often get into a jam because you do things without thinking?	○	○
53.	Do you like cracking jokes and telling funny stories to your friends?	○	○
54.	Would you rather win than lose a game?	○	○
55.	Do you often feel self-conscious when you are with superiors?	○	○
56.	When the odds are against you, do you still usually think it worth taking a chance?	○	○
57.	Do you often get "butterflies in your tummy" before an important occasion?	○	○

PLEASE CHECK TO SEE THAT YOU HAVE ANSWERED *ALL* THE QUESTIONS

APPENDIX 3

(Additional material obtained from case notes, hospital staff and from the patient at follow-up interview (Interview C)).

MRC UNIT,
Royal Edinburgh Hospital,
Morningside Park,
Edinburgh EH10 5HF.

Telephone No. 447 7489

Dear

You may recall our meeting some six months ago when I saw you in connection with a research project we were doing in the hospital. You kindly indicated at the time that you would have no objection to my seeing you again.

I wonder if it would be possible for you to come to the Andrew Duncan Clinic on at or, alternatively, if I could visit you at home that day. If neither is possible could you please 'phone me at the above number or indicate on the return slip below what times would suit you.

Yours sincerely,

P.G. Surtees

.....

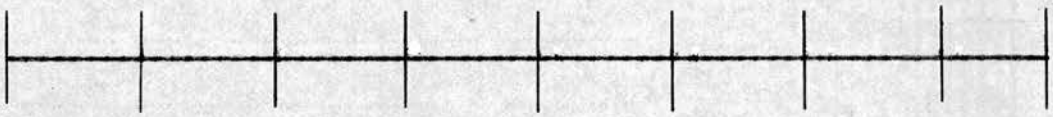
Mr P.G. Surtees,
M.R.C. Unit,
Royal Edinburgh Hospital,
Morningside Park,
EDINBURGH EH10 5HF.

I shall be able to attend the Andrew Duncan Clinic / be available at home on at

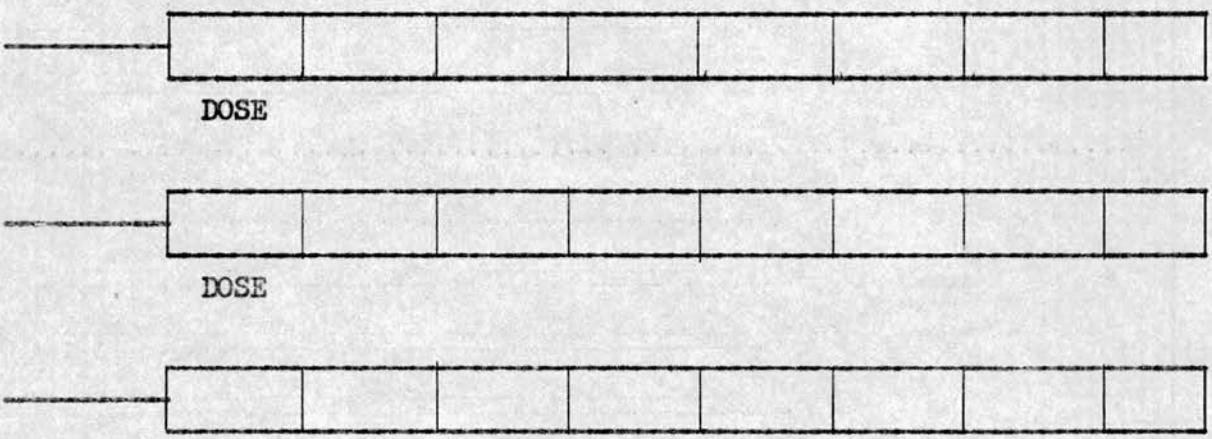
MEDICATION

1. Determine which if any anti-depressant medications have been taken continuously since discharge from key hospitalisation (or since key O/P contact). If discontinuous, determine those periods of time > one month when specific anti-depressant tablets were taken. Indicate by a continuous line below:

   ASK: Have you taken anything for your nerves or your mood since you were last seen?
   (Obtain a list of drugs)



MEDICATION TYPES DOSE



2. If any above medications once initiated are discontinued, determine why - but only

Side effects	Yes	No
Defaulted	Yes	No
Doctor's Advice	Yes	No
Other		

3. FOR LITHIUM
   Determine frequency with which plasma lithium levels were checked.

   Mark on time bar.

4. FOR ALL MEDICATIONS

Ask how frequently prescription renewal was made and how many tablets obtained on each occasion.

5. Determine if following taken regularly

Minor tranquillizers

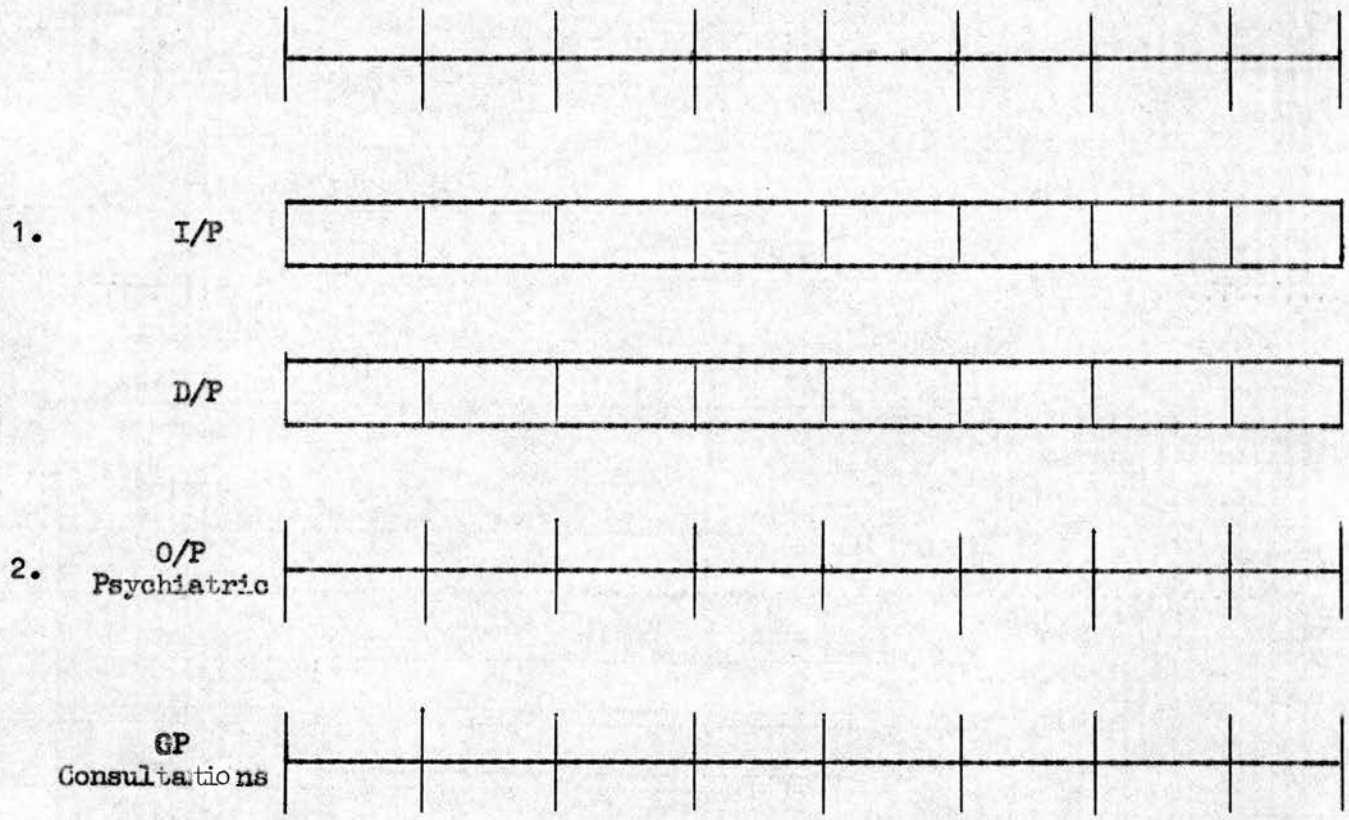
Night sedation

Remarks:

EXTENT OF HEALTH CARE CONTACT DURING FOLLOW-UP PERIOD

1. Determine period(s) of I/P and D/P care since discharge from key episode (or since key O/P contact). Enter periods within time bars below. If no such periods indicate so within time bar(s).

2. Determine both the number and dates of psychiatric O/P attendances and of G.P. consultations made during follow-up period. Indicate these by an X on the appropriate lines below.



If attendance or G.P. consultations made but information difficult to obtain determine name of G.P.

If attendances at hospital other than R.E.H. indicate which.

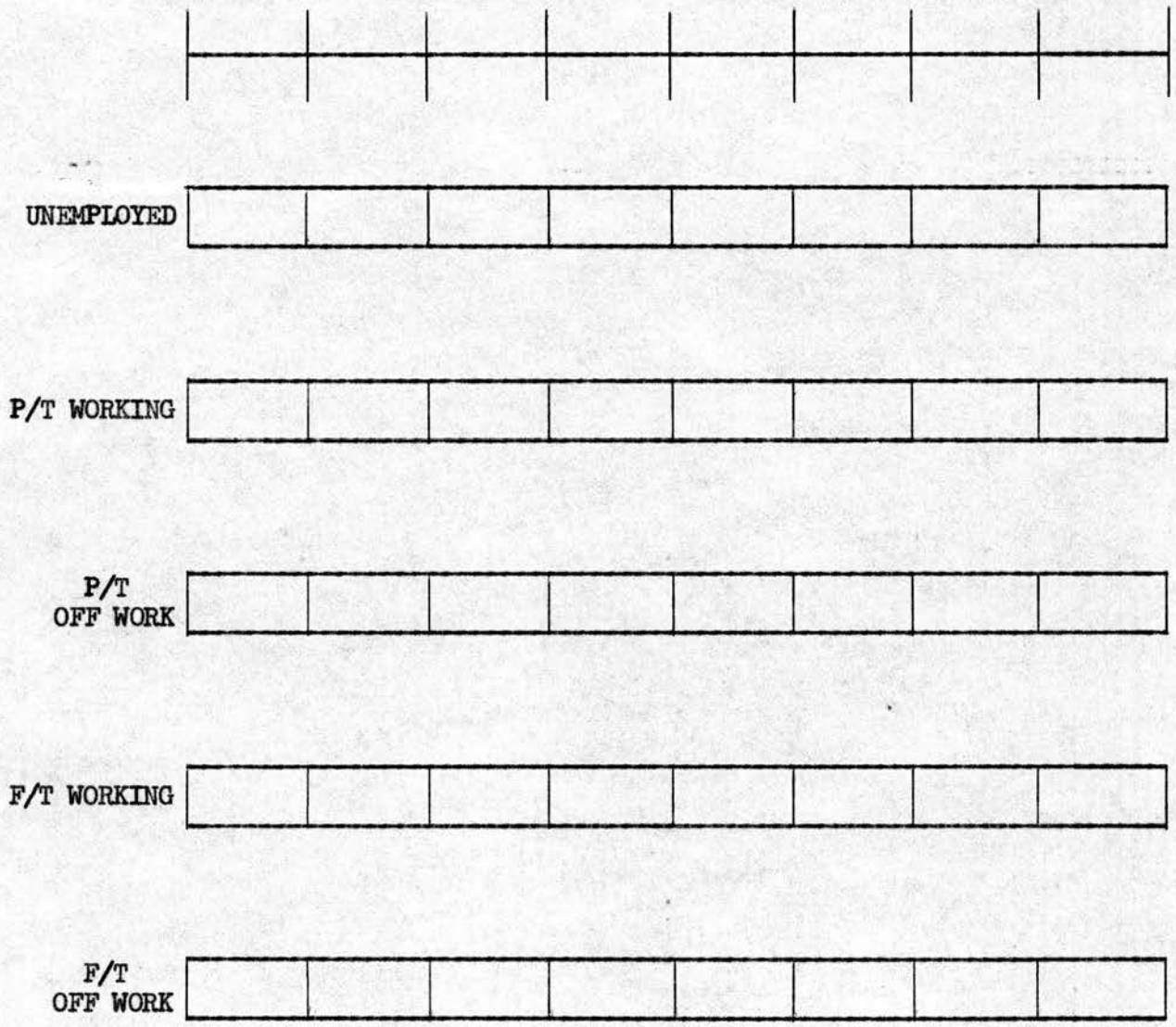
WORK HISTORY OF PATIENT DURING FOLLOW-UP PERIOD

Determine periods of unemployment and of being at or off work whether that work be full or part-time.

If patient is at any time during period a student, housewife or retired and has undertaken no paid work, attempt to determine the extent to which he/she has been able to function adequately in the role. Determine also if paid work was sought at all.

Enter information in time bars below.

Note any change in patient's role by entering role code in time bars.



Check if Appropriate

(H) Housewife throughout period ☐

(S) Student throughout period ☐

(R) Retired throughout period ☐

Any other comments:-

HOUSING

(Supplementary to life event interview section)

Determine where ex-patient has lived for most, or all of the time since discharge from key hospitalisation (or since key O/P contact).

Do you live in a flat or a house?

Do you own it (this flat/house) or rent it?

If rented: From the Council or private landlord?

If appropriate: Is it self-contained?

How many floors above ground do you live? _____

Nature of Tenancy		Accomodation	
Owned	= 1	House	= 1
Rented from Council	= 2	Flat, self-contained	= 2
Rented privately	= 3	Flat, not self-contained	= 3
Other, (specify, e.g. tenancy by virtue of employment	= 4	Other, (e.g. hostel/hotel /inst.)	= 4

HOUSING CONDITIONS

1) KITCHEN — Do you have a separate kitchen? ..... YES/NO

2) BATHROOM — Do you have a bathroom? ..... YES/NO

3) LAVATORY — Inside living area ☐

Outside living area ☐

4) SPACE — How many rooms do you have? (Include as living rooms kitchen were meals can be taken)

Number of rooms in flat/house	
Living rooms	Bedrooms

Number of persons in household		
	1-10 years	>10 years
Males		
Females		

5) SATISFACTION WITH HOUSING

Determine to what extent 'S' is satisfied with present housing. (Obtain self-report rating of satisfaction and note any relevant comments.)

APPENDIX 4

(Material obtained from the second follow-up interview (Interview D))

INTERVIEW QUESTIONS TO CHECK LIFE EVENTS AND CHRONIC DIFFICULTIES

HEALTH

Now I'd like to talk about the last 7 months: that is from ... to ...

1. Has anyone in the family been ill?
2. What about you?

   (SPECIAL PROBES:- Acuteness? How serious? Off work?)
   (Applies to both questions 1 and 2)
3. What about the people at home, and your brothers, sisters, parents, children, fiancee, friend?
4. Has anyone been admitted to or left hospital during the last 7 months?
5. What about you? The people at home, etc....?

   (SPECIAL PROBES:- For what illness? What led to it? - Applies to questions 4 and 5. Emergency or routine? For how long? State at discharge? Subject involved?)
6. Have any relatives died during this time?

   (SPECIAL PROBE:- Was subject present?)
7. Have you had any bad news about an illness that's been going on for some time?
8. What about your brothers, sisters, parents, children, friends/fiancee?
9. What about you?

CHRONIC HEALTH

(APPLIES TO S, HOUSEHOLD MEMBER, OR ANY RELATIVE WHERE S IS INVOLVED IN CONSEQUENCES)

10. Has there been any physical disability or mental handicap in the family (in the last 7 months)?
11. Are there any members of the family or other relatives who have difficulty getting about because of bad health?
12. Have there been any relatives that you've worried about on account of their old age?

    (SPECIAL PROBE:- Age and incapacities, e.g. housebound?)
13. Are there any relatives who you worry about for any other reason - because of a health problem or a drinking or gambling problem, or drugs?

(14. If over 38 what about the change of life (menopause)? Have you had any problems associated with that?)

ACCIDENTS

15. Have there been any accidents in the last 7 months?

(SPECIAL PROBES:- When? What?)

16. What about accidents to children?

MENTION CHILDREN IN HOUSEHOLD

17. Have you been involved in or witnessed any road accidents?

Or anything like that?

(SPECIAL PROBES:- How serious? How far were you involved? Have you ever been in a serious accident at any time? What? When?)

PSYCHIATRIC

18. Has there been any nervous trouble?

19. What about yourself?

PREGNANCY

ASK IF APPROPRIATE

20. Has there been any pregnancy in the family/fiancee? Any miscarriages?

Ask (i) If married and 16-45
(ii) Unmarried women under 35 with a regular boyfriend in the last 7 months (otherwise use judgement).
(iii) All unmarried men with 'regular' girlfriend in the last 7 months.

21. What about you (or your girlfriend) have you been pregnant?

ROLE CHANGES

22. Has anyone in the family got married in the last 7 months?

23. What about your brothers, sisters, parents, children, friends?

24. Any babies born?

(SPECIAL PROBE:- First granchild etc? Any complications?)

25. (a) Anyone engaged?

(b) What about you?

26. What about your brothers, sisters, parents, children?

(SPECIAL PROBES:- When was it decided?) First made official?) Was it expected?) Applies to questions 25 and 26

27. Have you made any special new friends of either sex?

(SPECIAL PROBES FOR EXTRA-MARITAL RELATIONSHIPS, HOMOSEXUAL RELATIONSHIPS)

FOR THOSE NOT LIVING WITH A SPOUSE:

28. Have you had a boy/girl friend?

29. If no, ask single people if they had one in the past whom they lost for some reason?

(SPECIAL PROBE:- When?)

30. Have you thought of marrying him/her?

(SPECIAL PROBE FOR PROPOSALS)

FOR THOSE LIVING WITH A SPOUSE:

31. Have you had any broken friendships or attachments?*

32. Have you and your husband both been living at home during this time?

IF NEGATIVE RESPONSE:

33. Have you been separated for any length of time during the last 7 months?

34. Have either of you ever considered a permanent separation or divorce?*

35. And your parents/sisters/brothers, etc. - have they separated at all in the last 7 months?

(SPECIAL PROBES:- *Coping probes should be used at these points -
Have you tried to talk things over with ...?
Have you sought help or advice from anyone else?
Confided in anyone about it?)

EMPLOYMENT

ABOUT SUBJECT'S HUSBAND/FATHER OR WIFE/FATHER if applicable

36. Has your wife/husband (if over 18 and/or married) / father (if under 18 and not married) been working all the time?

(SPECIAL PROBES:- Work history for last 7 months.
Why left, when arranged, etc.?)

37. Any time off through sickness? Redundancy? Strikes?

38. Has he had any promotion in his job?

(SPECIAL PROBE:- Collect periods of unemployment in last 7 months lasting 4 weeks. For 'important' members of household. For non-chief wage earners, check whether related to unwillingness, inability, etc.)

ABOUT SUBJECT if applicable

39. Have you been working all the last 7 months?

40. WORK HISTORY FOR LAST 7 MONTHS. Why left, when arranged, etc.?

41. Any time off through sickness?

42. Redundancy?

43. Strikes?

44. Any promotion?

45. Has anything happened at work?

46. Have you been put on a new job?

47. Has anybody you have worked with closely left in the last 7 months?

(SPECIAL PROBES:-
1. Seen regularly and frequently at work?

2. (a) Extra work involvement - seen out of work hours?
   (b) Close relationship required by job?
   (c) Effect on subject's job?
3. Extent of separation?

48. How do you get on with your workmates?

49. Were there any difficulties at work? PAUSE. For instance with supervisors, colleagues (or juniors)?

IF YES: Is there anything you don't like about it?

IF NO: Is there anything you do like about it?

What about: promotion prospects?
responsibility?
wage increases?

49a. Have you liked your job in the last 7 months?

50. What are your work hours like? Do you ever work overtime?

CHECK NUMBER OF HOURS

51. Have you been expecting any changes in your job?

52. How do you feel about the future, do you think you'll stay at this job?

53. Might you leave for any reason? IF RELEVANT, PROBE FOR THREAT OF HAVING TO GIVE UP WORK FOR ANY REASON.

IF APPROPRIATE AGE:

54. Have you taken any exams during the last 7 months?

55. Have you had the results of any exams?

IF APPROPRIATE:

56. Has anyone at home started or left school or college?

HOUSING

57. How long have you lived in your present home?

CHANGES IN SUBJECT'S RESIDENCE OVER LAST 7 MONTHS

58. Do you own it yourself?

59. Do you like living in your present house/flat?

60. Can you tell me if any of the following have been a problem in your house/flat? INTERVIEWER USE JUDGEMENT.

(a) Not enough room? OBTAIN NO. OF ROOMS, EXCLUDING BATHROOM. KITCHEN = 1 IF BIG ENOUGH TO HAVE A MEAL IN.

(b) Sharing facilities? Self-contained?

(c) Do you feel it's private enough?

(d) Trouble with repairing the house - anything wrong with roof, dry rot, damp walls, rats, etc.?

Have you approached the landlord/council about this?

(SPECIAL PROBES: - Was it easy to get it repaired?
Is there any difficulty paying for the repairs?)

61. Has there been any question of the family moving or having to move in the last 7 months?

(SPECIAL PROBES:- Because of lease expiring, demolition, or any threat of re-development.)

62. Have there been any problems with the landlord - any restrictions - that sort of thing. Did this affect you?

63. Have there been any problems, that you know of, about paying for the house - keeping up with the rent/mortgage?

64. What about the neighbourhood? How do you get on with the neighbours?

65. Have there been any difficulties with them? Have you fallen out with any neighbours who used to be friends or acquaintances?

66. Have you ever felt cut off in your present home - too far from friends or work?

IF RELEVANT, PROBE UNCERTAINTY OF e.g. MOVING, OR LIKELIHOOD OF LEAVING HOME.

MONEY

67. Have you had any money worries? Debts, H.P.?

(SPECIAL PROBE:- Have you tried to borrow from anybody? Have you thought of trying to earn more?)

68. Have you gone without things you really need?

69. IF APPLICABLE: Do you contribute to household expenses/pay for your upkeep?

(SPECIAL PROBE:- Do you think this is about the right amount you should pay?)

70. If children over 16 are working, do the working children contribute to the household finances?

71. WHERE RELEVANT, e.g. STUDENTS: Do you think your parents should help you out a bit more?

72. Have you been getting any social security benefits?

CRISES

73. Has there been any crisis/emergency? PAUSE. Any crisis involving your husband/wife/son(s)/daughter(s), etc.?

74. Has there been anything in the home? Such as a burglary? Or a fire? Or being attacked in the street?

75. Have you had to break any bad news to anyone?

76. Have there been any legal troubles, or having to go to court?

77. Have you or anyone in the family had any contact with the police at all?

78. What about contact with any social agency such as welfare officer, marriage guidance counsel?

79. What about your brothers, sisters, parents, children, friends?

80. Have any of your relatives had any crises or trouble with which you've had to help - for example, has anyone gone to stay with an ill relative? Or any in which you've been involved?

81. What about friends? Have there been any troubles or difficulties concerning them in which you've been involved? PAUSE. Have any died, e.g. or some other important crisis?

FORECASTS

82. Have you or any member of the family had any unexpected news in the last 7 months about anything that has happened or is going to happen? PAUSE.
For example, sometimes a family will get a letter saying they are going to be re-housed, or they might perhaps get notification of redundancy. Anything like that?
GIVE TIME TO THINK.
REFER TO POSSIBLY RELEVANT EVENTS ALREADY ESTABLISHED.

83. Sometimes people learn unexpected things about others close to them, such as discovering their child has been stealing at school, or their husband/wife has been having an affair, or their boyfriend/girlfriend has been seeing someone else.
Have you had anything happen like this .... news that shook you at all?
Anything like that at all?

84. Are you expecting any important things to happen to you in the next few months? (COVER 7 MONTHS)

INTERACTION: LEISURE/FRIENDS

85. Has there been just the .... of you at home during the last 7 months?

86. Has there been any big change in the amount you've been seeing of your relatives? Have you been seeing much more or much less of any of them?
(SPECIAL PROBE:- Has contact diminished or increased by approximately two-thirds?)

87. Have any friends moved away?
(SPECIAL PROBE:- Is this a confidant? Tell everything to? Close at hand? Re- ocate to S.?)

FRIENDS - SAME AND OPPOSITE SEX

88. Have you had any difficulty with friends?

89. Have you been worried about any of them? PAUSE.
Or about your relationship with any of them?

BOYFRIEND/GIRLFRIEND - ("Single" people + those who have said they have an extramarital relationship only)

IF S HAS NOT HAD BOY/GIRLFRIEND IN LAST 7 MONTHS, OR ONLY SPASMODIC CONTACTS:

90. Would you like to have more contact with the opposite sex?

91. Have you missed not having a boyfriend?
How much has this bothered you in the last year?

IF REGULAR BOY/GIRLFRIEND:

92. How well would you say you and your boyfriend get on in general?

93. Would you say there are any problems about your relationship?

94. How often do you and .... have quarrels or tiffs?
What are they usually about? (e.g. disagreements about marriage?)

95. Do you feel you can talk to .... quite easily?

96. Do you talk to .... about things that worry you?
Do you wish you could confide more in ....?

97. When .... has problems or worried does (s) he talk them over with you?

98. What about the sexual side of things - have there been any difficulties or problems in this?

99. How do your parents get on with ....? (Probe for any tension here.)

100. And what about his parents, how do you get on with them?

INTERACTION WITH PARENTS (WHERE APPROPRIATE)

Are your parents living?

101. How do you get on with them?

102. Are they both easy to get on with?

103. Do they show interest in you - or the things you do?

104. Would you say there's any tension or difficulty between them and you?

105. Do you feel you can confide in them?
IF YES: Do you find it helpful to talk things over with them?
IF NO: Would you like to be able to confide more in them?

106. Does either parent treat you as younger than you are?

107. Do you feel you can get on with things without interference from your parents?

108. How would you say your parents got on together?

109. Do they quarrel at all? Or have periods of not speaking to each other?

GENERAL

110. Have you had to make any important decisions over the last 7 months?

111. You will have gathered by now that we're interested in anything upsetting, important, or exciting that has happened to you. PAUSE. Exciting in a pleasant or unpleasant way. Can you think of anything else like this that may have happened to you in the last 7 months?

112. In the last 7 months has anything happened which has given you a great deal of pleasure or satisfaction? PAUSE. e.g. a new car, or a child being in a play at school, or somebody praising something you've done highly?

DISAPPOINTMENTS

113. Is there anything in your life which is a disappointment to you?
Anything important which you would like to have turned out differently?

114. What about your career or your job?

INCIDENT Code No.

Date

Description

PROBES

Relationship and contact with person involved?

Warning. What led up to it? Forecast event?

Avoidability?

Prior experience?

Interaction change?

The position now?

The expected outcome?

Subjective feelings?

Role change?

Residence change?

Routine changes or restrictions?

Substitutes?

Career or other important goals affected?

Support?

Clearcut event at onset (Difficulties only)?

How long "with" in past 3 months (Difficulties only)?

People who help, hinder, or who might help but don't (Difficulties only)?

LIST OF PROBES ASKED (WHERE RELEVANT) FOR EACH INCIDENT

PROPINQUITY: Rate contact of and relationship with other person involved.

WARNING: Advance knowledge that it would happen? How? Preparation made? Any warning beforehand?

AVOIDABILITY: Could you have done anything to have prevented it from happening?

PRIOR EXPERIENCE: Any similar experience before? How similar? When? Has that or anything else prepared you for this?

INTERACTION CHANGE: Any change in the amount you see of anyone close to you? How much? What kind of change ... casual ... intimate? How well do you get on with? Any change in the quality of the relationship?

SUPPORT: Did you have anyone who could help you at this time? Who? What did they do? Did you get any advice from anyone? Whom? Consult any GP or social agency for help? What was the attitude of your relatives/friends at the time?

ROLE CHANGE: Has it meant a change in your role in life? Been easy? Any financial implications? How do you feel about the new role? How long will this change last?

RESIDENCE CHANGE: Does it imply a change of home? What would a house move mean for you at this time? Enough space? New neighbourhood?

ROUTINE CHANGE: Any change in daily routine? What sort? Spend spare time differently? Used to making changes in routine? Have you had to make a lot of decisions as a result of this event? Easy for you?

SUBSTITUTES: Easy to find another person (to go out with), another hobby/job/home. How long do you think it will take?

ASPIRATIONS: Has this event interfered with/furthered your overall life plans in any way? How badly? Has this been, in some sense, a turning point in your life?

Ratings of independence of events from key depressive episode

Three ratings made;

either (1) Illness dependent
or (2) Possibly independent of the key illness
or (3) Independent of the key illness

Each of these three ratings were then divided between;

(a) Desirable or neutral event
or (b) Undesirable

Broad basis adopted for making the distinctions above

These ratings were always made on the basis of all the contextual information available surrounding a given event. Examples of the type of events that fell under each 'related' category is as follows:

ILLNESS RELATED EVENTS (DESIRABLE OR NEUTRAL) ..... e.g. Discharge from hospital

ILLNESS RELATED EVENTS (UNDESIRABLE) ..... e.g. New episode of depression, e.g. S takes O/D while I/P, e.g. S readmitted to hospital

EVENTS POSSIBLY INDEPENDENT OF THE KEY ILLNESS ..... e.g. New boyfriend (relationship developed with other patient while both I/P's. e.g. Change of office/ job/workload within a firm.
(DESIRABLE OR NEUTRAL)

EVENTS POSSIBLY INDEPENDENT OF THE KEY ILLNESS ..... e.g. Went to live with a sister and husband on discharge from hospital thrown out not soon after. e.g. Shortly after leaving hospital buys new house in different district from that which had lived in for many years.
(UNDESIRABLE)

EVENTS INDEPENDENT OF THE KEY ILLNESS ..... e.g. Starting a
(DESIRABLE OR NEUTRAL) a new job.
e.g. Daughter passes
O levels.
e.g. House move.

EVENTS INDEPENDENT OF THE KEY ILLNESS ..... e.g. Heart attack
(UNDESIRABLE) (48 hours in intensive
care unit).
e.g. Father's pneumonia.
e.g. Road accident
H driving.
e.g. Court appearance.
e.g. F in Law's Death
e.g. Son's accident
(breaks arm badly at
school).

The above examples of events are given only to serve as an indication of the broad types of events that were placed within each category. In practice the exercise involved a considerable subjective component which could only be moderated by obtaining as much contextual information as possible surrounding each event.

Ratings of the independence of long term difficulties from the key depressive episode.

Only three ratings were made of the difficulties in this section;

either the difficulty was considered to be

(a) related to the key illness

or (b) possibly related

or (c) independent of the key illness.

Again, as with the events, categorisation was attempted on the basis of all the contextual information available.

Examples of the types of difficulties that were placed within each category are as follows;

ILLNESS RELATED DIFFICULTIES	e.g. predominantly S's own illness.
DIFFICULTIES POSSIBLY RELATED TO KEY ILLNESS	e.g. Abuse of drugs over number of years. e.g. Small debt. e.g. Small business failure. e.g. Employment difficulty after discharge.
DIFFICULTIES INDEPENDENT OF KEY ILLNESS	e.g. Court case pending against S over expense claims. e.g. Loss of children to H after marital rows, Sep from H Divorce pending. e.g. Marital problems, H violent, has mistress, still lives in same house as wife.

APPENDIX 5

(Hamilton Rating Scale, inter-rater measures)

HAMILTON RATING SCALE INTER-RATER MEASURES

'PGS' rating	'Other' rating	Percentage equal on individual scale items	Percentage ± 1	Percentage ± 2	Percentage ± 3	Difference in total scores
31	30	61.9	28.57	4.76	4.76	+1
25	22	61.9	33.33	4.76	-	+3
22	20	61.9	42.85	-	-	+2
18	15	61.9	33.33	4.76	-	+3
18	14	80.95	19.04	-	-	+4
27	23	80.95	19.04	-	-	+4
29	31	80.95	19.04	-	-	-2
18	17	85.71	14.28	-	-	+1
30	27	76.19	23.80	-	-	+3
24	26	80.95	19.04	-	-	-2
24	24	80.95	19.04	-	-	0
38	40	90.47	9.52	-	-	-2
14	13	76.19	23.80	-	-	+1
18	18	80.95	19.04	-	-	0
24	22	90.47	9.52	-	-	+2
28	27	95.23	4.76	-	-	+1
25	23	80.95	19.04	-	-	+2
35	37	90.47	9.52	-	-	-2
30	29	80.95	19.04	-	-	+1
27	26	85.71	14.28	-	-	+1
31	33	90.47	9.52	-	-	-2
25	25	100	-	-	-	0
28	28	80.95	19.04	-	-	0
24	25	95.23	4.76	-	-	-1
26	27	95.23	4.76	-	-	-1

APPENDIX 6

(The tables of results relevant to Chapter 5)

TABLE 5·1

Age distribution of the patient group

AGE RANGE (YEARS)	MALE	FEMALE	TOTAL
21 - 29	3	8	11
30 - 39	6	3	9
40 - 49	11	13	24
50 - 59	8	15	23
60 - 65	2	11	13
TOTAL	30	50	80
MEAN AGE (YEARS)	44.8	48.1	46.9

TABLE 5·2

Social class distribution of the patient group

SOCIAL CLASS	MALE	FEMALE	TOTAL
1	4	2	6
2	5	8	13
3	11	29	40
4	8	7	15
5	2	1	3
No usual occupation	0	3	3
TOTAL	30	50	80

TABLE 5.3

Civil status

CIVIL STATUS	MALE	FEMALE	TOTAL
Single	5	9	14
Divorced/separated/living apart	1	8	9
Widowed	0	6	6
Single and cohabiting	0	2	2
Married with spouse	24	25	49
TOTAL	30	50	80

TABLE 5.4

Living group

LIVING GROUP	MALE	FEMALE	TOTAL
Alone	1	14	15
Friend(s)	1	3	4
Child(ren)	0	3	3
Sibling(s)	2	1	3
Parent(s)	2	4	6
Spouse	24	25	49
TOTAL	30	50	80

TABLE 5.5

Work status

WORK STATUS	MALE	FEMALE	TOTAL
Unemployed	5	2	7
Part or full time off work	15	9	24
Part or full time working until admission	9	9	18
Student	1	2	3
Housewife	N/A	26	26
Retired	0	2	2
TOTAL	30	50	80

TABLE 5.6

Age at first contact with psychiatric services (anywhere).

Includes current contact if first

AGE	MALE	FEMALE	TOTAL
$\leqslant 30$	8	13	21
31 - 45	15	18	33
> 45	7	19	26

TABLE 5·7

Age at first psychiatric admission (anywhere).

Includes current admission if first.

AGE	MALE	FEMALE	TOTAL
⩽ 30	8	10	18
31 - 45	11	19	30
> 45	8	18	26
NO ADMISSIONS (EVER)	3	3	6

TABLE 5·8

Number of previous admissions to psychiatric hospitals

NUMBER OF PREVIOUS ADMISSIONS	MALE	FEMALE	TOTAL
NONE	14	16	30
1	7	10	17
2	3	6	9
> 2	6	18	24
TOTAL	30	50	80

TABLE 5·9

Time since last in psychiatric in-patient care

(as calculated from date of last discharge)

TIME LAST IN IN-PATIENT CARE	MALE	FEMALE	TOTAL
Never	14	16	30
$\leqslant$ 3 months	2	7	9
$>$3 months $\leqslant$ 1 year	5	11	16
$>$1 year $\leqslant$ 3 years	2	10	12
$>$3 years $\leqslant$ 5 years	3	2	5
$>$ 5 years	4	4	8
TOTAL	30	50	80

TABLE 5·10

Total time in weeks in in-patient psychiatric care

during the year immediately preceding study key contact

TIME (IN WEEKS) AS IN-PATIENT DURING PRE-CONTACT YEAR	MALE	FEMALE	TOTAL
None	23	32	55
1 - 10	7	16	23
11 - 20	0	2	2
TOTAL	30	50	80

TABLE 5·11

Duration of in-patient stay (in days) for study patients admitted to the Royal Edinburgh Hospital

DURATION OF IN-PATIENT STAY (DAYS)	MALE	FEMALE	TOTAL
None	4	6	10
1 - 30	13	15	28
31 - 60	8	20	28
61 - 90	4	7	11
>90	1	2	3
TOTAL	30	50	80

TABLE 5·12

Hamilton Rating Scale (HRS) scores of key illness episode

HRS SCORE	MALE	FEMALE	TOTAL
≤ 18	5	16	21
19 - 24	15	15	30
≥ 25	10	19	29
TOTAL	30	50	80

TABLE 5·13

Beck Depression Inventory (BDI) scores of key illness episode

BDI SCORE	MALE	FEMALE	TOTAL
⩽ 23	12	10	22
24 - 31	9	15	24
> 31	7	18	25
Unable to complete	2	7	9
TOTAL	30	50	80

TABLE 5·14

Royal Edinburgh Hospital primary discharge diagnosis allocated to the study in-patients

HOSPITAL DIAGNOSIS	MALE	FEMALE	TOTAL
Psychosis associated with child-birth	-	1	1
Schizophrenia: schizo-affective type	0	1	1
Schizophrenia: unspecified type	1	0	1
Affective psychoses	16	24	40
Reactive depressive psychoses	2	3	5
Depressive neuroses	6	13	19
Personality disorders	1	2	3
TOTAL	26	44	70

APPENDIX 7

(Correlations between key contact symptom severity assessments and adversity indices)

Spearman correlations between Hamilton Rating Scale (HRS) scores, Beck Depression Inventory (BDI) scores (for the key illness episode) and the derived adversity indices (based on the events and difficulties which occurred <u>following</u> the inception of patients into the study).

ADVERSITY INDEX BASED ON:-	INITIAL HRS SCORE (N=71)	'p'	INITIAL BDI SCORE (N=63)	'p'
All events	0.32	·004	0.42	<·001
Independent or possibly independent events	0.47	<·001	0.51	<·001
All difficulties	0.21	·039	0.24	·029
Independent difficulties	0.09	ns	0.22	·045
Independent or possibly independent events <u>and</u> independent difficulties(AI)	0.34	·002	0.42	<·001
All (events & difficulties)	0.25	·017	0.35	·003

REFERENCES

AITKEN, R.C.B. (1969) Measurement of feelings using visual analogue scales. Proceedings of the Royal Society of Medicine, 62, pp. 989-993.

ALLEN, M.G. (1976) Twin studies of affective illness. Archives of General Psychiatry, 33, pp. 1476-1478.

ANDERSON, E.W. (1936) Prognosis of depressions of later life. Journal of Mental Science, 82, pp. 559-588.

ANTONOVSKY, A. and KATS, R. (1967) The life crisis history as a tool in epidemiological research. Journal of Health and Social Behaviour, 8, pp. 15-21.

de ARAUJO, G., van ARSDEL, P.P., Holmes, T.H. and DUDLEY, D.L. (1973) Life change, coping ability and chronic intrinsic asthma. Journal of Psychosomatic Research, 17, pp. 359-363.

ASTRUP, C., FOSSUM, A. and HOLMBOE, R. (1959) A follow-up study of 270 patients with acute affective psychoses. Acta Psychiatrica et Neurologica Scandinavica, 34, Suppl. 135.

ASTRUP, C., FOSSUM, A. and HOLMBOE, R. (1962) Prognosis in Functional Psychoses: Clinical, Social and Genetic Aspects. Springfield: Charles C. Thomas.

BARTLETT, F.C. (1932) Remembering: A Study of Experimental and Social Psychology. London: Cambridge University Press.

BECH, P., GRAM, L.F., DEIN, E., JACOBSEN, O., VITGER, J., and BOLWIG, T.G. (1975) Quantitative rating of depressive states. Acta Psychiatrica Scandinavica, 51, pp. 161-170.

BECK, A.T. (1967) Depression: Clinical, Experimental and Theoretical Aspects. London: Staples Press.

BECK, A.T., WARD, C.H., MENDELSON, M., MOCK, J. and ERBAUGH, J. (1961) An inventory for measuring depression. Archives of General Psychiatry, 4, pp. 561-571.

BECK, J.C. and WORTHEN, K. (1972) Precipitating stress, crisis theory, and hospitalization in schizophrenia and depression. Archives of General Psychiatry, 26, pp. 123-129.

BIELSKI, R.J. and FRIEDEL, R.O. (1976) Prediction of tricyclic antidepressant response: a critical review. Archives of General Psychiatry, 33, pp. 1479-1489.

BIRLEY, J.L.T. and BROWN, G.W. (1970) Crises and life changes preceding the onset or relapse of acute schizophrenia: clinical aspects. British Journal of Psychiatry, 116, pp. 327-333.

BIRTCHNELL, J. (1970) Early parent death and mental illness. British Journal of Psychiatry, 116, pp. 281-288.

BIRTCHNELL, J. (1970) Recent parent death and mental illness. British Journal of Psychiatry, 116, pp. 289-297.

BIRTCHNELL, J. (1970) Depression in relation to early and recent parent death. British Journal of Psychiatry, 116, pp. 299-306.

BIRTCHNELL, J. (1972) Early parental death and psychiatric diagnosis. Social Psychiatry, 7, pp. 202-210.

BRATFOS, O. and HAUG, J.O. (1968) The course of manic-depressive psychosis: a follow-up investigation of 215 patients. Acta Psychiatrica Scandinavica, 44, pp. 89-112.

BROWN, G.W. (1959) Experiences of discharged chronic schizophrenic patients in various types of living group. Milbank Memorial Fund Quarterly, 37, pp. 105-131.

BROWN, G.W. (1974) Meaning, measurement and stress of life events. In Dohrenwend, B.S. and Dohrenwend, B.P. (eds.) Stressful Life Events: Their Nature and Effects (ch. 14). New York: Wiley.

BROWN, G.W. and BIRLEY, J.L.T. (1968) Crises and life changes and the onset of schizophrenia. Journal of Health and Social Behaviour, 9, pp. 203-214.

BROWN, G.W., BIRLEY, J.L.T. and WING, J.K. (1972) Influence of family life on the course of schizophrenic disorders: a replication. British Journal of Psychiatry, 121, pp. 241-258.

BROWN, G.W., CARSTAIRS, G.M. and TOPPING, G.G. (1958) The post-hospital adjustment of chronic mental patients. Lancet, 2, pp. 685-689.

BROWN, G.W., HARRIS, T.O. and COPELAND, J.R. (1977) Depression and loss. British Journal of Psychiatry, 130, pp. 1-18.

BROWN, G.W., HARRIS, T.O. and PETO, J. (1973) Life events and psychiatric disorders. Part II: nature of causal link. Psychological Medicine, 3, pp. 159-176.

BROWN, G.W., MONCK, E.M., CARSTAIRS, G.M. and WING, J.K. (1962) Influence of family life on the course of schizophrenic illness. British Journal of Preventive and Social Medicine, 16, pp. 55-68.

BROWN, G.W., Ní BHROLCHÁIN, M. and HARRIS, T.O. (1975) Social class and psychiatric disturbance among women in an urban population. Sociology, 9, pp. 225-254.

BROWN, G.W. and RUTTER, M. (1966) The measurement of family activities and relationships: a methodological study. Human Relations, 19, pp. 241-263.

BROWN, G.W., SKLAIR, F., HARRIS, T.O. and BIRLEY, J.L.T. (1973) Life-events and psychiatric disorders. Part I: some methodological issues. Psychological Medicine, 3, pp. 74-87.

BURROWS, G.D., DAVIES, B. and SCOGGINS, B.A. (1972) Plasma concentration of nortriptyline and clinical response in depressive illness. Lancet, 2, pp. 619-622.

BURT, C.G., GORDON, W.F., HOLT, N.R. and HORDERN, A. (1962) Amitriptyline in depressive states: a controlled trial. Journal of Mental Science, 108, pp. 711-730.

CADORET, R.J., WINOKUR, G., DORZAB, J. and BAKER, M. (1972) Depressive disease: life events and the onset of illness. Archives of General Psychiatry, 26, pp. 133-136.

CARNEY, M.W.P. and SHEFFIELD, B.F. (1972) Depression and the Newcastle Scales: their relationship to Hamilton's Scale. British Journal of Psychiatry, 121, pp. 35-40.

CARROLL, B.J., FIELDING, J.M. and BLASHKI, T.D. (1973) Depression rating scales: a critical review. Archives of General Psychiatry, 28, pp. 361-366.

CLARK, J.A. and MALLETT, B.L. (1963) A follow-up study of schizophrenia and depression in young adults. British Journal of Psychiatry, 109, pp. 491-499.

CLINE, D.W. and CHOSY, J.J. (1972) A prospective study of life changes and subsequent health changes. Archives of General Psychiatry, 27, pp. 51-53.

COBB, S. (1976) Social support as a moderator of life stress. Psychosomatic Medicine, 38, pp. 300-314.

COCHRANE, R. and ROBERTSON, A. (1973) The life events inventory: a measure of the relative severity of psycho-social stressors. Journal of Psychosomatic Research, 17, pp. 135-139.

CODDINGTON, R.D. (1972) The significance of life events as etiologic factors in the diseases of children I. A survey of professional workers. Journal of Psychosomatic Research, 16, pp. 7-18.

COPELAND, J.R.M. (1975) The development of depressive illness and its relationship to diagnosis. M.D. thesis (unpublished) University of Cambridge.

COPPEN, A., MONTGOMERY, S.A., GUPTA, R.K. and BAILEY, J.E. (1976) A double-blind comparison of lithium carbonate and maprotiline in the prophylaxis of the affective disorders. British Journal of Psychiatry, 128, pp. 479-485.

CRANE, G.E. (1956) Further studies on iproniazid phosphate. Journal of Nervous and Mental Disease, 124, pp. 322-331.

DAVIES, B. (1969) Recent studies of severe depressive illnesses: Part I and II. Medical Journal of Australia, Part I in 1, pp. 487-491: Part II in 1, pp. 557-565.

DAVIS, D.R. (1970) Depression as adaptation to crisis. British Journal of Medical Psychology, 43, pp. 109-116.

DOHRENWEND, B.P. and DOHRENWEND, B.S. (1969) Social Status and Psychological Disorder: a Causal Inquiry. New York: Wiley.

DOHRENWEND, B.S. (1970) Social class and stressful events. In Hare, E.H. and Wing, J.K. (eds.) Psychiatric Epidemiology, (pp. 313-319). New York: Oxford University Press.

EITINGER, L. (1955) Studies in neuroses. Acta Psychiatrica Scandinavica, Suppl. 101.

EYSENCK, H.J. and EYSENCK, S.B.G. (1964) Manual of the EPI. London: University of London Press.

FORREST, A.D., FRASER, R.H. and PRIEST, R.G. (1965) Environmental factors in depressive illness. British Journal of Psychiatry, 111, pp. 243-253.

FRENCH, J.R.P. jr., RODGERS, W. and COBB, S. (1974) Adjustment as person-environment fit. In Coelho, G.V., Hamburg, D.A. and Adams, J.E. (eds.) Coping and Adaptation, (ch. 11). New York: Basic Books.

GODWIN, F.K., MURPHY, D.L., DUNNER, D.L. and BUNNEY, W.E. jr. (1972) Lithium response in unipolar versus bipolar depression. American Journal of Psychiatry, 129, pp. 44-47.

GREER, H.S. and CAWLEY, R.H. (1966) Some observations on the natural history of neurotic illness. Mervyn Archdall Medical Monograph, No. 3. Australian Medical Association.

GURNEY, C., ROTH, M. and GARSIDE, R.F. (1970) Use of statistical techniques in classification of affective disorders. Proceedings of the Royal Society of Medicine, 63, pp. 232-235.

HAMILTON, M. (1960) A rating scale for depression. Journal of Neurology, Neurosurgery and Psychiatry, 23, pp. 56-61.

HAMILTON, M. (1967) Development of a rating scale for primary depressive illness. British Journal of Social and Clinical Psychology, 6, pp. 278-296.

HOLMES, T.H., JOFFE, J.R., KETCHAM, J.W. and SHEEHY, T.F. (1961) Experimental study of prognosis. Journal of Psychomatic Research, 5, pp. 235-252.

HOLMES, T.H. and RAHE, R.H. (1967) The social readjustment rating scale. Journal of Psychosomatic Research, II, pp. 213-218.

HORDERN, A., HOLT, N.F., BURT, C.G. and GORDEN, W.F. (1963) Amitriptyline in depressive states. Phenomenology and prognostic considerations. British Journal of Psychiatry, 109, pp. 815-825.

HOROWITZ, M.J., SCHAEFER, C. and COONEY, P. (1974) Life event scaling for recency of experience. In Gunderson, E.K.E. and Rahe, R.H. (Eds.) Life Stress and Illness, (ch.8) Springfield, Ill.: Charles C. Thomas.

HUDGENS, R.W. (1974) Personal catastrophe and depression. In Dohrenwend, B.S. and Dohrenwend, B.P. (Eds.) Stressful Life Events: Their Nature and Effects, (ch.7) New York: Wiley.

HUDGENS, R.W., MORRISON, J.R. and BARCHHA, R.G. (1967) Life events and onset of primary affective disorders: a study of 40 hospitalized patients and 40 controls. Archives of General Psychiatry, 16, pp. 134-145.

HUDGENS, R.W., ROBINS, E. and DELONG, W.B. (1970) The reporting of recent stress in the lives of psychiatric patients. British Journal of Psychiatry, 117, pp. 635-643.

INGHAM, J.G. (1965) A method for observing symptoms and attitudes. British Journal of Social and Clinical Psychology, 4, pp. 131-140.

INGHAM, J.G. and MILLER, P.McC. (1976) The determinants of illness declaration. Journal of Psychosomatic Research, 20, pp. 309-316.

JACOBS, S.C., PRUSOFF, B.A. and PAYKEL, E.S. (1974) Recent life events in schizophrenia and depression. Psychological Medicine, 4, pp. 444-453.

KATSCHNIG, H. Lebensveranderungen und Psychische Krankheiten (Life Events and Psychiatric Disorders). To be published in 1978 by Verlag Urban and Schwarzenberg, Munich.

KAY, D.W.K., GARSIDE, R.F., BEAMISH, P. and ROY, J.R. (1969) Endogenous and neurotic syndromes of depression: a factor analytic study of 104 cases, clinical features. British Journal of Psychiatry, 115, pp. 377-388.

KAY, D.W.K., GARSIDE, R.F., ROY, J.R. and BEAMISH, P. (1969) Endogenous and neurotic syndromes of depression: a 5 to 7 year follow-up of 104 cases. British Journal of Psychiatry, 115, pp. 389-399.

KENDELL, R.E. and DiSCIPIO, W.J. (1968) Eysenck Personality Inventory scores of patients with depressive illness. British Journal of Psychiatry, 114, pp. 767-770.

KERR, T.A. (1974) Prognosis of affective disorders with special reference to problems of classification. M.D. thesis (unpublished), University of Leeds.

KERR, T.A., GURNEY, C., SCHAPIRA, K. AND ROTH, M. (1970) Measurement and prediction of outcome in affective disorders. Proceedings of the Royal Society of Medicine, 63, pp. 235-238.

KERR, T.A., ROTH, M. and SCHAPIRA, K. (1974) Prediction of outcome in anxiety states and depressive illnesses. British Journal of Psychiatry, 124, pp. 125-133.

KERR, T.A., ROTH, M. SCHAPIRA, K. and GURNEY, C. (1972) The assessment and prediction of outcome in affective disorders. British Journal of Psychiatry, 121, pp. 167-174.

KESSELL, A. and HOLT, N.F. (1965) Depression - an analysis of a follow-up study. British Journal of Psychiatry, 111, pp. 1143-1153.

KLERMAN, G.L., DIMASCIO, A., WEISSMAN, M., PRUSOFF, B. and PAYKEL, E.S. (1974) Treatment of depression by drugs and psychotherapy. American Journal of Psychiatry, 131:2, pp. 186-191.

KRAEPELIN, E. (1921) Manic-depressive Insanity and Paranoia. Translated by R.M. Barclay. Edinburgh: Livingstone.

KREITMAN, N., COLLINS, J., NELSON, B. and TROOP, J. (1970) Neurosis and marital interaction: I Personality. British Journal of Psychiatry, 117, pp. 33-46.

LAZARUS, R.R., AVERILL, J.R. and OPTON, E.M. jr. (1974) The psychology of coping: issues of research and assessment. In Coelho, G.V., Hamburg, D.A. and Adams, J.E. (eds.) Coping and Adaptation, (ch.10). New York: Basic Books.

LEFF, M.J., ROATCH, J.F. and BUNNEY, W.E. jr. (1970) Environmental factors preceding the onset of severe depressions. Psychiatry, 33, pp. 293-311.

LEWIS, A.J. (1934) Melancholia: a clinical survey of depressive states. Journal of Mental Science, 80, pp. 277-378.

LEWIS, A.J. (1936) Melancholia: a prognostic study. Journal of Mental Science, 82, pp. 488-558.

LIEF, A. (1948) ed. The Commonsense Psychiatry of Dr Adolf Meyer: Selected Papers. New York: McGraw-Hill.

LUBIN, B. (1965) Adjective checklists for measurement of depression. Archives of General Psychiatry, 12, pp. 57-62.

LUNDQUIST, G. (1945) Prognosis and course in manic depressive psychoses. Acta Psychiatrica et Neurologica, Suppl. 35.

MEDICAL RESEARCH COUNCIL (1965) Report by Clinical Psychiatry Committee. Clinical trial of the treatment of depressive illness. British Medical Journal, 1, pp. 881-886.

METCALFE, M. and GOLDMAN, E. (1965) Validation of an inventory for measuring depression. British Journal of Psychiatry, 111, pp. 240-242.

MILLER, P.McC. and INGHAM, J.G. (1976) Friends, confidants and symptoms. Social Psychiatry, 11, pp. 51-58.

MILLER, P.McC., INGHAM, J.G. and DAVIDSON, S. (1976) Life events, symptoms and social support. Journal of Psychosomatic Research, 20, pp. 515-522.

MINDHAM, R.H.S., HOWLAND, C. and SHEPHERD, M. (1973) An evaluation of continuation therapy with tricyclic antidepressants in depressive illness. Psychological Medicine, 3, pp. 5-17.

MORRIS, J.B. and BECK, A.T. (1974) The efficacy of antidepressant drugs. Archives of General Psychiatry, 30, pp. 667-674.

MYERS, J.K., LINDENTHAL, J.J. and PEPPER, M.P. (1971) Life events and psychiatric impairment. The Journal of Nervous and Mental Disease, 152, pp. 149-157.

NOCE, R.H., WILLIAMS, D.B. and RAPAPORT, W. (1954) Reserpine (serpasil) in the management of the mentally ill and mentally retarded. Journal of American Medical Association, 156, pp. 821.

NOREIK, K. (1970) A follow-up examination of neuroses. Acta Psychiatrica Scandinavica, 46, pp. 81-95.

NORRIS, V. (1959) Mental Illness in London. Maudsley Monograph, No 6. London: Chapman and Hall.

NOYES, R. jr., DEMPSEY, G.M., BLUM, A. and CAVANAUGH, G.L. (1974) Lithium treatment of depression. Comprehensive Psychiatry, 15, pp. 187-193.

NUCKOLLS, K.B., CASSEL, J. and KAPLAN, B.H. (1972) Psychosocial assets, life crisis and the prognosis of pregnancy. American Journal of Epidemiology, 95, pp. 431-441.

OFFICE OF POPULATION CENSUSES AND SURVEYS (1970) Classification of Occupations. London: H.M.S.O.

OLSEN, T. (1961) Follow-up study of manic-depressive patients whose first attack occurred before the age of 19. Acta Psychiatrica Scandinavica, Suppl. 162.

PAYKEL, E.S. (1974) Life stress and psychiatric disorder: applications of the clinical approach. In Dohrenwend, B.S. and Dohrenwend, B.P. (eds.) Stressful Life Events: Their Nature and Effects, (ch.8). New York: Wiley.

PAYKEL, E.S., KLERMAN, G.L. AND PRUSOFF, B.A. (1970) Treatment setting and clinical depression. Archives of General Psychiatry, 22, pp. 11-21.

PAYKEL, E.S., MYERS, J.K., DIENELT, M.N., KLERMAN, G.L., LINDENTHAL, J.J. and PEPPER, M. (1969) Life events and depression: a controlled study. Archives of General Psychiatry, 21, pp. 753-760.

PAYKEL, E.S., PRUSOFF, B.A. and MYERS, J.K. (1975) Suicide attempts and recent life events. Archives of General Psychiatry, 32, pp. 327-333.

PAYKEL, E.S. PRUSOFF, B.A. and UHLENHUTH, E.H. (1971) Scaling of life events. Archives of General Psychiatry, 25, pp. 340-347.

PAYKEL, E.S. and TANNER, J. (1976) Life events, depressive relapse and maintenance treatment. Psychological Medicine, 6, pp. 481-485.

PERRIS, C. (1966) A study of bipolar (manic-depressive) and unipolar recurrent depressive psychoses. Acta Psychiatrica Scandinavica, Suppl. 194.

PERRIS, C. (1968) The course of depressive psychoses. Acta Psychiatrica Scandinavica, 44, pp. 238-248.

PERRIS, C. (1974) The heuristic value of a distinction between bipolar and unipolar affective disorders. In Angst, J. (ed.) Classification and Prediction of Outcome of Depression, (pp. 75-85). Stuttgart: F.K. Schattauer Verlag.

POLANI, P.E., BRIGGS, J.H., FORD, C.E., CLARKE, C.M. and BERG, J.M. (1960) A mongol girl with 46 chromosomes. Lancet, 1, pp. 721-724.

PRIEN, R.F., KLETT, C.J. and CAFFEY, E.M. jr. (1974) Lithium prophylaxis in recurrent affective illness. American Journal of Psychiatry, 131:2, pp. 198-203.

PRUSOFF, B.A., KLERMAN, G.L. and PAYKEL, E.S. (1972) Concordance between clinical assessments and patients' self-report in depression. Archives of General Psychiatry, 26, pp. 546-552.

RAHE, R.H. (1968) Life-change measurement as a predictor of illness. Proceedings of the Royal Society of Medicine, 61, pp. 44-46.

RAHE, R.H., FLØISTAD, I., BERGAN, T., RINGDAL, R., GERHARDT, R., GUNDERSON, E. and ARTHUR, R.J. (1974) A model for life changes and illness research: cross-cultural data from the Norwegian navy. Archives of General Psychiatry, 31, pp. 172-177.

RAHE, R.H., MAHAN, J.L. and ARTHUR, R.J. (1970) Prediction of near future health change from subjects preceding life changes. Journal of Psychosomatic Research, 14, pp. 401-406.

RENNIE, T.A.C. (1942) Prognosis in manic-depressive psychoses. American Journal of Psychiatry, 98, pp. 801-814.

RICHMAN, N. (1974) The effects of housing on pre-school children and their mothers. Developmental Medicine and Child Neurology, 16, pp. 53-58.

RICKELS, K., PERLOFF, M., STEPANSKY, W., DION, H.S., CASE, W.G. and SAPRA, R.K. (1969) Doxepin and diazepam in general practice and hospital clinic neurotic patients. A collaborative controlled study. Psychopharmacologia, 15, pp. 265-279.

ROTH, M., GURNEY, C., MOUNTJOY, C.Q., KERR, T.A. and SCHAPIRA, K. (1976) The relationship between classification and response to drugs in affective disorders. In Symposium on Monoamine Oxidase and its Inhibition. New York: Ciba.

RUCH, L.O. and HOLMES, T.H. (1971) Scaling of life change: comparison of direct and indirect methods. Journal of Psychosomatic Research, 15, pp. 221-227.

RUTTER, M. and BROWN, G.W. (1966) The reliability and validity of measures of family life and relationships in families containing a psychiatric patient. Social Psychiatry, 1, pp. 38-53.

SACHAR, E.J., HELLMAN, L., FUKUSHIMA, D.K. and GALLAGHER, T.F. (1970) Cortisol production in depressive illness: a clinical and biochemical clarification. Archives of General Psychiatry, 23, pp. 289-298.

SCOTTISH HEALTH SERVICE: Common Services Agency. Scottish Mental Hospital In-patient Statistics: Hospital/National Comparison tables 1973 and 1974, Royal Edinburgh Hospital.

SHOBE, F.C. and BRION, P. (1971) Long term prognosis in manic-depressive illness. Archives of General Psychiatry, 24, pp. 334-337.

STOTT, D.H. (1958) Some psychosomatic aspects of causality in reproduction. Journal of Psychosomatic Research, 3, pp. 42-55

THOMSON, K.C. and HENDRIE, H.C. (1972) Environmental stress in primary depressive illness. Archives of General Psychiatry, 26, pp. 130-132.

UHLENHUTH, E.H. and PAYKEL, E.S. (1973) Symptom configuration and life events. Archives of General Psychiatry, 28, pp. 744-748.

UHLENHUTH, E.H. and PAYKEL, E.S. (1973) Symptom intensity and life events. Archives of General Psychiatry, 28, pp. 473-477.

ULLMANN, L.P. and KRASNER, L. (1969) A Psychological Approach to Abnormal Behaviour. Englewood Cliffs, New Jersey: Prentice-Hall.

VAUGHN, C. and LEFF, J.P. (1976) The influence of family and social factors on the course of psychiatric illness: a comparison of schizophrenic and depressed neurotic patients. British Journal of Psychiatry, 129, pp. 125-137.

WEISSMAN, M.M. and KLERMAN, G.L. (1977) Sex differences and the epidemiology of depression. Archives of General Psychiatry, 34, pp. 98-111.

WEISSMAN, M.M. and PAYKEL, E.S. (1974) The Depressed Woman: A Study of Social Relationships. Chicago: University of Chicago Press.

WING, J.K., BIRLEY, J.L.T., COOPER, J.E., GRAHAM, P. and ISAACS, A.D. (1967) Reliability of a procedure for measuring and classifying 'Present Psychiatric State'. British Journal of Psychiatry, 113, pp. 499-515.

WING, J.K., COOPER, J.E. and SARTORIUS, N. (1974) The Description and Classification of Psychiatric Symptoms: An Instruction Manual for the P.S.E. and Catego System. London: Cambridge University Press.

WINOKUR, G., CADORET, R., DORZAB, J. and BAKER, M. (1971) Depressive disease. Archives of General Psychiatry, 24, pp. 135-144.

ZIEGLER, L.H. and HEERSEMA, P.H. (1942) A follow-up study of 111 non-hospitalised depressed patients after 14 years. American Journal of Psychiatry, 99, pp. 813-817.

ZUNG, W.W.K. (1965) A self-rating depression scale. Archives of General Psychiatry, 12, pp. 63-70.