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Thesis submitted for the Degree of Master of Science  
of the University of St. Andrews by

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September 1983



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## ABSTRACT

Previous literature relating the occurrence of stressful life events to the onset of depression is reviewed together with that which discusses the range of behaviour which people habitually deploy against such depression. The study explored the proposition that certain personality characteristics would influence the pattern of behaviour shown by individuals responding to stressful situations and would therefore determine their susceptibility to reactive depression.

24 subjects, from each of three experimental groups (normals, psychiatric controls and depressives) were asked to describe their responses to a series of 6 imagined stressful events and to the condition of feeling depressed itself. It was hypothesised that internal subjects (as defined by the Rotter Internal-External Locus of Control scale) would deploy more active problem-solving behaviour than externals who were predicted to show more defensive or passive behaviour. It was also hypothesised that the trait of internality would be stable and predictive of susceptibility to depression.

Although the predicted relationship was observed between locus of control beliefs and both patterns of responding and the amount of depressed mood, it was concluded that the external beliefs could be regarded as being co-determined with the depressive affect, rather than preceding and causing it. Some evidence was found for interactions between the nature of the stressful event and the

nature of the individual, as determinants of the patterns of responding elicited. The nature of such interactions was discussed in the light of current theories of depression.

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as permitting both physiological and psychological repair to take place. They include crying out, talking out the problem, laughing it off and seeking support from others. These are listed with the other coping responses but clearly, as with the defence reactions, their over-use could be regarded as equally maladaptive. Other forms of withdrawal behaviour include techniques which actually remove the individual totally from the situation; many of these are described as being neurotic avoidance patterns when they are used to excess. These would include "being ill", getting drunk, doing something quite unrelated to the job in hand, etc.

A primary characteristic of coping responses is that the individual who deploys them is active in his situation, attempting positively to see the situation through. Clearly, these attempts can also be maladaptive, if the decisions made are hasty, inadequate or rigid in form, or if the targets to which the person aspires are unrealistic. Effective problem solving strategies may be regarded as being of great importance in dealing with the stressful events which the individual may experience during his life.

The study which follows examines the general hypothesis that certain people who are prone to depression, possibly because of one of their personality characteristics, will, when confronted with stressful events, deploy a non-optimal selection of responses, in terms of the balance between their coping and their defensive behaviour. It is also hypothesised that a similar failure in strategy will appear in their responses to the experience of depression itself.

## 1.2 Anti-depressive Behaviour

Although in theory most positive coping responses could result from trial and error learning on the part of the individual, in practice most of his forms of coping and defensive behaviour can be regarded as having been learned from models present in his environment. Most of these responses, and the rules for their deployment may be obtained through the social learning processes of imitation learning, social shaping and vicarious reinforcement described by theorists such as Bandura (1977). Thus, as Rippere (1976) has pointed out, there is a "stock of social knowledge" regarding the forms of behaviour which may be used to combat depression. Such may be termed anti-depressive behaviour (ADB) and would include any form of activity used by an individual to relieve depression. She claims that ADB has "a commonplace, traditional, culturally transmitted, rule following and adaptive character".

Rippere (1976,1977a,1977b) has reported data from a series of investigations designed to examine the nature and extent of this social knowledge. The technique used was that of an open-ended interview based around the question, "What is the thing to do when you feel depressed?" Further clarification, for those who requested it, referred to "what common sense would tell one to do". It seems very likely that because these guidelines seem to emphasise effective ADB and because professional and other advice may well evaluate coping behaviour more positively than defensive behaviour, there would be social pressures operating in this experimental situation which would limit the reporting of defensive or ineffective behaviour. The subsequent analysis of these data may therefore be criticised on the

grounds that they may be incomplete.

Rippere's (1976) study examined a) the amount of ADB which each subject reported using and b) how helpful that behaviour was deemed to be. Despite the bias in the instructions used to collect the data, certain behaviours were reported as being used but also as being ineffective. Thus watching TV was endorsed by 60% of the sample but was considered to be unhelpful by 21%. Other ADB's reported as being unhelpful by at least 18% were: wallow in it, read and stick to the normal routine. Rippere therefore argues that her findings indicate that "in addition to being widespread, ADB is also robust, persisting in the face of failure to produce the desired result".

These studies overlook the time scale over which the efficacy of the activity is considered. Some behaviours may have an immediate, short-term effect (eg watching TV) but have no appreciable long term value since they leave the basic problem untouched. The reverse will be true for other behaviours, such as engaging in goal-related activities, seeking advice, etc. Preference for these two types of ADB might be expected to be a function of the type of personality of the individuals choosing the behaviour. Since internals (as defined by scores on the Rotter Locus of Control scale) have a greater tolerance for delayed gratification than externals (Phares 1976), they should tend to evaluate long-term and problem-oriented behaviour as being better than short-term or avoidance behaviour. The reverse may be true where the individual has a low expectation of being able either to change his current mood or to solve the precipitating problem, that is to say, where he has external beliefs. Rippere (1976) did not discriminate between these two different aspects of ADB and it may be for this reason that she

found no differences with respect to either the number of items of ADB found to be helpful, or the percentage of items found to be helpful by internals as compared with external subjects.

Rippere did find that the difference in the number of ADB's reported as being used approached statistical significance for the variable of patient status (depressives 36.8: controls 26.3). The percentages of ADB found to be effective also showed a non-significant trend, but in the opposite direction (depressives 69.5%: controls 77.8%). These data are consistent with depressives having a wider range of ADB at their disposal but either this repertoire is deficient in effective techniques or they have a tendency to use the least effective of the techniques.

Alternatively, the capacity to employ coping responses may become exhausted after protracted exposure to stress, as Coleman (1976) has suggested; "The individual tends to become rigid and to cling to previously developed defenses rather than trying to re-evaluate the stress situation and work out more adaptive coping patterns.... adaptive resources are depleted and the coping patterns... begin to fail". If this is the case, then the type of ADB deployed and its effectiveness will clearly vary as a function of the time scale of the depressive disorder or its depth as well as, or instead of, being a function of the individual's personality.

It would seem reasonable to assume that if ADB were drawn from a stock of social knowledge, there would be differences in the nature and range of ADB employed between males and females. For example, Hinchcliffe et al (1978), suggest that men retain problem-oriented behaviour more than women when they are depressed. Also, if women are encouraged, socially, to discuss their problems

with others, they may have access to a wider social knowledge of stress-relieving techniques than men, in whom the amount of self-disclosure and discussion may be lower. Nevertheless, Rippere did not find any differences in the amount of ADB claimed by men and women. There remains the possibility that both use similar ranges of ADB but differ with regard to the type of ADB on which they rely most.

Rippere (1977) reported that some 15% of all responses were subject to qualification of some kind. Thus "It depends on the reason for the depression" was given as 15% of the total number of responses; "It depends on how depressed one is" as 11%; and "It depends on the type of depression" as 10%. These all suggest limitations to the appropriateness of the ADB as a function of the situation the person has encountered and "It depends on the individual person" suggests limitations due to individual differences. All of these spontaneous, commonsense notions parallel those which are the concern of studies of interactionism in the field of individual differences (cf Bowers 1973).

There is clearly a case for replicating this kind of study with the aim of examining the types and ranges of ADB reported by different types of person in the absence of any instructional bias to report the "best thing" to do. A bias towards what the subject himself would do should more accurately elicit strategies associated with personality traits. The use of specific stress-inducing stimuli would extend the scope of the investigation to cover responses to events which might precipitate depression, as well as yielding the possibility of examining situation-specific response patterns.

It is relatively easy for a subject to describe what he

should do (social knowledge) or what he has done (personal history) but not easy, in a simple paper and pencil test, to say what he would do in the immediate present. Only the direct observation of actual responses to stress can answer this question. One alternative to the observation of actual stress responses is the recording of imagined responses to imagined stressors evoked in a manner analagous to those images traditionally used in systematic desensitisation techniques. This is the strategy to be employed in this study.

### 1.3 Stressful Situations

Several studies have shown that major events of a stressful nature can be identified as having occurred in the patient's life immediately preceding the onset of depression (eg. Paykel 1974, Leff et al 1970). The events identified in such studies include: changes in marital relationships, changes in residence, failure in a job performance, damage to social status and death of an important person. In addition, Flach (1974) argues that all depressions have some form of precipitating cause although many sufferers will not recognise it as such, especially when it involves a deep dissatisfaction with their styles of life.

Holmes et al (1967,1970) have reported a list of events which place demands upon the coping capacity of any individual who experiences them and which are seen as leading to both physiological and psychological disturbances, including depression. Values were attached to each of these stressful events by the process of having

judgements made about the amount of readjustment necessary in an individual experiencing the event. The mean value of these judgements was computed to give the Life Change Unit (LCU) score for each. The values quoted, on the resulting scale, range from 100 for "Death of a Spouse" to 11 for "a minor violation of the law". This scale can therefore be considered as a suitable starting point for the examination of people's coping or defensive responses to stressful life situations.

However, the values quoted in the scale are subject to all of the criticisms normally applicable to judged data. In particular, if the judges were orientated towards middle class values, then the implied stress pattern which is incorporated into the final scale will be that of the middle class. Although the sample of judges used was mixed with respect to social class, sex, age, religion and marital status, it was nevertheless described as being a "sample of convenience".

Another weakness of this list is that a wide range of events and emotional outcomes is subsumed under each item in the list and these ranges differ between items. Thus, "Death of a Spouse" can only mean one thing and normally only one type of stress but "Change to a different line of work" could have many meanings, from being dismissed to being made Chairman of the Board, with consequent differences in emotional consequences and on the type of coping behaviour which is required. Certain of the events listed, such as marriage, would normally be seen as being wholly positive and yet they are also seen as contributing to the overall level of stress. Other events, such as a change of residence, may actually have been effected in order to reduce stress. Also, there is no clear way in which chains of

consequences can be handled within the simple accounting procedure used in calculating the predictive scores obtained from the list. Thus, divorce, rated at 75 points, may bring with it changes in status, residence and character of interactions with family and children, and thus lead to the accumulation of a large score from the starting point of one stressful event, as itemised in the scale. Conversely all of these changes might bring relief to the divorcee!

Empirical validation of the LCU list was claimed from studies relating the incidence of psychosomatic illness to the total value of the LCU's experienced in the preceding 12 months. People having a score in excess of 300 for any 12 month period were shown to have a higher rate of illness in the following year than those with lower scores (Rahe 1968). High overall LCU scores were also related to the presence of heart disease (Theorell and Rahe 1971) and to the strength of psychiatric symptoms as measured by Langner's psychiatric screening test (Dohrenwend 1973).

Dohrenwend (1973) observes that the LCU's can be differentiated according to the locus of responsibility; the extent to which an individual can be regarded as having control over the occurrence of the LCU. She quotes several studies which indicate that the effects of the LCU's are the same for those events which are considered to be under the individual's control and those which are not. However, the classification of locus of responsibility is also by means of ratings of the LCU item as a whole and is subject to the same criticisms as were the judgements of severity. In reality, different levels of control may be involved in all of the LCU items, depending upon the context in which they occur. Thus, "Death of a Spouse" may be due to complete control (murder or dangerous driving),

some control (neglect or negligence), or due to wholly uncontrollable forces (cancer). Only where a single event is specified in full can clear decisions be taken as to the amount of control the individual has had over it. Even then, the amount of control, in psychological terms, may not be clear since the individual's subjective appraisal of the extent of his responsibility will often differ from the observer's assessment.

Whilst the LCU scale remains a satisfactory starting point for the examination of stressful events, it can be argued from the above that each event used should be carefully specified as to its positive or negative value, extent of control and extent of combination with other LCU events before it can be used to make clear predictive hypotheses. Necessarily though, such specification reduces the likelihood that the amount of re-adjustment that it entails is congruent with the value assigned to the original item by Holmes et al.

#### 1.4 Locus of Control and Depression

The dimension of Locus of Control, derived from Rotter's (1954) social learning theory, has been regarded as being related to depression. It refers to the generalised expectancy on the part of the individual as to the extent to which he controls the events in his environment, particularly the obtaining of reinforcements. Rotter defines expectancy as "the probability held by the individual that a particular reinforcement will occur as a function of a particular response in a particular situation or situations". His theory

therefore emphasises the cognitive connections between response and reinforcement outcome. Assessment of externality is typically achieved through the Rotter Internal-External Control Scale (1966), which samples expectancies in the contributory areas of academic, employment, social and political activities, to provide a general summary score. A subject scoring high in externality is seen as having an environment over which he perceives that he has little or no control: one in which events are controlled by chance or by "powerful others".

A further important concept in this theory is that of reinforcement value which Rotter defines as "the degree of preference for any reinforcement to occur if the possibilities of their all occurring were all equal". Thus, unless the reinforcements available in a particular area, such as work, or political activity, have any real value for the individual he will not exert any effort in the area, even if he has an expectancy that he could control events therein. It is also predicted that stress or frustration will only occur where lack of control is perceived with respect to valued reinforcers.

This approach shows parallels with that part of Beck's (1976) theory which argues that depression is a consequence of negative cognitions held by the individual regarding his world, in that external beliefs would imply that the individual is powerless. There are also similarities with Seligman's original theory of learned helplessness (1974) to the extent that the latter describes ways in which the individual may come to learn that there is no connection between his activities and the rewards which he obtains from his environment. Indeed, the experimental techniques used by Seligman and

his co-workers, to induce learned helplessness are very similar to those used by Phares (1962) to induce external expectancies. Thus Seligman (1974) exposed his subjects (dogs) to inescapable shock and Hiroto and Seligman (1975) reinforced human subjects at the 50% level for their responses on an insoluble task. Phares, intending to induce external beliefs, used a paradigm in which subjects could avoid an electric shock by pressing the "correct" button when a nonsense syllable was presented. The experimental group were instructed that the button-syllable relationship varied on each trial. This group would therefore have been experiencing very similar conditions to those in a learned helplessness induction and did indeed show some evidence of externalism. Clearly, both of these paradigms give a behavioural model for the generation of what may, in cognitive terms, be described as a perceived lack of control over reinforcements.

A number of studies have demonstrated a positive relationship between externality and depression, although the correlations reported have typically been relatively small. Thus Calhoun et al (1974) found correlations of 0.58 for male and 0.38 for females between externality and scores on the Zung depression scale. These small correlations may be due to the multi-dimensionality of the Rotter scale. Alternatively, they may reflect the curvilinear relationship which was suggested by Phares (1976). He considers that individuals at both ends of the Locus of Control Scale may be rather inflexible in their approach to their problems. Thus, extreme externals might show a very low tendency to exert control in all situations and hence experience an unrewarding environment similar to that proposed in learned helplessness. At the other end of the scale, the extreme internal may believe that he should be able to control

every event in his world and require more of his own performance than is objectively possible. He may then become anxious as his performance falls short of his target or become depressed at the size of his task. These effects would therefore increase the probability of maladjustment being shown by people at both ends of the scale whilst predicting the highest level of adjustment in the people in the middle of the scale.

From the basic propositions of Locus of Control theory, as described by Phares (1976), it is possible to make certain predictions about the style of responding to LCU events which would be shown by internals as compared with externals. Internals would be expected to attribute personal responsibility in greater measure to the events which they have experienced. Because of their predisposition to regard all events as opportunities to use their skills, they should have acquired better information about the difficulties which are involved in the events, have more appropriate pre-learned skills and be more likely to deploy tactics which relate to long term (and therefore higher grade) goals, than externals. In short, they should draw the maximum value from the fund of social information available to them regarding the handling of all forms of stress. All of these strategies should assist the internal to reverse or at worst alleviate the effects of a stressful LCU event. It would be predicted that externals, favouring the chance explanation of their lives, would employ more defensive or passive approaches to the stressful events which they experience and for example, accept the situations as being given and therefore irreversible. These differences in approach may also be expected with regard to the attempts on the part of the individual to control the effects of depression itself. Consistent

with this proposition are the findings of Helweg (1971) and Jacobsen (1971) that internals preferred a client-centred style of therapy while externals preferred more structured, authoritarian regimes.

Since the phenomenon of externality runs parallel to that of learned helplessness it might be predicted that, through the schedules of reinforcement which they have experienced in life, externals would have some pre-disposition towards depression. Where their coping responses were put under pressure during a LCU event, it might be expected that their generalised expectancy of lack of control would lead to some degree of depression. If this were the case, then any experimental manipulation which imposed some degree of stress upon subjects would have more of a depressing effect on externals than on internals. The procedure used in the current study, although it only asks subjects to imagine themselves in distressing events, would be expected to show this effect.

The question of whether the external beliefs of the individual pre-date his depressive feelings and can therefore be regarded as a predisposing cause, or they post-date the depression-inducing event and are co-produced simultaneously with the depression may be illuminated if the depressive individual is studied over a relatively long period, after recovery. Some evidence regarding this question would be obtained by examining the stability of the externality scores in relation to changes in the degree of depression reported by the subject. If externality pre-dates depression it should remain stable and independent of the depression score. If it is co-determined it will, of course, fluctuate with levels of depression.

### 1.5 Depression and Anti-Depressive Behavior

Depression is frequently regarded as varying in depth along a continuum from the everyday "blues" through neurotic depression, which implies some impairment of psychological functioning, to the more severe condition of psychotic depression where impairment is severe. In many experimental reports and theories there is no clear differentiation between the findings pertaining to one of the latter categories and the other (cf Kendall 1968). However, differences have been claimed between the two. It has been argued, for example, that there are differences in the pre-morbid personalities of neurotic and psychotic depressives. The pre-morbid personality of psychotic (endogenous) depressives has been described as being more stable and "active, intelligent and social", while that of the neurotic depressive has been regarded as much less stable and well-adjusted (Chodoff 1974). Neurotic depression has also been described as the reaction to the last straw in a life of disappointments (Suinn 1975) and as the final failure in a life of failing to cope with events (Buss 1966). If this is the case then the external pattern of behaviour is more likely to be observed in neurotic depressives than in psychotics and this study therefore concerns itself with the former, as defined by the American Psychiatric Association classification system (1968).

Almost all of the items on the LCU scale produced by Holmes et al (1967) could be cited as precipitating causes for depression. A central issue is why these events cause depression in some people but not in others. Seligman's original theory of learned helplessness, as outlined above, implies that the depressed affect would emerge where

the strategies of the individual fail to deal with these events, or where they are otherwise unresolvable. A later revision of the theory, designed to resolve certain anomalies, was made in terms of attribution theory (Abramson, Seligman and Teasdale, 1979). In this an important part of the individual's response to failure is the set of attributions which he makes concerning the cause of the failure. The sources of failure can have three main forms. Firstly, the cause may be internal, in the sense of the person's own weaknesses or lack of skill or, it may be external in the sense of not being, objectively, under his control, such as the processes of death and disease. Although this strongly resembles the concept of Locus of Control, it is not identical with it in the sense that the latter is seen as a relatively enduring personality characteristic which subsumes other traits, whilst the former refers to a specific cognitive response to a specific event. Secondly, the cause may be regarded as stable, in the sense that it is unlikely to alter in the future, such as the level of intelligence which the individual assumes that he has, or it can be unstable in the sense that it has only a temporary effect, such as having a bad cold or being drunk. Thirdly, a cause may be deemed to be global, in the sense that it is taken as evidence of a general lack of ability to manage things in that area or it may be regarded as specific, in the sense of being a failure in only one small area of life. This latter concept has parallels with Beck's (1976) notion of overgeneralisation as a contributory factor in negative thoughts; assuming that one failure means that one has failed in life altogether. Depression is believed, in the amended theory, to follow any failure but is likely to be worse where the attributions made are internal, stable and global.

Although these attributions are essentially subjective appraisals of the person's experiences, the processes which are implied within them can be used to specify the kind of LCU that the individual is confronting. Thus, the nature of a LCU event could be specified objectively in terms of the responsibility which the individual has for its occurrence. Events could also be categorised according to whether they implied failure at the global level or were simply specific instances, and according to whether their causes were enduring or temporary. In the case of the items to be used in this study, the first dimension was used as a manipulated variable. The other two dimensions were not manipulated intentionally and certainly there was nothing to lead the subject to believe that what he was experiencing was an enduring part of his life. A second alternative therefore remains open, in examining people's responses to these imagined situations, that of examining their statements for evidence of such attributions. It is likely that the successful individual, and possibly the internal, will tend to employ internal attributions, only occasionally using external attributions as a short term defence and will certainly see any failure as one which is confined in its effect and temporary in nature.

Three main explanations for the appearance of depressed affect in response to the LCU events may be advanced:

#### 1 Personality-dependent causes

The coping responses of an individual who is prone to depression may be inadequate to the task set them, in that he may respond to the event with disordered, inadequate or avoidance behaviour. This pattern of responding will, of course, only produce depression if the values of the reinforcements involved in the event

are high for him. A lack of consistent or appropriate responding may also emerge from a low expectation of control over such events. If such a psychological pre-disposition towards depression does exist then it may be expected that depressives, as a group, would demonstrate a range of coping behaviours which is qualitatively different from that of non-depressives. It would be expected that this restricted range of behaviours would be applied consistently to all of the life situations experienced by the individual, without his discriminating between them. Such a rigidity in the response repertoire would, of course, normally be non-adaptive.

Alternatively, the total range of behaviours reported by depressives might not differ from that of normals but quantitative differences would be observed in the extent to which the items from this range were used. Amongst these responses would be included the attributions for the cause of any failure. In this case we might expect the successful individual to attribute a moderate amount of responsibility to himself for the events which he experiences, rather than over-evaluating his personal responsibility, as in some forms of depression, or at the other extreme, denying all forms of responsibility, as is implied in the external individual's defensive attributions.

There is a considerable history of support for this proposition of a psychological or physiological predisposition towards weakness in responding to stress, from Pavlov's (1927) conception of the "weak nervous system" through Eysenck's (1947) conceptualisation of neuroticism, to Coleman's (1976) notion of the ability to tolerate stress without suffering biological damage. In the current argument, it is expected that this weakness would be associated with a tendency

to exhibit the behavior patterns and attributional style of the external.

### 2 Situation-dependent causes

The proposition here is that people are not simply subject to depression because of their personality characteristics but that events build up a cumulative effect, in any individual, to overwhelm his coping capacity and thence create depression. If this is the case, then the pattern of behaviour shown by the individual would vary according to the severity of the situation experienced with, possibly, an increasing reliance on avoidance behaviour the more stressful the event or the more protracted the series of stressful events. It might therefore be possible to chart the progress of a depression in terms of the pattern of ADB which is employed at each level. If the causes of depression were purely situational, then these patterns would be the same for all subjects.

The support for this proposition comes from the validating studies for the LCU scale, considered above, to the extent that everyone with high LCU scores is prone to some kind of disorder.

### 3 Interactions between causes

Modern personality theory has had to accept the propositions of those who argue from the interactionist viewpoint (cf Bowers 1973) These propositions would suggest that the type of behaviour exhibited by the individual, in response to stressful LCU's will be a function of both his own personality and the nature of the situation itself. Therefore, for example, it would be anticipated that the responses observed, in terms of the current study, would be determined by the severity of the event, as measured by the LCU scale, the extent to which the individual could be regarded as having been responsible for

the event and the personality of the individual, as measured on the Locus of Control scale. Where the response to being depressed is concerned similar propositions may be made: the response would be determined by the depth of the depression, its assumed cause (if any can be identified) and the personality of the individual.

### 1.6 The Hypotheses

Using the materials outlined above, suitably modified and structured, the following hypotheses, suggested by this introduction, will be examined in the study:

1) The type of response shown by individuals to particular LCU events and also to the experience of depression itself will be a function of a) their personality (external versus internal) b) the situations involved and c) the interactions between these two, such that each of these components will account for a significant part of the variance observed. In particular, internals would be expected to show more active problem-solving behaviour directed at long-term solutions. To the extent that a) is confirmed, scores on the Locus of Control scale should be relatively independent of changes in the level of depressed affect observed over time.

2) If depression is marked by the progressive deterioration of coping responses then it would be predicted that the use of positive coping responses would fall and the use of passive avoidance responses would increase with rising depression across all groups of subjects. In the depressives, this process should be reversed to the extent that they recover as a result of treatment. If externality is

purely an attributional defence, then it would be expected to covary with depression throughout the stages of treatment and levels of recovery. Parallel effects would also be expected between situations, with the proportion of coping response declining with an increase in the stress caused by the situation.

3) Alternatively, if there are personality factors which predispose people towards depressive reactions and if externality of belief is one of those personality factors then the patterns of responding to stressful situations shown by the normal externals should be similar to those observable in the depressives as a total group.

4) If externals are prone to depression, then exposing them to a series of potentially stressful situations, as will be done in this experiment, should lead to a depression of affect. If, on the other hand, this change in mood is shown by the depressives alone, then the effect would be consistent with the hypothesis that depression is caused by an overloading of the coping responses, rather than a simple personality trait, since presumably, normal controls would not be in a state in which their coping capacities were exhausted.

5) It is expected that in depression, rigidity of response pattern would be confirmed to the extent that the range of behaviours reported as being used frequently forms a small part of the total range available to the subject.

6) Sex differences are predicted with regard to the type of ADB and coping behaviour shown and also the range of behaviours employed is expected to be wider in females as compared with males.

7) If external attributions form part of a defensive

strategy, then those situations in which subjects a) have no control or b) claim not to have control should be regarded by them as less potentially depressing than those in which control is high. Also, subjects should increasingly deny responsibility for the events involved as depression increases, unless depression is partly caused by a breakdown in this defence mechanism.

## Chapter 2

### Methodological considerations

#### 2.1 The Rotter Internal-External Locus of Control Scale

Rotter et al (1962) developed this scale to reflect people's beliefs regarding the controllability of reinforcement outcomes and to act as an operational definition of the dimension of externality. The initial compound scale was intended to have separable subscales relating to the contributory areas of academic progress, social recognition, love and affection, dominance, socio-political events and a general life philosophy but these subscales failed to survive the process of item evaluation and were later abandoned. Nevertheless, these subscales are still evident in the final scale, to some extent, since they provided the original source for the scale items and they are still extracted as separate factors (eg. Schneider and Parsons 1970, Mirels 1970). In this respect the scale is therefore not unidimensional and this is accepted by Rotter (1974) and other workers in the field (Phares 1976).

The selection of the final scale items appears to have been rigorous, with the original set of 100 forced choice items being reduced to 23 by item analysis, item-item correlation analysis and through factor analysis of the intended scale. Items which were endorsed in one direction by 85% of the standardisation sample were rejected as were those which showed a substantial correlation with the Marlowe-Crowne Social Desirability Scale (1960). Finally, construct validation was obtained, in the early days, by requiring the scale

scores to be predictive of Tuberculosis patients' attempts to understand and control their hospital environments (Seeman and Evans 1962).

Rotter (1966) has claimed internal consistency estimates of 0.65 to 0.79, which are lower than might normally be thought appropriate for a single trait test, but which Rotter claims are an inevitable consequence of the additive nature of the test. He also reports test-retest reliabilities of 0.83 over a period of one month and of 0.49 over a period of two months. That the test is sensitive to changes over time is suggested by Kiehlbauch's (1968) report of test-retest correlations for reformatory inmates over 3, 6 and 9 month periods of 0.75, 0.39 and 0.26 respectively.

Rotter (1974) has stated that the distribution of scores expected from the scale is normal which implies that a continuous dimension is involved, and not a dichotomous typology. Tables of sample norms are not readily available for the scale but Lefcourt (1982) quotes mean values for various samples which range from 5.41 to 11.0 for American samples. These values will, of course vary according to the area of residence, occupation and the time period in which they were taken. In this list there is a general tendency for female scores to be higher than those for males. In the absence of generally agreed sample norms, the convention in most experiments is to divide the sample into internals and externals at the sample mean, as indeed will be done in this study.

Beyond the initial construct validation studies, Phares (1976) has argued that the scale has been further validated by its ability to make predictions, subsequently confirmed, concerning aspects of behaviour which are a part of the construct of control.

Thus, internals, as measured by the scale, have been shown to ask more questions about task related matters (Davis and Phares 1967), to be more ready to seek assistance for personal problems (Phares, Ritchie and Davis 1968), to show more attentiveness in a skilled task (Lefcourt, Lewis and Silverman 1968), to be quicker in learning the rule governing a problem solving task (DuCette and Wolk 1973), and to be more aware of the rules governing the institutions in which they live (Seeman 1963). These are all, of course, aspects of control relevant to the successful prevention of depression in the response to a stressful LCU event.

Apart from the multi-dimensionality which stems from the original subscales, several investigators have extracted factors relating to different aspects of belief concerning control. Thus Mirels (1970) found two factors representing 'felt mastery' over the environment and the extent to which the individual perceives himself as having control over political institutions. This latter, political control, factor has been observed by others (Abrahamson et al 1973, Collins 1974). The latter author, not only verified the presence of a general factor covering 30 out of the original 46 statements (presented separately) but also, on using a subsequent varimax analysis, located four relatively uncorrelated factors which he described as beliefs that 1) the world is difficult, 2) the world is unjust, 3) the world is unpredictable and governed by luck and 4) the world is politically unresponsive. Clearly the first three of these are very closely involved in the negative cognitions which Beck (1976) proposes are associated with the generation of depression, so the possibility remains that the scale measures some aspects of depression susceptibility within normal populations. It is therefore

particularly relevant to this study.

## 2.2 The Beck Depression Inventory.

This inventory was devised by Beck et al (1961) to provide a convenient measuring instrument which would replace the traditional diagnostic interview. The items used were based upon the symptoms of depression observed by Beck in the course of his psychiatric practice, together with a number suggested by the then current literature. This produced a list of 21 categories of self-reported attitudes, beliefs and behaviours, for each of which 4 or 5 statements were produced. These statements are presented in the scale in the rank order of their severity. The subject is required to select the statement which he feels best describes his current condition. A score of 1 to 3 points is accorded to each of the categories according to the strength of the statement selected.

The original article does not contain any validation data for the ordering of these items according to severity. However, Beck et al do quote correlations between the category scores and the total scale score which are significant at  $p < 0.001$ , for all but one category (amount of weight loss reported) for which the value was  $p < 0.01$ . A split-half reliability coefficient is quoted of 0.86 ( $n = 97$ ), so the scale may be regarded as having satisfactory indications of unidimensionality.

Test-retest reliabilities are not wholly appropriate criteria for this test, since it emphasises the current state of the subject rather than symptom duration. Substantial fluctuations are to

be expected between one administration and another and the test-retest coefficient (0.30,  $n = 27$ ) obtained by Bumberry et al (1978) reflects this.

Beck et al report concurrent validation studies using two separate samples of psychiatric patients incorporating all diagnostic categories. These patients were rated by psychiatrists for severity of depression on a four point scale from none to severe and the resultant values were correlated with scores on the inventory. The values obtained were 0.65 ( $n = 226$ ) and 0.67 ( $n = 183$ ) using a point bi-serial correlation, with the rating data being combined into two categories (none-mild vs. moderate-severe). Bumberry et al (1978) used a similar technique on a student population which consisted mainly of normals and obtained a correlation of 0.79 ( $n = 56$ ). They also computed Pearson's  $r$  by assigning values of 0 to 3 to the ratings of depression and obtained a value of 0.77 ( $p < 0.001$ ). Beck et al (1961) also quote data which indicate that the group means on the inventory scores discriminated satisfactorily between the groups designated by the psychiatrists.

Since the items in each category are presented in ascending order of severity and all of the statements which relate to depression can be clearly identified, the scale is clearly open to faking, either of the socially desirable response or of the exaggeration of symptoms. It may be for this reason that the standard deviations of Beck's data, reported above, are quite high. However, in practice, the inventory has obtained a fair degree of construct validation in a large number of studies of depression; more than 100 such studies were reported by Beck and Beck (1972). For example, when patients were retested and re-evaluated after a period of between 2 and 5 weeks, changes in

inventory scores were associated with changes in rated depth of depression in 85% of cases (n= 33) (Beck et al 1961). Such studies have tended to encourage the general acceptance of the inventory as an effective measuring device. 28

Bumberry et al (1978) quote data relating scores on the inventory to judged extent of depression, drawn from a sample of students which included normals. These are 3.9 (sd 4.5) for 'none' and 14.1 (sd 6.0) for 'mild' depression. These data are more suitable for the purposes of defining the normal scores in the current study, than the means provided by Beck et al (1961) whose sample contained only psychiatric patients. The upper limit of the 'normal' score on this inventory, ie that which implies an absence of real pathological symptoms, can therefore be regarded as 8 since one can hypothesise from the standard deviations that only 17% of normals would show a score above this. Those subjects scoring between 8 and 10 on this inventory could be regarded as being marginal to their samples, since such a score is consistent with being a low-scoring depressive or a high-scoring normal.

### 2.3 The current mood Scale

To measure any changes in mood which might occur as a result of the manipulations in the current experiment, it was necessary to use an instrument which was both quick to use and which would minimise the resistance to change in scores which can derive from the subject being able to remember precisely his original response. The type of test selected was the visual analogue scale (VAS). Aitken (1969) has

argued that these scales are appropriate to the measurement of moods since moods exist as continua and the analogue scale avoids forcing the subject to report his state in a simple nominal or dichotomous form. He also considers that "comparisons can be achieved with greater sensitivity than with semantic phrases, particularly between different occasions in the same person". According to Zealley and Aitken (1969), the principle is readily comprehensible by the subject and allows repeated measures to be taken with a minimum of inconvenience to him and has the advantage of not asking him to review his emotional status under numerous and possibly confusing descriptive headings. McKelvie (1978) found that subjects preferred an unmarked line to one of equal length divided into either 7 or 11 separate categories.

Aitken (1969) suggests that the scores obtained from the VAS can be regarded as being suitable for parametric statistics as well as non-parametric since they can be reported to the nearest millimetre, where the line is 10 cm. in length. These data are therefore suitable for analysis of variance models.

There are difficulties in assessing the reliability of VAS scales. Test-retest concordance is not appropriate since, when it is assessed over very short intervals, the subject may be able to remember the position of the mark he has made on the line. Over a longer period, this correlation would be affected by the fluctuations in the mood state which the scale is expected to measure. However, McKelvie (1978) obtained test-retest reliabilities of 0.79 ( $n = 20$ ) over a period of 2 weeks, in a group of subjects required to assess French Canadians using adjectives to define the scales.

The validity of such scales will largely depend upon the

face validity of the adjectives used to define them, in the sense that these adjectives are comprehensible to the subjects. Aitken (1969) does cite studies in which satisfactory correlations have been obtained between self-ratings and observer's ratings of the same phenomena; 0.71 for quality of sleep and 0.51 for the relief of symptoms in dyspepsia. Since the scales are necessarily designed for specific experiments and can therefore have no generally applicable norms, some attempt will be made in the current study to validate the VAS scales used by correlating scores on them with those obtained on the Beck Depression Inventory.

Aitken (1969) considers that VAS's have shown sufficient construct validity from their use in a variety of experiments and have thus obtained widespread acceptance. The technique was therefore used in this study, where the crucial score is the difference between the pre- and the post- experimental mood. To indicate this, the subject may actually remember the position where he placed the mark in the first administration and thus be able to demonstrate whether he feels better or worse in the post-experimental phase. Alternatively, he can attempt to provide a wholly new rating of mood according to some personal, internal scaling system. However, because of the relatively short time between the two administrations, it is unfortunately the case that the subjects could obscure any real changes in mood by regarding it as appropriate not to show such changes and seeking to place the second mark in exactly the same position as the first. In this respect, then, such changes as are observed may be regarded as referring to 'tough' tests of the hypotheses.

In order to obtain a stable overall score, in which minor errors of the subject's judgement might be expected to cancel out

between the component scales, a total of seven contributory scales were used to measure mood in the subjects before and after the manipulations in this experiment. The first two of these were chosen for their direct relationships with depression; happy vs. not happy and depressed vs. not depressed. Further items were selected which reflected aspects of depression expressed in the Beck Depression Inventory and in the Foulds Sign-Symptom Inventory (1968). These were energetic vs. listless, to represent the motility component of depression; confident vs. not confident, to represent the self-esteem component; able to do the things that I have to do vs. not able to do the things I have to do, to represent the passivity component; can concentrate easily vs. cannot concentrate easily; and interested in other people and events vs. not interested in other people and events.

#### 2.4 The Stimulus Materials

Each of the LCU events listed by Holmes et al (1967) was examined to see if a short descriptive passage could be composed which would describe a particular event from that category and which would meet the following criteria:

##### a) Responsibility for the Event

For each passage, the likelihood that the person in the situation would actually have caused it had to be capable of being specified. Stories in which the participant would have been responsible for the event occurring were designated Control (C) stories. Where he would have had no such responsibility they are designated Non-control (NC) stories, in the Tables. (The stories

which were used in the final study are listed in Appendix I.) Such specification was necessary to cover the problem of the differential attributions of causality to internal or external agencies, discussed in Ch 1.

b) Universality

In each case the stories were constructed such that they could apply, with a minimum of qualification, across the whole range of personal and social differences such as sex, marital and occupational status, etc. An attempt was also made to keep the language employed simple and colloquial. Situations were avoided which would involve specific experiences which some of the sample might not have encountered, such as going to jail, having a loan fore-closed and having a son or daughter leave home. Some events were discarded because the events would have been too far in the future (retirement) or too far in the past (changing schools) for many of the subjects. All of the events described were potentially unpleasant and stressful in nature, with the exception of one item designed to provide light relief at the end of the main series of stories (LAM), in order to dispel any unpleasant effects created in the subject by the experiment. As far as possible, each item was designed to be isolated in itself, and therefore not would not entail subsequent life changes of the type also listed on the LCU scale.

c) Feasibility

Story areas were avoided where the experimenter felt that he could not comfortably relay the story to the subject and where other problems of experimenter-subject relationships could be predicted. The LCU item obviously eliminated under this rubric was that of 'sexual difficulties'. Substitutions were considered for some items

on the LCU list. Thus, in the final list of items used, the LCU event "change in number of arguments with spouse" seemed to pose difficulties, since it relates to trends rather than specific events. In place of the original an item was created which referred to a simple argument with the life partner, with an emphasis being laid upon a 'typical row'. This item could clearly carry less of a stress rating than indicated by the original LCU rating but it was hoped that it would reflect the tensions and uncertainties in the subject's relationships and hence be potentially quite strong in its effect.

Finally, in order to be able to compare subject's responses to overtly stressful situations with those deployed against depression itself, an item was included which referred to a non-specific depression with no antecedents being specified (GD).

## 2.5 Selection of Samples

The following criteria were regarded as being important, theoretically, in the selection of subjects for the three comparison groups in the experiment.

### 1) Experimental Group.

Since the hypotheses relate to depression it was necessary to ensure that this group was selected such that no other diagnostic dimension was present to any significant extent. As it was necessary to have patients with whom communication would be relatively easy and as psychotic depressives are argued to have different patterns of pre-morbid adjustment (Kendall 1968) an attempt was made to include only neurotic (or reactive) depressives in this sample.

Anxiety has been shown to be positively correlated with externalism (Phares 1976) so it was considered necessary to include in the sample only depressives in whom levels of manifest anxiety were low, as judged by the clinician in charge. However, this is perhaps a counsel of perfection since anxiety is generally regarded as a fundamental basis for neurotic disorders and as being their necessary antecedent (Eysenck 1947). Other diagnostic elements which were also excluded as far as possible were hysteria, since it has been suggested that this reduces the effects of depression (Lazarus and Klerman 1968) and alcoholism and drug abuse, since there is evidence that the responses of the latter group on the Locus of Control Scale are unreliable (Phares 1976).

It was recognised that this separation of diagnostic categories would be at best approximate, since there is inevitably some overlap of symptoms in most cases. Accordingly, the initial diagnostic label used in taking this sample was "neuroticism in which depression constitutes the major part", as appraised by the Senior Clinical Psychologist involved, with patients being excluded if any of the contra-indicators listed above were suspected. It was also considered that this selection could be deemed to have worked effectively, to the extent that the scores of this group on the Beck Depression Inventory discriminated between this group and the two control groups.

#### 2) Psychiatric Control Group

Since the emphasis in the study was upon neurotic depression, a neurotic control group was selected. The ideal diagnostic criterion for this group would have been that the subjects should show no evidence of depression. This, as noted above, is in

reality not feasible, so the initial diagnostic criterion for this group was "neuroticism in which depression is a minimal symptom", as evaluated by the Senior Clinical Psychologist involved. The contra-indications for this group were similar to those for the experimental group; alcoholism, drug abuse and manifest psychotic symptoms.

### 3) Non-psychiatric Control Group

The main criterion for this group was that it should not include anyone with any evidence of current psychiatric symptoms. Also precluded were persons suffering from continued overtly stressful situations, since the effects of such stress are implicit in the experiment. Care was also taken to exclude anyone who had suffered from any form of depression or other disorder, seriously enough to seek treatment for it.

## Chapter 3

### Pilot Study

A pilot study was carried out to test the materials to be used in the experiment and its format. The materials and the procedure used were essentially those employed in the main experimental procedure (qv p40). Twice as many descriptive passages were used compared with the main experiment, with the aim of selecting those which yielded comparable levels of perceived stress for both control and non-control situations and which represented three distinct levels of stress.

The subjects used in the pilot study were 8 final year undergraduates, 3 female and 5 male, having an age range of 21 to 45.

#### 3.1 Method

As a result of the pilot study the original set of instructions was modified and extended to make them more explicit. Additional prompts were found to be necessary, to cover the three different time periods which are involved. For the first 6 subjects an interval of approximately 1 minute was interposed between each presented situation, which was occupied by conversation of a relaxed and general nature. It was realised that the situations were not perceived by the subjects, overall, as being unbearably stressful and that this relaxed period might actually be reducing their effects and would thus interfere with the testing of hypothesis 4 (p21). For the last two subjects this interval was dropped and since no adverse

effect was observed this latter procedure was used for the main experiment.

### 3.2 The materials

In order to assess the effectiveness of the descriptions of LCU events, subjects were asked to report the feelings which they thought they would have as a result of each event. A total of 112 responses was obtained from the subjects in this way. The most frequent emotion reported was that of anger/annoyance (20 times) with other emotions consistent with a stress response being shock (19) guilt (8) worry/tension (7) and depression (2). Reports of being happy occurred 7 times, all to one item which was subsequently dropped from the main experiment.

Each subject produced a minimum of 2 responses overall for each LCU item used and a maximum of 10 responses was recorded by one subject for one situation. This confirmed that the technique is fully capable of eliciting a range of responses which varies in number from subject to subject and which contains the basic tactics which the subjects would be expected to deploy in real life situations.

Subjects' ratings of the amount of depression which they felt would result from each of the LCU events were also examined, as were their ratings of the extent to which the person involved in the situation had been responsible for it, using VAS's. Both of these values acted as verification of the experimenter's selection of the LCU event descriptions for their main parameters. These ratings facilitated the final selection of items which gave mean rated depression values for the three manipulatory levels of stress of:

High 3.8

Medium 2.5

Low 1.9

The mean values for rated control for these items was:

Control 3.6

Non-control 1.9

These results did suggest that the dimension of control was being manipulated successfully through these descriptions. At the same time, subjects' ratings of both the depressive effects of the situations and the extent to which they would feel responsible for such situations did vary considerably, suggesting that the VAS technique was detecting individual differences in attributions in this experimental paradigm.

The VAS materials which would be used to detect changes in the subjects' mood during the main experiment were also examined in the pilot study. The overall depression scores did not change between the pre-experimental and the post-experimental periods for this group of subjects, the differences observed having cancelled each other out. However, the mean difference between pre- and post-experimental status, regardless of direction of change was 4.7 (cm) for the total of 5 items used at this stage. Since certain subjects did show elevation of mood at the end of the test and others showed slight depression of mood, it was considered that the technique would detect such changes as occurred in the main experiment, satisfactorily. However, the original set of 5 items was increased for the main

experiment, in an attempt to improve this discrimination.

## Chapter 4

### Experimental Method

#### 4.1. General Method

Subjects were assessed at the beginning of the experiment for the extent of current symptoms of depression and for their Locus of Control characteristics.

Subjects were required to imagine themselves involved in 6 LCU situations and then to describe what they would do in each, during a one to one interview with the experimenter. The situations were graded as to the amount of stress they would produce in real life and according to the extent to which the subject might be regarded as having been responsible for their occurrence. A similar item was then presented which was intended to examine responses to a period of depressed feelings. Supplementary tests of mood, using the VAS technique were completed before and after this experimental session, to assess its affect on the current mood of the subjects.

Finally, subjects were asked to rate each of the described situations for its depression evoking potential and for the extent to which they would feel responsible for its occurrence.

After an interval of at least 12 months, subjects were contacted with a request to repeat this procedure with a new set of situations.

#### 4.2 Materials

The Beck Depression Inventory. (BDI)

The Rotter Internal-External Locus of Control Scale. (LOC)

The Current Mood Scale. (CMS) This consisted of a series of VAS 10cm scales, printed on separate slips of paper and presented in randomised order to the subjects. For one of the administrations to the subject (ie pre- or post- test) the order of the adjectival descriptors on each slip was as follows, for the other administration it was reversed:

Happy - not happy

Confident - not confident

Not depressed - depressed

Able to do the things I have to do - not able to do the things I have to do

Energetic - listless

Can concentrate easily - cannot concentrate easily

Interested in other people and events - not interested in other people and events

The instructions for these scales were given verbally and were also repeated on the front of the first booklet of slips as they were presented. They were as follows:

Please place a mark on each line, between the words, to indicate your present feelings in terms of these words. Right on the end of a line would mean that the word or phrase at that end is very true, in the middle means that neither word is particularly true. Make your decisions quickly without pondering too long over them.

The Situation (depressive effect) Scale, (SDES). This consisted of a series of VAS's, also using 10 cm lines, each marked with the adjectival descriptions "Not at all depressing - very depressing". Above each of the constituent scales was a resume of the situation which was to be rated on it.

The Situation (extent of control) Scale, (SECS). This was exactly analogous to the above Scale except that the polarity was "Entirely responsible - not responsible at all".

The instructions for these two scales were as follows:

Please make a mark on each scale below to show (how depressing each situation would have been for you as you imagined it)/(how much control you think you would have had over the events leading up to the one in the story. In other words, how responsible you yourself were for what happened.) Make the marks in the same way as you did for the other scales.

The stories. These were the descriptions of the LCU situations, as selected from the pilot study and quoted in Appendix I.

Recording materials. All responses were recorded on tape using a Phillips tape recorder running at 3 3/4 in. per sec.

#### 4.3 Subjects

The three groups of subjects were selected according to the

criteria discussed in Chapter 2.

a) Experimental group. Subjects were 12 male and 12 female outpatients recruited from clinics in the Manchester area, having a primary classification of "neuroticism with depression as a major symptom". The mean duration of the symptoms was 16.4 months and their mean age was 35.5 years.

b) Psychiatric Control group. Subjects were 12 male and 12 female out-patients recruited from the same clinics as the experimental group, having a classification of "neuroticism with depression as a minor symptom". They were matched as far as possible with the experimental group with respect to age, length of duration of primary symptoms and social class. Mean duration of symptoms was 11.4 months and their mean age was 30.2 years.

c) Non-psychiatric Control group. This consisted of 12 male and 12 female volunteers obtained from the students, technicians and ancilliary staff of a local Institute of Technology. They were selected from persons who did not exhibit any symptoms of current stress. They were matched, as far as possible, with the experimental group, for age, and social status (as judged in the case of students from their occupations prior to joining the course or from their parents' or spouses' occupations). Their mean age was 32.2 years.

#### 4.4 Procedure

Each subject was told that the experiment was an exploratory study of people's responses to events which could occur in their lives and which could cause stress. It was therefore emphasised that if the subject wished to terminate the experiment at any time he was to feel

free to do so. (Only one subject, in fact, did so.) The subject was also warned that much of the experiment would be recorded on tape and was assured that his tape would be erased immediately after it had been transcribed.

The subject was first asked to complete the BDI, the LOC and the CMS. He was then read the following standard instructions:

I am carrying out an experiment concerned with the ways in which different people might respond to different things which might happen to them. I will give you some examples of things which could happen to people. In order to make it more effective, I will ask you to imagine these events and to imagine yourself actually involved in them. You may find that some of them are rather unlikely and that they would not happen to you. All the same, I would be grateful if you would do your best and imagine getting into that situation and what you would do in it. In order to help you to imagine these things, I will ask you to sit facing this blank wall so that you are not looking at me. When you have imagined the situation, I will then ask you what happens next. I would like you to tell me what happens in your imagination after the event; what you would actually do, not what just anyone or everybody would do. To make sure that we don't miss anything out, I will first ask you what you would do immediately after the event. Next I will ask you what you would do the day after the event and finally what you would do in the following weeks. There could of course be more than one thing that you would do at each of these times, so I

will repeat the questions a number of times.

The procedure of asking the subject to face a blank wall was employed with the aim of reducing the number of distractions to the subject, in his task, and also to reduce the potential artefacts which could otherwise be created through experimenter feedback to the subject.

The subject was next warned that the tape-recorder was being switched on and was then read the first of the set of six stories. After it had been verified that he had an appropriate event in mind he was asked the following questions, in order to elicit a minimum of 3 imagined responses to the situation:

What would you do immediately after this happened: what would you feel or say?

What would you do next?

What would you do the following day?

What would you do in the days and weeks following?

If the subject asked any questions relating to the outcomes of the situation he was imagining, the experimenter produced an essentially neutral reply, designed to encourage the subject to imagine his own outcomes. These replies took the general form of: "Tell me what you think would happen" or "I leave that to your imagination". Where the subject appeared to be deviating from the essential LCU situation he was gently put back onto the right track. However, if the subject assumed that the situation would be reversed by his own actions, without asking whether this was allowable this was

accepted. On the whole, social input by E during the recording of responses was limited to a non-committal "Uh-Huh" response after each of the subject's statements, this being considered necessary to maintain his momentum.

The remaining 5 stories were administered in the same way with a minimal break between each. The order of presentation of the stories was randomised between subjects such that each story occupied each ordinal position in the sequence an equal number of times in the presentations to each of the various sample groups. The one constraint on this randomisation procedure was that no two occupational items should occur consecutively. Half of the subjects received set one of the stories and the other half received set 2.

After the sixth story had been presented to the subject, the general depression item (GD) was presented in the same way. The subject was then asked to complete the CMS for the second time. This was followed by the light relief item (LAM), also using the same basic presentation procedure.

The subject was then asked to complete the SDES and the SECS and was finally asked a number of questions designed, he was told, "to aid in the selection of samples". These included his age, present or last occupation, and information on any current or past mental disorders, including their nature, duration and treatment regimes.

#### 4.5 Follow-up Procedure

A total of 22 subjects was re-tested at least 12 months after the date of original testing, using exactly the same procedure as for the original investigation, with the exception that the

alternative list of stories was used for each subject. Also, the Item LAM 2 was used in place of the item LAM 1 at the end of the experiment. This avoided any chance of the subjects attempting to recall the responses which they had made to the stories on the first occasion of testing.

#### 4.6 Data Analysis

The response protocols for each subject were typed out in full from the tape recordings. An example is given in Appendix II.

A system for classifying these responses into a limited number of categories was established from the data collected in the pilot study and extended in the light of new information observed in the main study. This was based upon that suggested by Rippere (1977). Eight main categories were finally used to cover the responses reported and these were as follows:

- 1) Active Problem Solving
- 2) Passive Problem Solving
- 3) Active Avoidance
- 4) Passive Avoidance
- 5) Comfort Seeking
- 6) Maintain Current Behaviour
- 7) Amend Future Behaviour
- 8) Helplessness

An attempt was made to reduce the problems of consensus in classification by making the scheme comprehensive. A number of

subcategories was established for each of the main categories and the type of response which was to be included in each sub-category was carefully specified. An aggregate score was also computed, which was intended to represent the subject's overall efforts to cope with these situations. It was termed the aggregate coping response, as opposed to the aggregate defensive response, and was composed of the responses categorised under the headings 1,2,6 and 7. The full classification guide, as used, is reproduced in Appendix III. It was believed that this precise guide should increase the reliability of the categorisation process and reduce the intuitive component which might otherwise be present. Such a scheme of classification is, of course, still open to criticism but such criticism would then be aimed at the face validity of the classification system rather than the ability of the judges to use it.

In order to provide some measure of inter-rater reliability, a second experimenter (a graduate psychologist) repeated this categorisation process on a random sample of 10 protocols. This judge received only minimal instruction in the use of the scheme, in order to provide a tough test of the scheme. A concordance rate of 78.2% was obtained, in this way, on the assignment of 605 responses to their categories. When the responses were allocated to the aggregate categories of coping versus defensive behaviour, the concordance rate was increased to 90.9%, suggesting that the majority of the differences between the raters lay in the allocation of responses to similar categories of behaviour within the same overall area of activity.

The first of the categories used, Active Problem Solving, contains many of the behaviours which Coleman (1976) included in his

description of coping responses. The last category, Helplessness, covers the pattern of non-responding which is to be expected of depressives, in certain situations, according to Seligman's theory (1974). The remaining categories cover other various forms of coping and defensive response.

This system of classification was also considered to be appropriate for the generalised depression (GD) item, since the same range of responses is to be expected for that situation as to the LCU items. However, the practice was adopted of assuming that the depressive incident did stem from some identifiable cause, despite the description of the event to the subject, otherwise all of the behaviour listed might logically be regarded as belonging to category 1 (Active Problem-solving behaviour). In addition to the aggregate coping response a further aggregate category was calculated for the ADB item, termed Active Response, as compared with Passive Response, and was formed from the responses listed under categories 1,3,6 and 7. This score was intended to reflect Lewinsohn's (1974) suggestion that it is the reduction in activity levels in depression which leads to a reduction in response contingent positive reinforcement.

The responses to the LAM item were not analysed in this study, since this scheme of categorisation would not be appropriate for them and since they did not contribute to the hypotheses being considered.

With spontaneously reported data a problem occurs regarding responses which are not overtly reported but which may be implied by default. Thus, if a subject does not suggest that he would change his future behaviour, then he could be regarded as showing a "maintain current behaviour" response by default. Since experimenter judgements

are necessary to make such adjustments to scores and since the emphasis here is upon the spontaneous reports of the subject, no attempt was made in the scoring to include such implicit responses.

Another tendency is for subjects to make some of their responses dependent upon the outcomes of their own behaviour in the situation. This may give rise to the subject describing alternative strategies to deal with the different outcomes which he can perceive. Certain subjects were also found to propose alternative responses depending on the reactions of other people in the situations. The subjects who produce these alternative responses are, in effect, emphasising the situational pressures on response patterns which were identified by Rippere (1977) as "qualifiers". In this experiment all such responses to all imagined contingencies were recorded on the grounds that these are all part of the repertoire of behaviours which the subject is capable of using.

Although a tally could have been made of the number of times the subject repeated a given response in a given situation, this information was deemed unlikely to be of much value in testing the hypotheses, largely because such behaviour may be described both as adaptive (if at first you don't succeed) or non-adaptive (rigidity of thinking). Accordingly no attempt was made to examine this part of the response pattern and each repeated response was only counted once in the protocol, unless it clearly referred to a new aspect of the situation or to a new person in the situation, or it referred to a fresh initiation of the action in a subsequent time period in a way clearly distinct from that in the earlier stage.

Since the number of responses reported would clearly vary from subject to subject, the data recorded for analysis was the

percentage of a subject's total number of responses to each situation which fell into each of the 8 categories. These values could, it was recognised, be slightly misleading where the subject produced only a minimum of responses. They were regarded as representing the response probabilities shown by the subject for the various categories of response.

## Chapter 5

### Results

#### 5.1 Experimental Parameters

A check was made on the stimulus materials used in the experiment and on the characteristics of the subject groups, to ensure that the variables incorporated in the experimental design had been satisfactorily controlled, using data collected in the first experimental session.

##### a) The Current Mood Scale (CMS)

The total score obtained from the sum of all of the constituent scales of the CMS correlated with scores on the BDI for both the pre-experimental test ( $r = 0.85, p < 0.01$ ) and the post-experimental test ( $r = 0.82, p < 0.01$ ).

A scale analysis was also performed on the data from the constituent VAS's. Correlations between the separate subscales ranged from  $r = 0.31$  to  $0.82$  (median  $0.56$ ) on the pre-test scales and from  $r = 0.36$  to  $0.82$  (median  $0.65$ ) on the post-test data. Subscale to scale total correlations ranged from  $r = 0.65$  to  $0.90$  (median  $0.80$ ) on pretest and  $r = 0.62$  to  $0.94$  (median  $0.76$ ) on post-test. All of these coefficients were statistically significant ( $p < 0.01$ ). On factor analysis, using a principal component analysis, the first extracted factor accounted for  $61.8\%$  and  $57.7\%$  of the variance in the pre- and post- test data respectively.

These data were taken as indicating that the CMS had both internal and external validity sufficient for it to be used as a

measuring instrument in this experiment.

#### b) The Stimulus Materials

The responses to the Situation Scales (SDES and SECS) were used to ascertain whether or not the the stimulus stories differed with regard to the level of percieved stress which they would produce in real life. The data used here were those obtained from the non-psychiatric group only. Although the expected separation was not achieved in all of the specific comparisons between items at the same assumed level of stress, the overall means obtained (High 7.3, Med 5.9, Low 5.1) do suggest an overall separation according to the likely level of stress produced by these three treatment conditions. Since other outcomes than depression are possible, these data would only provide an approximate check on the levels of stress involved, so they were regarded as giving a reasonably satisfactory confirmation of the status of the stimulus stories.

From the subjects' ratings of percieved control in these situations, it was evident that there was general agreement with the experimental manipulation, with the mean ratings for C items being 5.2 and the mean ratings for NC items being 2.8.

These checks confirmed that the story items could be regarded as defining specified levels of stress and control and that they could thus be used in an analysis of variance model as defining levels of variables and not simply be regarded as unique and randomly differing stimuli.

#### c) Subject Variables

The characteristics of the groups of subjects are given in

Table 1. These data indicate that a satisfactory separation of the experimental groups was achieved on the basis of the subjects' BDI scores as well as on the basis of the diagnostic criteria. However, as was expected, the variables of depression and locus of control were to some extent confounded in the sample groups, with the BDI scores showing a correlation with externality of control of 0.51 ( $p < 0.001$ ,  $n = 72$ ). This Table also gives group data regarding changes of mood observed between pre- and post- test states and subject's ratings of depressive effect and control in the situations.

### 5.2 Response data

The data obtained from the original testing of the subjects are presented in Tables I to X. Each of these Tables is followed by a summary of the main effects and interaction terms which were found to be significant in the analyses of variance which were carried out. Other non-significant effects have been omitted for the sake of clarity. These analyses were performed using the SPSS computer package. Differences in means for main factors which had 3 levels (ie Psychiatric Status and Stress) were examined for significance using the Newman-Keuls test and the Tukey test was used to examine the interaction effects, (Keppel 1973). The main findings from these data are summarised in the following chapter.

Table 1 Subjects' scores on scales

(n = 6 per cell)

Group		BDI	LOC	CMS (pre)	CMS (post)	CMS (diff)	SDES	SECS	
Exptl	F Ext	25.67	17.67	7.14	7.42	+0.27	6.87	4.18	
	Int	20.00	10.50	6.89	6.23	-0.67	6.63	4.21	
	-	22.84	14.09	7.03	6.83	-0.20	6.75	4.20	
	M Ext	27.33	15.00	7.73	7.92	+0.19	6.95	5.30	
	Int	19.00	10.83	6.42	6.25	-0.17	5.54	3.57	
	x	23.01	12.92	7.08	7.09	+0.01	6.25	4.44	
	Exptl Mean	23.01	13.11	7.05	6.96	-0.09	6.50	4.32	
	Psych Control	F Ext	17.33	14.83	5.19	4.29	-0.90	6.10	4.55
		Int	12.67	9.50	3.02	3.00	-0.02	5.48	4.74
x		15.00	12.17	4.11	3.65	-0.46	5.79	4.65	
M Ext		19.67	16.33	5.51	5.61	+0.11	6.60	3.83	
Int		7.33	8.00	2.06	1.77	-0.29	6.67	3.98	
x		13.50	12.17	3.79	3.69	-0.09	6.64	3.91	
P Cont Mean		14.25	12.17	3.95	3.67	-0.28	6.21	4.28	
Normal		F Ext	6.00	14.17	3.74	4.25	+0.52	6.81	5.11
		Int	3.67	4.00	2.33	2.83	+0.50	5.22	4.22
	x	3.67	9.09	3.04	3.54	+0.50	6.02	4.67	
	M Ext	5.00	11.50	2.13	1.64	-0.50	4.87	2.97	
	Int	2.33	5.00	1.44	1.29	-0.15	6.24	3.86	
	x	3.67	8.25	1.79	1.47	-0.33	5.56	3.42	
	Norm Contr Mean	4.26	8.66	2.42	2.51	+0.09	5.79	4.04	
	Overall Means	Ext	16.83	14.92	5.24	5.19	-0.06	6.37	4.32
		Int	10.83	7.97	3.69	3.56	-0.13	5.96	4.10
F		14.23	11.78	4.73	4.67	-0.05	6.19	4.50	
M		13.45	11.11	4.22	4.08	-0.14	6.15	3.92	

## Legend:

BDI Beck Depression Inventory  
 LOC Rotter Internal-External Locus of Control Scale  
 CMS Current Mood Scale (VAS)  
 SDES Situation (Depressive Effect) Scale  
 SECS Situation (Extent of Control) Scale

Ext External Subject Group  
 Int Internal Subject Group

Table I Mean probabilities of responses in category 1

Active Problem Solving

(n = 6)

Subject Group		Experimental Condition						x	GD
		High Stress		Med Stress		Low Stress			
		C	NC	C	NC	C	NC		
Exptl	F Ext	28.62	8.93	27.28	36.22	20.77	28.33	25.03	8.12
	Int	28.73	17.33	35.65	35.82	51.22	35.17	33.98	6.78
	M Ext	15.28	34.78	37.67	30.37	27.25	14.45	26.63	7.57
	Int	25.73	23.25	31.40	28.88	32.87	37.20	29.88	12.22
Psych Control	F Ext	24.98	20.52	28.22	33.13	18.33	32.77	26.33	6.27
	Int	8.78	17.30	15.85	21.12	40.87	31.05	22.50	3.85
	M Ext	20.55	29.12	38.00	23.62	34.23	36.08	30.26	11.05
	Int	28.75	28.23	41.37	27.83	38.27	41.93	34.39	8.42
Normal Control	E Ext	17.10	26.45	30.17	28.83	38.52	32.53	28.93	5.02
	Int	24.17	20.08	26.35	34.50	28.65	37.35	28.52	8.66
	M Ext	24.09	21.43	31.90	48.73	36.10	23.78	31.00	3.97
	Int	23.68	33.32	46.32	41.88	50.60	41.72	39.58	15.08
Overall Means (n = 36)									
Externals		21.77	23.54	32.21	33.48	29.20	27.97	28.03	7.00
Internals		23.31	23.25	32.82	31.67	40.41	37.40	31.47	9.17
Females		22.06	18.44	27.25	31.60	33.06	32.87	27.55	6.45
Males		23.01	28.36	37.78	33.55	36.55	32.53	31.96	9.72
(n= 24)									
Experimental		24.59	21.07	33.00	32.82	33.03	28.79	28.37	8.67
Psy Control		20.76	23.79	30.86	26.43	32.93	35.46	28.37	7.39
Normal Control		22.26	25.32	33.69	38.49	38.47	33.85	32.01	8.12
(n= 72)									
All subjects		22.54	23.40	32.52	32.58	34.81	32.69	29.76	
Stress		22.97		32.55		33.75			
Control		29.95		Non-Control		29.55			

Summary of Anovars: Category 1, Active Problem Solving

Stress situations

Main Effects

Sex  $p < 0.02$ : Males 31.96, Females 27.55.

Stress  $p < 0.001$ : High 22.97 < Medium 32.55 ( $p < 0.01$ ) = Low 33.75.

Interactions

Loc x Stress ( $p < 0.04$ ).

	High Stress	Med Stress	Low stress
Int	23.28	32.25	38.91
Ext	22.66	32.85	28.59

Externals show less Active Problem Solving in low stress situations than do internals (28.59 to 38.91,  $p < 0.05$ ).

General Depression Item

Main Effects: none.

Interactions: none.



Summary of Anovars: Category 2, Passive Problem Solving

Stress Situations

Main Effects

Psychiatric Status  $p < 0.04$ : Normals 8.77 = Experimental 8.16 > Psychiatric Control 5.91 ( $p < 0.05$ ).

Interactions: Sex x Stress ( $p < 0.001$ ).

	High Stress	Med stress	Low Stress
M	11.00	4.09	8.60
F	5.53	7.87	8.60

Males show more Passive Problem Solving behaviour in high stress situations than do females (11.00 to 5.53,  $p > 0.01$ ).

General Depression Item

Main Effects

Sex ( $p < 0.025$ ): Males 5.82, Females 2.60.

Psychiatric Status ( $p < 0.05$ ): Experimental 6.49, (Normals 4.28) > Psychiatric Control 1.86 ( $p < 0.05$ ).

Interactions: none.

Table III Mean Probabilities of Responses in Category 3

Active Avoidance

Group		Experimental Condition						x	GD
		High Stress		Med Stress		Low Stress			
		C	NC	C	NC	C	NC		
(n = 6)									
Exptl	F Ext	0.00	12.08	2.08	0.00	4.23	8.22	4.44	14.28
	Int	3.75	24.57	3.33	5.55	4.45	7.37	8.17	7.40
	M Ext	0.00	10.72	1.67	0.00	5.38	10.47	4.71	12.39
	Int	0.00	19.73	4.80	2.57	4.07	3.70	5.81	15.28
Psych Control	F Ext	9.27	14.15	1.52	0.00	4.87	5.83	5.94	28.92
	Int	7.03	10.07	3.93	12.35	6.28	1.67	6.88	19.92
	M Ext	5.15	6.73	0.00	4.45	7.57	3.68	4.60	8.59
	Int	9.92	11.58	6.95	3.77	1.38	6.35	6.66	17.33
Normal Control	F Ext	4.42	5.67	5.45	13.00	3.18	11.60	7.22	8.12
	Int	8.08	13.85	9.55	15.18	7.68	11.57	11.00	21.90
	M Ext	3.48	8.02	12.48	0.00	11.27	5.45	6.78	17.07
	Int	6.75	5.17	7.33	9.92	1.85	2.57	5.60	16.05
Overall Means (n = 36)									
Externals		3.72	9.56	3.87	2.91	6.08	7.54	5.61	14.90
Internals		5.92	14.16	5.98	8.22	4.29	5.53	7.35	16.31
Females		5.43	13.40	4.31	7.68	5.11	7.71	7.27	16.76
Males		4.21	10.33	5.54	3.45	5.25	5.37	5.69	14.45
(n = 24)									
Experimental		0.94	16.78	2.97	2.03	4.53	7.44	5.78	12.39
Psych Control		7.84	10.63	3.10	5.14	5.03	4.38	6.02	18.69
Normal Control		5.68	8.18	8.70	9.53	6.00	7.80	7.64	15.79
(n = 72)									
All subjects		4.82	11.86	4.93	5.56	5.19	6.54	6.48	15.61
Stress Control		8.34		5.25		5.87			
		4.98	Non-control	7.99					

Summary of Anovars: Category 3, Active Avoidance

Stress Situations

Main Effects

Stress ( $p < 0.02$ ): High 8.34 > Low 5.87 ( $p < 0.05$ ) = Medium 5.25.

Interactions

Loc x Stress ( $p < 0.02$ )

Stress	High	Med	Low
Internals	10.04	7.10	4.91
Externals	6.64	3.39	6.81

Internals show more Active Avoidance in high and medium stress situations than do externals (7.10 to 3.39,  $p < 0.05$ ).

Psychiatric status x Stress ( $p < 0.02$ ).

	High	Med	Low
Experimental	8.96	2.50	5.99
Psychiatric Control	9.24	4.12	4.71
Normal	6.93	9.12	6.90

Depressives show the least Active Avoidance in medium stress situations whereas normals show the most Active Avoidance in those situations, (2.50 to 9.12,  $p < 0.05$ ).

General Depression Item

Main Effects: none.

Interactions: none.

Table IV Mean Probabilities of Responses in Category 4

Passive Avoidance

Group		Experimental Condition						x	GD
		High Stress		Med Stress		Low Stress			
		C	NC	C	NC	C	NC		
(n = 6)									
Exptl	F Ext	42.63	21.65	27.98	19.05	17.27	24.35	25.48	52.35
	Int	18.28	8.62	18.00	13.65	7.40	15.18	13.52	38.78
	M Ext	37.87	29.70	14.03	32.72	29.22	26.50	28.34	50.72
	Int	22.43	9.40	15.18	14.23	16.95	14.37	15.43	32.47
Psych Control	F Ext	30.12	35.27	21.88	31.45	25.55	22.25	27.75	24.42
	Int	34.28	32.92	32.43	23.20	11.80	19.43	25.67	27.77
	M Ext	23.68	29.93	28.77	24.17	15.80	16.07	23.07	44.81
	Int	20.30	18.80	24.22	17.65	17.50	18.78	19.54	37.23
Normal Control	F Ext	25.72	12.12	17.60	13.47	11.25	16.62	16.13	43.98
	Int	17.23	13.03	22.15	18.82	15.78	12.72	16.62	26.43
	M Ext	28.17	13.42	20.23	19.78	8.28	19.18	18.16	30.77
	Int	18.55	10.48	10.15	9.53	5.93	10.92	10.97	29.88
Overall Means (n = 36)									
Externals		31.37	23.68	21.74	23.44	17.90	20.83	23.16	41.18
Internals		21.90	15.54	20.35	16.18	12.56	15.23	16.96	32.09
Females		28.04	20.60	23.34	19.94	14.84	18.43	20.87	35.62
Males		25.22	18.62	18.76	19.68	15.61	17.64	19.26	37.65
(n = 24)									
Experimental		30.30	17.34	18.80	19.91	17.71	20.10	20.67	43.58
Psych Control		26.97	29.23	26.83	24.12	17.66	19.13	23.99	33.56
Normal Control		22.50	12.26	17.53	15.40	10.31	14.86	15.47	32.77
(n = 72)									
All Subjects		26.63	19.61	21.05	19.81	15.23	18.03	20.07	36.64
Stress			23.12		20.43		16.63		
Control		20.97		Non-control	19.15				

Summary of Anovars: Category 4, Passive Avoidance

Stress Situations

Main Effects

Psychiatric Status ( $p < 0.001$ ): Psychiatric Control 23.99 = Experimental 20.67 > Normal 15.47 ( $p < 0.01$ ).

Loc ( $p < 0.001$ ): Externals 23.16, Internals 16.96.

Stress ( $p < 0.005$ ): High 23.12 = Medium 20.43 > Low 16.63 ( $p < 0.05$ ).

Interactions: Psychiatric Status x Loc ( $p < 0.02$ ).

Status	Norm	P Con	Exptl
Int	13.80	22.61	14.48
Ext	17.15	25.41	26.91

External Depressives show more Passive Avoidance than do Internal Depressives and largely account for the differences between Internals and Externals at the main effect level.

Stress x Control ( $p < 0.05$ ).

General Depression Item

Main Effects

LOC ( $P < 0.05$ ): Externals 41.18, Internals 32.09.

Interactions: none.

Table V Mean Probabilities of Responses in Category 5

Comfort Seeking

Group		Experimental Condition						x	GD
		High Stress		Med Stress		Low Stress			
		C	NC	C	NC	C	NC		
(n = 6)									
Exptl	F Ext	6.25	24.68	6.55	12.12	11.10	9.17	11.64	10.97
	Int	9.53	11.65	1.85	4.60	4.63	8.90	6.86	12.45
	M Ext	8.23	11.68	9.53	9.85	6.20	13.48	9.82	14.93
	Int	6.10	1.10	7.93	9.15	11.10	7.83	7.21	7.77
Psych Control	F Ext	9.97	5.97	14.12	12.50	20.36	3.33	11.05	12.40
	Int	11.40	7.53	6.50	18.89	8.67	10.72	10.62	12.70
	M Ext	12.98	6.43	5.55	11.67	12.63	14.18	10.57	16.63
	Int	8.10	9.47	4.27	9.27	11.07	11.77	8.99	11.92
Normal Control	F Ext	14.41	16.32	11.05	13.45	18.56	10.24	14.01	8.17
	Int	5.22	13.70	1.58	2.60	8.93	9.05	6.85	16.40
	M Ext	7.28	7.27	3.75	2.57	0.00	21.88	7.12	5.82
	Int	9.85	15.97	0.00	10.17	14.60	14.45	10.81	12.15
Overall Means (n = 36)									
Externals		9.85	12.06	8.43	10.36	11.48	12.05	10.71	11.49
Internals		8.37	9.90	3.69	9.11	9.83	10.45	8.56	12.23
Females		9.46	13.31	6.94	10.69	12.04	8.57	10.17	12.18
Males		8.76	8.65	5.17	8.78	9.27	13.93	9.09	11.54
(n = 24)									
Experimental		7.53	8.19	6.47	8.93	8.26	9.85	8.90	11.53
Psych Control		10.62	7.35	7.61	13.08	13.18	10.00	10.31	13.41
Normal Control		9.19	13.32	4.10	7.20	10.52	13.91	9.71	10.64
(n = 72)									
All subjects		9.11	10.98	6.06	9.74	10.66	11.25	9.64	11.86
Stress			10.05		7.90		10.96		
Control		8.61		Non-control	10.66				

Summary of Anovars: Category 5, Comfort Seeking

Stress Situations

Main Effects: none.

Interactions: none.

General Depression Item

Main Effects: none.

Interactions: none.

Table VI Mean Probabilities of Responses in Category 6

Maintain Current Behaviour

Group		Experimental Condition						x	GD
		High Stress		Med Stress		Low Stress			
		C	NC	C	NC	C	NC		
(n = 6)									
Exptl	F Ext	3.75	9.45	34.01	20.13	25.30	13.52	17.69	10.67
	Int	13.47	14.83	31.17	22.17	18.50	16.58	19.45	25.37
	M Ext	8.17	3.37	22.42	22.93	15.00	16.48	14.73	8.38
	Int	18.90	17.43	32.93	28.93	18.43	13.92	21.76	15.68
Psych Control	F Ext	8.22	8.18	16.47	15.97	12.58	18.07	13.25	21.15
	Int	15.62	16.18	27.13	19.02	16.68	25.32	20.00	28.75
	M Ext	19.02	2.78	19.58	33.33	11.85	23.51	18.54	12.78
	Int	14.75	22.08	18.60	33.55	20.45	11.93	20.23	18.55
Normal Control	F Ext	11.51	22.17	23.86	13.37	11.66	14.23	16.13	30.93
	Int	22.03	24.10	30.37	19.72	18.57	16.67	21.91	20.77
	M Ext	23.38	23.47	30.00	25.33	22.63	12.63	22.91	34.75
	Int	12.08	18.27	21.78	21.48	8.78	22.48	17.48	20.97
Overall Means (n = 36)									
Externals		12.34	11.57	24.39	21.84	16.50	16.41	17.18	19.78
Internals		16.14	18.82	27.00	24.15	16.90	17.82	20.14	21.68
Females		12.43	15.82	27.18	18.40	17.22	17.40	18.08	22.94
Males		16.05	14.57	24.22	27.59	16.19	16.83	19.24	18.52
(n = 24)									
Experimental		11.07	11.27	30.13	23.54	19.31	15.13	18.40	15.03
Psych Control		14.40	12.31	20.44	25.47	15.39	19.71	17.95	20.31
Normal Control		17.25	22.00	26.50	19.98	15.41	16.50	19.61	26.86
(n = 72)									
All subjects		14.24	15.20	25.70	23.00	16.71	17.12	18.66	20.73
Stress			14.72		24.35		16.92		
Control		18.88	Non-control		18.44				

Summary of Anovars: Category 6, Maintain Current Behaviour

Stress Situations

Main Effects

Stress ( $p < 0.001$ ): Medium 24.35 > Low 16.92 ( $p < 0.01$ ) = High 14.72.

Interactions: none.

General Depression Item

Main Effects

Psychiatric Status ( $p < 0.05$ ): Normals 26.86, (Psychiatric Control 20.31) > Experimental 15.03 ( $p < 0.05$ ).

Interactions: Psychiatric Status x LOC ( $p < 0.05$ ).

Status	Norm	P Con	Exptl
Int	20.87	23.65	20.53
Ext	32.84	16.97	9.53

External Depressives are less likely than others to conceal a depressive episode and to attempt to ignore its effects whereas external normals are more likely to do so.

Table VII Mean Probabilities of Responses in Category 7

Amend Future Behaviour

Group		Experimental Condition						x	GD
		High Stress		Med Stress		Low Stress			
		C	NC	C	NC	C	NC		
(n = 6)									
Exptl	F Ext	0.00	0.00	0.00	0.00	7.40	4.05	1.91	0.00
	Int	1.67	0.00	1.85	2.03	0.00	1.18	1.13	0.00
	M Ext	2.10	0.00	1.67	0.00	1.65	6.43	1.98	0.00
	Int	0.00	0.00	0.00	5.55	2.77	5.78	2.35	1.52
Psych Control	F Ext	1.85	0.00	0.00	0.00	7.50	3.90	2.21	1.28
	Int	4.17	0.00	0.00	1.67	7.23	5.72	3.13	2.78
	M Ext	0.00	0.00	8.10	0.00	13.66	2.22	4.00	0.00
	Int	1.38	0.00	0.93	0.00	5.42	1.18	1.49	0.63
Normal Control	F Ext	0.00	0.00	6.15	2.08	3.75	1.92	2.32	0.00
	Int	0.00	0.00	0.00	3.33	10.93	4.62	3.15	0.00
	M Ext	0.00	1.85	1.67	0.00	9.05	0.00	2.09	1.85
	Int	2.38	0.00	6.55	1.52	1.52	0.00	1.99	0.72
Overall Means									
(n = 36)									
Externals		0.66	0.31	2.93	0.35	7.17	3.09	2.42	0.52
Internals		1.60	0.00	1.56	2.36	4.65	3.08	2.21	0.94
Females		1.28	0.00	1.33	1.52	6.14	3.57	2.31	0.68
Males		0.98	0.31	3.15	1.18	5.68	2.60	2.32	0.79
(n = 24)									
Experimental		0.94	0.00	0.88	1.91	2.96	4.36	1.85	0.38
Psych Control		1.85	0.00	2.26	0.42	8.45	3.26	2.71	1.17
Normal Control		0.60	0.46	3.59	1.73	6.31	1.64	2.39	0.64
(n = 72)									
All subjects		1.13	0.16	2.25	1.36	5.91	3.09	2.32	0.73
Stress			0.65		1.81		4.50		
Control		3.10		Non-control	1.54				

Summary of Anovars: Category 7, Amend Future Behaviour

Stress Situations

Main Effects

Stress ( $p < 0.001$ ): Low 4.50 < Medium 1.81 ( $p < 0.01$ ) = High 0.65.

Control ( $p < 0.01$ ): Control 3.10, Non-control 1.54.

Interactions: Psychiatric Status x Control ( $p < 0.05$ ).

Status	Norm	P Con	Exptl
C	3.50	4.19	1.59
NC	1.28	1.23	2.09

Normals and Psychiatric Control subjects are more likely than Depressives to initiate new behaviour subsequent to situations for which they have been responsible.

General Depression Item

Main Effects: none.

Interactions: none.

Table VIII Mean Probabilities of Responses in Category 8

Helplessness

Group		Experimental Condition						x	GD
		High Stress		Med Stress		Low Stress			
		C	NC	C	NC	C	NC		
(n = 6)									
Exptl	F Ext	18.75	23.23	2.08	0.00	8.33	3.33	9.29	1.12
	Int	8.82	14.45	3.33	1.38	3.75	6.88	6.44	5.78
	M Ext	15.58	3.22	4.52	1.18	5.02	8.33	6.31	0.42
	Int	15.45	9.73	0.00	5.83	4.17	6.28	6.91	1.12
Psych Control	F Ext	8.48	13.18	2.78	4.17	0.00	3.33	5.32	5.62
	Int	13.73	16.00	1.85	3.75	3.33	0.00	6.44	4.22
	M Ext	5.78	14.28	0.00	0.00	0.00	0.00	3.34	1.97
	Int	4.57	6.83	0.93	0.00	0.00	1.67	2.33	0.75
Normal Control	F Ext	15.68	17.36	3.90	0.00	3.33	3.81	7.35	0.00
	Int	11.43	10.82	0.00	1.28	0.00	0.00	3.93	1.23
	M Ext	1.97	10.65	0.00	0.00	1.85	4.77	3.21	0.00
	Int	10.52	5.03	3.60	0.00	0.00	0.00	3.19	0.00
Overall Means (n = 36)									
Externals		11.04	13.65	2.21	0.89	3.09	3.93	5.80	1.52
Internals		10.75	10.48	1.62	2.04	1.88	2.47	4.87	2.18
Females		12.82	15.84	2.32	1.76	3.12	2.89	6.46	3.00
Males		8.98	8.29	1.51	1.17	1.84	3.51	4.22	0.71
(n = 24)									
Experimental		14.65	12.66	2.48	2.10	5.32	6.21	7.24	1.85
Psych Control		8.14	15.57	1.39	1.98	0.83	1.25	4.36	3.14
Normal Control		9.90	10.96	1.88	0.32	1.30	2.15	4.42	0.31
(n = 72)									
All subjects		10.90	12.07	1.92	1.47	2.48	3.20	5.34	1.85
Stress			11.48		1.70		2.84		
Control		5.10	Non-control		5.58				

Summary of Anovars: Category 8, Helplessness

Stress Situations

Main Effects

Stress ( $p < 0.001$ ): High 11.48 > Low 2.84 ( $p < 0.01$ ) = Medium 1.70.

Psychiatric Status ( $p < 0.02$ ): Experimental 7.24, (Normal 4.42) > Psychiatric Control 4.36 ( $p < 0.05$ ).

Sex ( $p < 0.05$ ): Females 6.46, Males 4.22.

Interactions: Sex x Stress ( $p < 0.05$ ).

Stress	High	Med	Low
M	8.63	1.34	2.68
F	14.33	2.04	3.01

The sex effect is evident only in the high stress situations, with females showing more Helplessness in those situations than Males, (14.33 to 8.63,  $p < 0.05$ ).

General Depression Item

Main effects: none.

Interactions: none.

Table IX Mean Probabilities of Aggregated Responses:

Coping Behaviour

Group		Experimental Condition						x	GD
		High Stress		Med Stress		Low Stress			
		C	NC	C	NC	C	NC		
(N = 6)									
Exptl	F Ext	32.37	18.38	61.29	68.85	59.55	54.95	49.23	21.30
	Int	59.59	40.78	73.47	74.84	79.80	61.65	65.02	35.60
	M Ext	38.37	44.73	69.08	54.28	54.18	41.26	50.52	21.57
	Int	54.35	60.03	73.36	68.24	63.70	67.80	64.59	43.75
Psych Control	F Ext	42.13	31.48	59.71	51.88	49.45	65.27	49.99	28.70
	Int	33.25	33.48	55.26	41.81	69.95	68.17	50.32	35.38
	M Ext	52.37	34.28	65.68	59.73	63.97	66.06	57.02	28.01
	Int	57.08	53.33	63.65	69.31	70.07	61.42	62.49	30.87
Normal Control	F Ext	39.79	48.62	62.03	60.05	63.68	57.76	55.32	41.00
	Int	58.08	48.60	66.74	62.15	67.58	66.77	61.66	34.01
	M Ext	59.16	60.63	63.57	77.66	78.63	48.69	64.73	45.87
	Int	54.02	63.34	78.95	70.40	77.62	72.05	69.40	42.27
Overall Means (n = 36)									
Externals		44.03	39.68	63.56	62.08	61.58	55.67	54.43	31.08
Internals		52.73	49.92	68.57	64.46	71.45	66.31	62.24	36.98
Females		44.20	36.89	63.08	59.93	65.00	62.42	55.25	32.65
Males		52.56	52.72	69.05	66.60	6.803	59.55	61.42	35.39
(n = 24)									
Experimental		46.17	40.98	69.30	66.55	64.31	56.42	57.29	30.56
Psych Control		46.21	38.14	61.08	55.68	63.36	65.23	54.95	30.74
Normal Control		52.76	55.30	67.82	67.57	71.88	61.32	62.78	40.79
(n = 72)									
All Subjects		48.38	44.81	66.07	63.27	66.51	60.99	58.34	34.03
Stress		46.60		64.67		63.75			
Control		60.32	Non-control		56.36				

Summary of Anovars: Aggregated Responses, Coping Behaviour

Stress Situations

Main Effects

LOC ( $p < 0.001$ ): Internals 62.24, Externals 54.43.

Psychiatric Status ( $p < 0.01$ ): Normals 62.78 > Exptl 57.29 > Psychiatric Control 54.95 ( $p < 0.01$ ).

Sex ( $p < 0.05$ ): Males 61.42, Females 55.25.

Stress ( $p < 0.001$ ); Medium 64.67 = Low 63.75 > High 46.60 ( $p < 0.01$ ).

Interactions: Psychiatric Status x Sex ( $p < 0.05$ ).

Status	Norm	P Cont	Exptl
M	67.07	59.76	57.45
F	58.49	50.16	57.13

The difference shown at main effect between Males and Females is not shown by Depressives.

General Depression Item

Main Effects

Psychiatric Status ( $p < 0.05$ ): Normal 40.79 > Psychiatric Control 30.74 ( $p < 0.05$ ) = Experimental 30.56.

Interactions: none.

Table X Summary of Response Probabilities by Group

Group	Response Category							
	1	2	3	4	5	6	7	8
(n = 12)								
Norm Int	34.05	9.21	8.30	13.78	8.83	19.69	2.57	3.56
" Ext	29.97	8.33	7.00	17.15	10.06	19.52	2.21	5.28
Expt Int	31.93	10.52	6.99	14.48	7.04	20.61	1.74	6.68
" Ext	25.83	5.80	4.58	26.91	10.73	16.21	1.95	7.80
(n = 24)								
Exptl	28.37	8.16	5.78	20.67	8.90	18.40	1.85	7.24
Psy Con	28.37	5.91	6.02	23.99	10.31	17.95	2.71	4.36
Normal	32.01	8.77	7.64	15.47	9.71	19.61	2.39	0.31
(n = 36)								
Ext	28.03	6.81	5.61	23.16	10.71	17.18	2.42	1.52
Int	31.47	8.42	7.35	16.96	8.56	20.14	2.21	4.87
Females	27.55	7.33	7.27	20.87	10.17	18.08	2.31	6.46
Males	31.96	7.90	5.69	19.26	9.09	19.24	2.32	4.22

## Chapter 6

### Discussion of Results

The various hypotheses proposed in Chapter 1 will first be discussed in the light of the response probability data obtained from the 6 stress items on the original presentation. In theory, these data refer to the early attempts by people to handle stressful situations and therefore to stave off depression (and other disorders) at the outset. It should reveal the pattern of skills and other behaviours which determine whether a particular individual resists stress successfully or is overcome by it. Secondly, the patterns of ADB reported by the various subject groups will be examined, to see whether or not these are consistent with previous findings and with the hypotheses regarding the handling of stressful situations.

#### 6.1 Hypothesis 1 (The multiple determinism of response to stressful situations.)

##### a) Personality determinants.

There is relatively little statistical evidence for locus of control acting as a main determinant of response probability for the 8 specific categories of response. The only clear main effect occurs with regard to category 4 (Passive Avoidance) where, as expected, externals show more passive avoidance than internals (23.16 to 16.96). However, other trends in the main effects are also in the expected direction: Internals show more active problem solving (31.47 to 28.03), passive problem solving (8.42 to 6.81), active avoidance (7.35

to 5.61) and tendency to maintain current behaviour (20.14 to 17.18), together with less comfort seeking behaviour (8.56 to 10.71).

When these data are summarised into the global category of coping versus defensive behaviour, locus of control shows a clear main effect, with internals showing more coping behaviour than externals (62.24% to 54.43%,  $p < 0.001$ ). These data are therefore consistent with the idea that internals will be more likely to treat any kind of stressful situation as an occasion on which to exercise and develop their skills than will externals. However, it should be noted that in all of the experimental groups the majority of the behaviour does fall into the coping categories, the only exception being depressed external females at 49.2% coping behaviour, reflecting the potentially high value of the the situations involved for the individuals participating in them. This motivational factor, as expounded in Rotter's (1954) Social Learning theory, is necessary to convert any expectations of control into action.

The variable of Locus of control is involved in significant interaction effects with respect to two categories of response: An interaction is observed with level of stress in the situation, for active problem solving behaviour ( $p < 0.04$ ). Whereas internals and externals show much the same amount of active problem solving in high stress (23.33 to 22.66) and medium stress situations (32.26 to 32.85) internals deploy more active problem solving towards the low stress items than externals (38.91 to 28.59). An interaction is also present between locus of control and level of stress with respect to active avoidance ( $p < 0.02$ ). Internals show more active avoidance in situations of high (10.04 to 6.64) and of medium stress, while externals show more active avoidance in situations of low stress (6.81

to 4.91). Thus externals do not show the decreasing use of active avoidance with decreasing stress which is exhibited by the internals, (6.64, 3.39, 6.81 to 10.04, 7.10, 4.91).

The psychiatric status of the individual is associated with different patterns of responding. Depressives use similar amounts of passive problem solving to normals and both use more than the psychiatric controls (8.16 to 8.77 and 5.91,  $p < 0.05$ ). Also, as predicted, depressives show more of the helplessness response than psychiatric controls who in turn show similar amounts to normals (7.29 to 4.71 and 4.42,  $p < 0.05$ ). Since this increased level of helplessness responding occurs over all levels of stress, it would imply that the depressive's ability to respond to new situations is greatly impaired, whether these are major or minor issues, compared to that of the normal. When overall coping behaviour is examined, depressives claim to use less than normals but more than psychiatric controls (57.27 to 62.78 and 55.11,  $p < 0.01$ ).

Psychiatric status also shows an interaction effect with level of stress where active avoidance is concerned, ( $p < 0.02$ ). Depressives show more active avoidance in high stress conditions, than normals (8.86 to 6.93) while normals show more active avoidance in the medium (9.12 to 2.50) and low stress (6.90 to 5.99) situations.

Unfortunately, psychiatric status is confounded with the Locus of Control of the subjects, these two variables being correlated in this sample ( $r = 0.51$ ). For example, in all of the diagnostic groups the externals are more depressed than the internals. This may explain why these two variables are only involved in one mutual interaction term of significance; where passive avoidance is concerned ( $p < 0.02$ ). Internal depressives show as much passive avoidance (14.5)

as normals (15.5) and much less than psychiatric controls (24.0) but external depressives show more passive avoidance (26.9) than any other group. In this respect, externality of belief seems to be acting as an amplifying variable upon depression.

b) Situational determinants

Where situational determinants are concerned in this experiment, it is primarily the effects due to the level of stress in the situations which emerge rather than those due to responsibility for the event. Thus level of stress occurs as a significant main effect in all 8 categories of response behaviour. Active problem solving is greater in the low stress situations than in moderate situations and high stress situations, especially, as noted above, where internals are concerned (22.79 to 32.55 and 33.75,  $p < 0.001$ ).

Where the intention to amend future behaviour is concerned, there is more commitment to change in the low stress situations (4.50) than in the medium (1.81) and the high stress situations (0.65,  $p < 0.001$ ). These effects are consistent with a general tendency on the part of people to be conservative where the stress is highest (cf Coleman 1976, cited above) and being prepared to tackle minor stressors with strategies developed by themselves. However, by contrast, the tendency to maintain existing behaviour patterns is higher in medium stress situations (24.35) than in low stress situations (16.92) and high stress situations (14.72,  $p < 0.01$ ).

Passive avoidance is highest in the high stress situations (23.12) and in medium (20.43) and is lowest in the low stress situation (16.36,  $p < 0.05$ ), as expected. The probability of the helplessness response is also higher in the high stress situations

(11.48) than in the low stress (2.84) and the medium stress situations (1.34,  $p < 0.01$ ). These data are consistent with it being harder for the individual to respond to events with fresh initiatives, the more stressful those events are perceived to be.

The variable of responsibility for the event appears as a main effect only in the case of the intention to amend future behaviour, with greater intention to change being declared in situations for which the subject is responsible than for those in which he is not (3.10 to 1.54,  $p < 0.01$ ). This pattern of responding makes sense in an internal and skills-oriented world. No significant difference was observed in this variable with respect to the helplessness response, suggesting that the individual could equally well be disturbed emotionally by situations for which he was responsible as for those for which he was not.

#### c) Interactions between determinants

Throughout the above passage a number of interactions between personality variables and situational variables have been observed. They are present in 5 out of the 8 categories of response studied although not in the summary category of coping behaviour. Interactions are also present between the two situational determinants and between the three personality variables. Clearly then, there is a complex relationship between these variables, as they apply to the individual in any situation and the type of response which he is most likely to produce in that situation.

However, because these interaction effects do not extend to all of the possible cases of response type, it is reasonable to examine the hypotheses relating to the specific main effect areas of

the personality determinants and of the situational determinants.

6.2 Hypothesis 2 (Depression reduces the probability of coping behaviour)

The direct way of testing this hypothesis is to consider the correlation between the subjects' scores on the BDI and their reported use of coping behaviour in response to the situations. For this purpose, the scores were pooled across the 6 stressful situations. The correlation obtained is ( $r = -0.39$ ,  $n = 72$ ,  $p < 0.01$ ). This is consistent with increasing depression reducing the amount of coping behaviour deployed against new situations. The parallel test is to observe whether increasing externality of belief has the same effect. In this case the correlation is ( $r = 0.30$ ,  $n = 72$ ,  $p < 0.01$ ). A test for linearity showed no increase in the amount of variance accounted for by assuming a curvilinear relationship in either of these two relationships.

To the extent that the depressives' patterns of responding observed in the first test, are present at the second testing in conjunction with an improvement in psychiatric status, there will be acceptable evidence for a predisposition towards depression which has a response base, especially if the beliefs regarding locus of control remain more stable. But if these patterns of responding change, together with locus of control beliefs, then there will be no such evidence and it would be reasonable to suppose that the depression is primarily a function of the level of stress which the individual has experienced recently in his life. Such evidence would also be consistent with the notion that depression and externality were

co-determined, as is implied in Chapter 1.

The stability of the subjects' beliefs about themselves is indicated by the correlations between the BDI, LOC and other tests, between the first and second occasions of testing. On the restricted sample of subjects seen at follow-up ( $n = 22$ ), LOC scores are more stable ( $r = 0.60$ ,  $p < 0.01$ ) than those for BDI ( $r = 0.44$ ,  $p < 0.05$ ). This fits hypothesis 3 (that locus of control beliefs are stable and causative) rather than the current hypothesis. The test-retest correlation for BDI may be elevated to some extent in that depression scores in the normal controls are low and therefore restricted in terms of decreases by the "floor" effect.

It is appropriate to test this hypothesis through the correlations between the changes in BDI and LOC scores with the changes in reported coping behaviour as observed in the initial and follow-up sessions, since it was expected that improvements would occur in the patient groups and there was a possibility of change in the normal controls. However, the correlational data are not as clear here as might have been partly because of the relative stability in the sample, as suggested by the BDI and LOC scores. For example, only 4 of the subjects show an increase in the BDI score and only 5 show an increase in the LOC score.

A reduction in the extent of depression (as measured by the BDI) is associated with an increased level of aggregate coping behaviour but the correlation is small ( $-0.27$ ) and does not approach significance with this size of sample. The correlation between the change in control beliefs and change in aggregate coping behaviour is slightly higher ( $-0.34$ ) but also fails to reach significance with this size of sample. Given that the Locus of Control scores are more

stable than the depression scores, this might be taken to suggest that it is the beliefs regarding Locus of Control which are the more powerful determinants of the extent of coping behaviour.

The situation is less clear where the relationship between changes in mood or belief are related to levels of aggregated coping or active behaviour in response to the GD item. In general, the scores for both of these response variables are elevated, in the follow-up data, compared with those observed at initial testing, across the whole of the group studied. This may, of course, be due to the exhortations of the therapists treating the psychiatric groups. Thus, while a decrease in depression is associated with an increase in coping behaviour (-0.33, NS) it is not associated with a change in active behaviour (0.02). Increased internality of belief, on the other hand, is associated with a decrease both in coping behaviour (0.35) and in activity levels (0.40). This would seem to imply that those who became more internal would have shown less of an increase in active responding than those who did not, when it is recalled the subjects were more active overall at the follow-up stage.

From these data it is clear that, although there is a reduction in coping behaviour associated with increasing depression, because of the association between depressed mood and externality of belief ( $r = 0.51$ ) it is not possible to decide whether the active determinant is the level of depression or the beliefs regarding locus of Control.

### 6.3 Hypothesis 3: (Depression is a result of External beliefs regarding control)

The alternative possibility to that entertained in hypothesis 2, is that external beliefs regarding control predispose people towards depressive reactions. This hypothesis can be examined through the profiles of the behaviours shown in response to the stress situations. The data from which such profiles could be drawn are presented in Table X. In theory these profiles could be used to specify the optimum strategy for avoiding depression as a consequence of experiencing a stressful event, if a clear difference could be observed between the profiles of the depressives and those of the normals. That optimal strategy would represent the most effective balance between the various categories of responding. If externality of belief and depression are closely related then the profile given by normal externals would tend to be similar to that of the depressives. This would leave the profile of the normal internal as the ideal pattern of behaving; ie one in which there was neither over- nor under-use of any particular category of responding.

In effect all of the group profiles are so close to each other as not to provide clear discrimination as to pattern. They correlate with each other at a median  $r$  of 0.97 with a range from 0.89 to 1.00. These correlations are all significant at the  $p < 0.01$  level. Minimal support for communality between depression and externality of belief comes from the fact that the correlation between the normal internals' profile and that of the depressives is lower than most, ( $r = 0.93$ ) and that of normal externals correlates with that of the depressives ( $r = 0.98$ ). However, the correlation between the profile

for the normal internals also correlates highly with that of the normal externals, ( $r = 0.98$ ).

There are similarities of pattern of responding between the externals and the depressives insofar as the directions of the differences between the proportions of each category of response given by the depressives and normals are the same as those appearing between externals and internals. The differences observed are both significant in the case of category 4 and trends are observable in the cases of categories 1,2,3,6,8 and the aggregate coping behaviour.

The hypothesis can also be tested by examining the relative abilities of the BDI and LOC scores to predict future and past levels of coping behaviour. In this respect, the initial BDI score predicts current coping behaviour reasonably well at the time of initial testing ( $-0.39$ ,  $n = 72$ ,  $p < 0.01$ ) but not so well at the follow-up testing ( $-0.29$ ,  $n = 22$ , NS). The follow-up BDI score similarly predicts coping behaviour at the time of testing, ( $-0.43$ ,  $n = 22$ ,  $p < 0.05$ ) but not at the time of initial testing ( $-0.14$ ). On the other hand, although LOC scores at the time of initial testing predict the coping score then, ( $-0.30$ ,  $n = 72$ ,  $p < 0.01$ ) they are less effective predictors at the time of subsequent testing ( $-0.26$ ,  $n = 22$ , NS), than they should be if they are stable and have a causative relationship with coping behaviour. Similarly, although the LOC score at the follow up, does predict coping behaviour then ( $-0.54$ ,  $n = 22$ ,  $p < 0.01$ ) it does not do so at the initial time of testing ( $0.05$ ,  $n = 22$ , NS).

Since the BDI and LOC scores are correlated, as noted above, it is appropriate to consider their combined effects upon coping behaviour using multiple regression analysis on the data from the 72 subjects at first testing. This shows that adding the LOC variable to

an equation which already incorporates the BDI scores leads to an increase of less than 2% in the amount of variance accounted for, implying an almost total overlap between the two dimensions.

There is thus relatively little evidence for the locus of control beliefs being a primary cause of the onset of depression. The alternative hypothesis is that of the dual causation of depression and externality of belief. For this hypothesis to hold, any change in one should be accompanied by a similar change in the other. Since the change in the BDI scores correlate only minimally (albeit in the expected direction) with the change in LOC scores ( $r = 0.22$ , NS), there is also little support here for this hypothesis either.

6.4 Hypothesis 4 (Stressful events will have a greater depressant effect on externals than on internals.)

Neither of the alternative hypotheses receives support in this part of the study since the changes shown by subjects between the pre- and the post-tests of mood are sufficiently random to cancel out; neither locus of control nor psychiatric status demonstrate any effect. Overall, there is a slight improvement in affect across the sample and the (non-significant) correlation between BDI scores and changes in affect between the pre- and post test stages is  $-0.01$ . This may be due to the fact that for some depressed subjects this imaginal attempt to resolve problems, in an atmosphere which does not criticise their suggestions could lead to an improvement in morale. This is consistent with the helplessness inoculation hypotheses put forward by Seligman (1976). On the other hand being made to face unpleasant situations may weaken other subjects' beliefs in their ability to control their world, or they may experience depressing

associations, evoked by the descriptions of events, reminding them of unpleasant past experiences of a similar nature. Indeed, from Table 1, it can be seen that the largest increase in depressed feelings is recorded by the internal, female control group (0.50).

#### 6.5 Hypothesis 5 (Depressives show a restricted range of adaptive behaviour)

There is some evidence to suggest that the range of behaviours demonstrated by depressives, in response to these situations, is more restricted than that of the normal controls. Thus, if the number of categories of behaviour (1 to 8) used by the subjects in the total number of 7 situations is computed, the mean is 29.9 (max 56) for normals and 27.0 for depressives. with psychiatric controls showing even less (26.4) ( $p < 0.04$ ). This slight difference is consistent with depressives having a narrower range of behaviours from which to obtain positive reinforcement, or of being relatively more rigid in their use of those behaviours which they do have in their repertoire. This might particularly be the case with the external female depressives who report the narrowest range of all (23.3). As might be expected, internals report a slightly wider range of behaviours 29.0 to 26.6 ( $p < 0.01$ ), consistent with their using a full range of skills in all situations of stress.

#### 6.6 Hypothesis 6 (There are sex differences in styles of response to stressful events.)

Sex differences could be regarded as another source of

individual differences in responding and any effects which are present would clearly add to the personological factors discussed under hypothesis 1. Normally, its effects may be expected to be confounded slightly with those of locus of control and of depression, since women are normally more external than men and more prone to depression. However, this effect may be moderated in this sample as a whole since the women in it are neither much more depressed (14.23 to 13.45) or much more external (11.78 to 11.11) than the men.

Males show more active problem solving than females (31.96 to 27.55,  $p < 0.02$ ). Males also show a trend towards less active avoidance (5.69 to 7.27,  $p < 0.09$ ) and less of the helplessness response (4.48 to 6.46,  $p < 0.03$ ) than females.

In terms of the aggregated coping responses, males tend to show more coping behaviour than females (61.52 to 55.25,  $p < 0.05$ ) but there is an interaction involved here, with psychiatric status ( $p < 0.05$ ). Normal males use more coping behaviour than normal females (67.07 to 58.49); a similar effect is shown in the Psychiatric Control group, (males 59.76, females 50.16) but in the depressed group there is no difference (57.46 to 57.09). These data could be regarded as being consistent with sex-role stereotypes of the male as being the one who fixes things and the female as being the one who gets others to fix things for her.

An interaction is observed between sex and stress with regard to passive problem solving ( $p < 0.001$ ) Both sexes show the same amount of passive problem solving in the low stress situations (8.60 to 8.60) but men show more in the high stress situations (11.00 to 5.53) and women show more in the moderate stress situations ( 7.87 to 4.09). An interaction is also shown between sex and level of stress in

the situation with respect to the helplessness response ( $p < 0.05$ ). Whereas females tend to show more of the helplessness response across all situations, this effect is more marked in the high stress situations (14.33 to 8.63) than in the medium (2.04 to 1.34) and the low stress (3.01 to 2.68) situations. It is possible that this effect is due to a particular schedule of social training for women, which generates part of their stock of knowledge as to what to do in difficult situations. However, logically this effect should also be associated with higher levels of passive problem solving, (that is getting others to handle the situation for one) which, as noted above, does not occur consistently. It should also be associated with a sex difference in comfort seeking, which, although evident in the data, is not statistically significant.

6.7 Hypothesis 7 (External attributions of responsibility form a part of the defence mechanism against stress.)

This proposition can partly be tested by analysing the extent to which depressives firstly deny control in the situations to which they are exposed and secondly whether any such reduction in control is associated with lower subjective feelings of depression caused by the situations.

Information to test this proposition is provided by Anovars of the scores on the SECS and SDES (Table 1 p 55). Depressives do not differ from the two control groups in the extent to which they assume responsibility for the events described. But they do tend to regard those events as being more depressing than do the normal controls (depressives 6.50, Psychiatric control 6.21 and Normal Control 5.79

( $p < 0.05$ ). These differences are in the expected direction, since depressives have been shown to attend preferentially to the negative aspects of their environments (Lloyd and Lishman 1975). This pattern is also shown by the externals; they do not differ from internals in their attributions of responsibility, contrary to expectation, but do find the events more depressing than internals do (6.37 to 5.96,  $p < 0.05$ ).

It is possible that the failure to find differences between the groups in terms of the amount of responsibility that the subjects would assign to the events is due to the way in which the descriptions of the events were composed; if they were seen as being wholly unambiguous, the ratings may well have been limited in their range as a consequence.

Nevertheless, there is some evidence that those events for which the individual has responsibility are perceived as being more depressing, since the correlation between the overall ratings for these two variables is  $r = 0.24$  ( $n = 72$ ,  $p < 0.05$ ). However, when the correlations between ratings for individual events are computed, for the three psychiatric status groups separately, differences do emerge. Depressives produce the highest correlation between attribution of responsibility and of depressive effect, ( $r = 0.25$ ,  $n(\text{scores}) = 144$ ,  $p < 0.01$ ) with normals yielding the next highest, ( $r = 0.19$ ,  $n(\text{scores}) = 144$ ,  $p < 0.05$ ) and psychiatric controls the lowest, ( $r = 0.07$ ,  $n(\text{scores}) = 144$ , NS).

These data are consistent with the proposition that in depression the defence mechanism of denial of responsibility has broken down. Perhaps that breakdown leads to the state of events in which there is a tendency to reduce coping responses in the face of

events described as being of the persons own responsibility, (the correlation between SECS and coping behaviour is  $-0.20$ ,  $n = 72$ ,  $p > 0.10$ , NS) and in those situations which are regarded as depressing (the correlation between SDES and coping behaviour is  $r = -0.22$ ,  $n = 72$ ,  $p < 0.10$ , NS).

### 6.8 Anti-depressive Behaviour

In general, these subjects show similar patterns of response to feeling depressed to those deployed against stressful situations. However, fewer of the effects, as assessed by the Anovar, are statistically significant. Significant main effects are observed with respect to passive problem solving for the variables of sex (males 5.82 to females 2.60,  $p < 0.025$ ) and psychiatric status (depressives 6.49, Normal Control 4.28, to Psychiatric Control 1.86, reversing the effect found with respect to the response to stressful events,  $p < 0.05$ ); passive avoidance for LOC (externals 41.18 to internals 32.09,  $p < 0.05$ ); maintaining current behaviour for psychiatric status (Normal controls 28.86, Psychiatric controls 20.31, to Depressives 15.03,  $p < 0.05$ ). In this case, psychiatric status also shows an interaction with LOC ( $p < 0.05$ ) with externals showing greater variations than internals; whereas the internal depressives, Psychiatric Controls and normal Controls show roughly similar amounts of persistence of behaviour, 20.53, 23.65 and 20.87, respectively, externals show less persistence in the psychiatric groups; depressives 9.53, Psychiatric control 16.97 compared with normals 32.84.. Non-significant differences in the expected direction, that is to say similar to those observed in the response to the stress items, were

observed only in category 7 with respect to psychiatric status; categories 1, 2, 3 and 6, with respect to LOC; and categories 1, 3, 5, 7 and 8 with respect to sex.

The aggregate category of coping behaviour also does not show any significant effects on Anovar. The nearest trend is that observed in LOC (Internals 36.98 to Externals 31.08,  $p < 0.08$ ). The other aggregate category, that of active (as opposed to passive) behaviour, does show a main effect due to psychiatric status ( $p < 0.05$ ), upon Anovar. Normals (51.4%) show more active behaviour than psychiatric controls (47.6,  $p < 0.05$ ) and both show more active behaviour than depressives (36.5,  $p < 0.01$ ).

Only one of the sex differences in ADB examined in this experiment is statistically significant; that of passive problem solving behaviour (Males 5.82, Females 2.60,  $p < 0.025$ ). However, in terms of non-significant numerical differences, males show more active problem solving behaviour (9.72 to 6.45), passive avoidance (37.65 to 35.62), intention to amend future behaviour (0.79 to 0.68) and overall (aggregated) coping behaviour (35.39 to 32.65). Males also show less active avoidance (14.45 to 16.76), less comfort seeking (11.54 to 12.18), tendency to persist with current behaviour (18.52 to 22.94) and helplessness response (0.71 to 3.00).

Consistent with these very weak differences in the ADB patterns of males and females is a lack of difference in the number of categories of ADB employed by the subjects. Overall, males do report a slightly wider range of ADB (4.25 to 4.00) but this does not emerge as a significant effect in the Anovar of the data.

## Chapter 7

### General Discussion

#### 7.1 Limitations to the conclusions

It is very likely that some of the anomalies in the data in this study concerning the main effect of psychiatric status are caused by the ambiguous nature of the psychiatric control group which was used. Although such a group is usually considered to be a necessary experimental prerequisite, its composition is often not exactly specified. The group used here contained, amongst others, a number of people diagnosed as suffering from anxiety state, agoraphobia, personality problems, etc. Hence the values obtained for the various response probabilities must be treated with care, since inevitably, the behavioural patterns of any group depend upon its precise composition. Where the composition of a control group is precisely specified, then it represents another experimental parameter, one which allows the behaviour of another specific diagnostic group to be examined. Only then can it give rise to precise and testable predictions.

It is possible to regard depression as being one stage in a process, which starts with some kind of unpleasant event, or failure to achieve a particular source of reward, proceeds through the stage of the person making considerable efforts to overcome his problem (effort stress) to a stage in which uncertainty about the possibilities of success becomes manifest as anxiety and finally comes to the point at which ultimate failure leads to withdrawal, apathy and

depression (cf Klinger 1975).

If this model is assumed, then the control group used here would necessarily have contained individuals at different stages in this process of the development of depression. It would not be possible to assume that their patterns of behaviour were sufficiently distinct from those of the depressives to form a wholly satisfactory basis for statistical comparisons.

Amongst the three sample groups used here, considered in terms of this process model, the normals responding to the LCU stress items might be regarded as having been in the first, effort stage of the process. The experimental group should have contained predominantly those whose personality characteristics, or experience of stress had caused them to withdraw to some extent from their problems. But the psychiatric control group would have been likely to have contained a mixture of people who were experiencing each of the three stages. Those who were in the second, anxiety stage, might have been expected to demonstrate either the effort stress stage, or some component of partial withdrawal from the situation. Therefore the total score for the group, for any particular response probability, will depend on the chance distribution of these three types of adaptation within the group. Hence, for the purposes of this study, anomalies in the performance of the control group can largely be discounted. However, this control group does provide evidence that persons suffering from these kinds of neurotic disorders do show different patterns of responding to those shown by normals.

It may be remarked that a number of workers using the original technique to induce learned helplessness failed to find evidence of depression in people subjected to it. Instead their

subjects tended to report the occurrence of anger, feelings of frustration, etc (eg. Gatchel et al 1975). These findings are of course consistent with this process model of depression. The difference between those inductions and the technique used here is that after he had reported the actions which he felt he would take, the subject was allowed to draw his own conclusions regarding the outcome of his actions. In some cases he will have assumed that they were at least moderately successful. Thus, in the case of the events in which there were arguments with other people, the outcome of the event was often described as "It would all be forgotten", that is to say, the blockage would be removed and would have no further effect upon the individual.

In the stress events stage of this experiment, subjects were, in effect, exposed to removable blockages between themselves and sources of reinforcement. There was little evidence of overt hostility and anger on the part of the subjects, when they were presented with the items, possibly because of the relationship which had been built up with the experimenter. However, in their reports of their reactions to the events, the subjects frequently reported that they would experience feelings of anger, frustration and hostility towards those involved. Presumably, being able to convince themselves that they would cope with the events led to the dissipation of these feelings at least as far as they might have occurred within the experimental situation. A possible extension of the experimental technique, which was not pursued in the current study, would have been to assess the extent to which the subjects believed that their actions would lead to positive results. In this context, it would be predicted that beliefs in positive results of their actions would be associated

with a positive change in subjects' mood, as measured on the CMS, between the pre- and post-experimental testings for mood.

Another weakness in this experiment comes from the difficulty of specifying the amount of stress which is experienced by people in the different situations. In particular, many feelings of frustration and unhappiness were ascribed to the situations, nominally of low stress, in which the person's holiday plans were upset (6C,6NC). It may be that these reactions were to the stress caused by the unpredictable withdrawal of an expected positive reinforcement. This sudden withdrawal may have caused these events to appear subjectively to be more stressful than more predictable, and inherently more threatening, events in work and in everyday life. This might then have led to a sharper change in behaviour than would otherwise be predicted by the general level of stress assigned to the item under the original Holmes et al (1967) evaluation of the LCU event.

These arguments do suggest that the analyses of variance could have been repeated using the subjects' own ratings of the stress-inducing capacities of the events to specify the main variables. This was not felt to be wholly justifiable since the subjects ratings, although adequate for the purposes for which they have been used above, might not be sufficiently accurate, in terms of parity of ranges between subjects, to specify such variables. However, it would be an exercise very much in keeping with the person-environment fit models of stress propounded by workers such as Van Harrison (1978).

Within these limitations, it is now possible to set out some conclusions which may be drawn from the study as a whole.

## 7.2 Parallels with Rippere's studies

Rippere (1976) reported that certain ADB strategies were used which her respondents found were not successful in relieving depression. In this study it is evident that a large proportion of behaviour directed towards the stressful situations, by normal subjects, falls into the category of avoidance or defensive behaviour (37.22%), although not as much as is reported by the two psychiatric groups. The same is also true with regard to the normals' reported selection of ADB in the event of depression itself with 31.79% falling into these two categories. It may therefore be reasonably implied that these behaviours do not necessarily fail, but form part of an integrated repertoire of responding, many components of which will be deployed towards a stressful event. It is perhaps the balance between the coping and the avoiding behaviour and the sequence in which the various strategies are applied which is crucial to success rather than the specific items which are in the repertoire. Only where the position of the behaviour in the sequence of responding to an incident is specified, together with the goal of that behaviour, in terms of whether it is intended to provide temporary relief or long term resolution of a problem, can its effectiveness be assessed.

The subjects in this experiment were not asked to evaluate the effectiveness of their behaviour, since attempts to do so would have distorted the results. Instead, a non-committal support was supplied for all responses, by the experimenter during the interview. It is therefore not possible to supply a direct assessment of the differences in effectiveness of their behaviour experienced by the various sample groups. Nevertheless, some subjects did supply some

self-evaluation by implying at the end of a sequence of responses that their problem would be solved by their own behaviour. Thus S25, having described his responses to event 2C, said, "I think I would come out on top...with things working my way".

On this basis we may conclude that much of the behaviour reported by subjects was regarded as correct. In that respect, the implicit bias caused by Rippere's (1976) instructions to subjects may not have been totally overcome. But what did emerge, in addition to what might otherwise have been prompted by her question "what is the thing to do?", was the set of strategies which the subject was likely to deploy against the residual tensions of the situations, and which would have the effect of alleviating stress. Also elicited were the responses which were regarded as being inevitable by the subjects insofar as they assumed that their personalities allowed of no other behaviour, even though it might not have been right.

It was suggested in the introduction, as an extension of Rippere's findings, that because of their beliefs internals should prefer, or otherwise regard as more correct, active and skill-based activities. To the extent that they did show more active problem solving behaviour and more aggregated coping responses than externals this is supported. Thus, although there was no difference in their overall range of behaviours directed at stressful events and at depression, there were differences in the type of behaviour which they deploy.

Rippere (1977) found that depressives reported a slightly wider range of available ADB than normal controls, but one which was less successful. In this study, there is no evidence regarding differences in total range of activities reported but it is clear that

the depressives used a narrower range of categories of behaviour than did the normals, for the stress situations. That restriction is, of course, confining them in everyday life, relatively speaking, towards the defensive strategies, whilst by comparison normals will be using coping patterns more freely. When, on the other hand, the response to the depression item is examined, there is no evidence for depressives using a narrower range of categories of ADB than normals.

### 7.3 Causes of Depression

The straightforward interactionist approach to depression obtains only modest support from this study, insofar as significant interactions were observed between the personality component, Locus of Control, and the main situational variable, level of stress, in just two out of the eight categories of response (active problem solving and active avoidance) and not in the results for the aggregated response category of coping behaviour. This may perhaps be because externality of belief and depression are co-determined (as will be discussed below) thus rendering the former an inappropriate variable with which to investigate such interactions. In the absence of a clear pre-eminence of the interaction terms, it is reasonable to examine the hypotheses concerning the situational variables and the personological variables in their own right.

It was observed in Chapter 1 that externality of belief and depression have been induced experimentally, using very similar techniques (Phares 1962, Seligman 1974). There is thus a difficulty in distinguishing between the two phenomena both logically and experimentally. In this study it can be seen that over a period

ranging between 24 and 60 months, the subjects' LOC scores were more stable than those on the BDI (test-retest  $r = 0.60$  for LOC,  $r = 0.44$  for BDI). However, in the regression equations calculated in order to predict coping behaviour at the time of the initial examination, BDI scores accounted for more variance than LOC, and the latter added no significant amount to the proportion of variance accounted for. Also the LOC scores on the first occasion of testing only correlated with the BDI scores on the follow-up to an insignificant extent ( $r = 0.28$ ,  $n = 22$ , NS) whereas the BDI and LOC scores at follow-up did correlate more substantially ( $r = 0.43$ ,  $n = 22$ ,  $p < 0.05$ ). Evidently, externality covaries with depression but does not predict it in the relatively distant future.

It seems likely, therefore, that the external beliefs may be induced in the subject by those events which also precipitate his depressed feelings, rather than the externality of belief being a fully independent pre-disposing factor. In other words, both phenomena may emerge together from the depression-inducing process suggested by Klinger (1975) and cited above.

It would therefore seem reasonable to regard externality of belief as a component of depression. This would agree with Abramson et al's (1978) reformulation of Seligman's theory of learned helplessness, in which it is absorbed as part of one of the three attributional factors affecting the extent of depression. This is also consistent with Beck's (1976) theory of depression in that certain of the aspects of the external belief system, such as the belief in an unjust world, an unpredictable world and a world run by powerful others (cf Collins 1974), would clearly constitute negative thoughts when they are believed by an individual regarding his environment.

Locus of Control theory also encounters some problems with regard to the difference between attributing responsibility for an event to oneself and believing that one has the skills and ability to cope with it. These two aspects of the belief system are not separated by the LOC scale as presently constituted. It may be for this reason that there was no difference between internals and externals in the extent to which they attributed responsibility to themselves for the events to which they were responding. Indeed, the numerical difference observed was in the opposite direction, implying that externals assumed more responsibility for the events than did internals. This was particularly so in the case of the depressed male external subjects. It may be suggested that if depression is partly caused by a breakdown in the ability to use the defence mechanism of denying responsibility for events, then such external beliefs as exist independent of the level of depression could act as an amplifier, making the mood yet more depressed.

There is a little more support in this study for the hypotheses concerning situational determinants of depression. Thus the greater the stress involved in the situation, the more the level of coping behaviour was decreased. Also, it was evident from the discussions with some of the depressed subjects that they had suffered major problems in the period preceding the depression, such as loss of, or threat to, the health of a close relative; change of, or threat of, loss of a job; severe financial difficulties; etc. (A more detailed survey of this aspect was not possible, since the case records were not made available to E.) Thus, the situations placed before these subjects by E could be regarded as having added substantially to the total level of stress which they were already

experiencing. Presuming that time distances the individual from the effects of such trauma (which are occasions of withdrawal of sources of positive reinforcement) then recovery should be associated with an increase in coping behaviour and this was indeed the case.

Where such trauma are concerned, it is interesting to speculate on the role of the shock response, which was tabulated in these analyses under the heading of Helplessness responses. This was reported by both normal and depressed subjects. It is exemplified by S 38 (Appendix 3) who responded to the car accident item with "I would fall apart...become totally withdrawn." Such a response, to any event, clearly prevents the individual from carrying out any positive action himself and may therefore lead him into further difficulties. Even though this pattern of response has few positive aspects to it a number of subjects reported this kind of reaction, as being a fixed part of their personalities.

It may be speculated whether this is some malfunction of the individual's biological fight or flight system, which leads to him freezing into immobility. It is an effect infrequently reported as part of the physiological response pattern of the human being to threat. On the other hand, it may be a natural consequence of having a highly labile or "weak" autonomic nervous system as is argued by Eysenck in his theory of neuroticism (1947). A further alternative is that this is a learned response, acquired through classical conditioning or through social learning processes. If this is the case than it would seem to be something which is incorporated in beliefs about female patterns of adaptation, for the helplessness response was highest in the females in this sample, and was often associated with a tendency to rely upon someone else to sort out the

problem.

However, this line of argument also assumes that the situation interacts with the individual's nature to produce an effect. A great problem is that of the exact nature of this interactive process. One possibility is that the interactions have a cyclical nature, with the agents taking the role of cause and effect alternately. At any point in time, an individual who is feeling moderately depressed may, according to these data, be expected to be more likely to indulge in avoidance or defensive behaviour which will not improve the chances of his attaining long-term goals thus causing him to fail to obtain satisfactory levels of reward out of any event which he has to handle. If he chooses to interpret this failure as being due to personal factors, such as his innate ability or personality, or any other factors which are both stable and generalise over the majority of his activities in life, he may well feel loss of self-esteem and a further depression of mood as predicted by Abramson et al (1978) in their reformulation of Seligman's theory. The mood so caused will in turn become the cause of further reductions in coping behaviour in the face of new challenges. Each stage will therefore act by exacerbating the next. Such interactions are not available for statistical inspection in the interaction terms obtained from analyses of variance.

One may describe these alterations in mood as being due to a reduction in response contingent positive reinforcement, as is suggested by Lewinsohn, in his (1974) theory of depression. But one may equally describe the lack of behavioural output as being due to negative cognitions, such as are proposed by Beck (1976). In terms of locus of control those cognitions will incorporate beliefs about lack

of control, lowered expectancies of success, etc. They may also suggest to the individual that the problem which he now faces is insurmountable, in which case, psychologically, he will be facing the kind of unyielding environment which is the centre of Seligman's original theory of learned helplessness. Only if it is regarded as necessary that one of these cognitive, affective or behavioural steps should be the primary one, do all these theories clash. But if each is regarded as constituting one part of the same cyclical process, the theories cohere satisfactorily. Each factor may be regarded as having its part to play in the condition of anxiety, although they may not always occur synchronously. In particular, all three of these components help to explain how the individual comes to make the blockages which he meets in his life so apparently insurmountable.

Similarly, whereas this study may conclude that external beliefs are co-determined with depressed affect and therefore do not differ from depressed affect, which is a properly parsimonious interpretation of the data, a cyclical interdependent relationship may equally well be possible between externality and depressed mood. Thus, perceptions of lack of control may produce depressed, apathetic feelings which in turn create further feelings of lack of ability to control events. Such a process would be cognitively self-accelerated and would not have to depend on any reduction in externally available or presented reinforcements. It gains support from the finding in this study that the highest amount of Passive Avoidance was found in the External Depressives.

#### 7.4 Future Possibilities

The experimenter certainly gained the impression that this type of interview technique encouraged subjects to participate fully and easily and that it did tap their true response patterns. A number of subjects overtly commented that what they were suggesting was the obvious thing to do, clearly believing that what they would do was the normal and natural thing to do, oblivious of the fact that others would report quite different responses with equal confidence. Some also volunteered the information that they were describing past patterns of behaviour; S52 responding to item 1NC said, "I've had similar situations happen and those were the reactions I had."

It would therefore seem to be a useful measuring technique for examining people's repertoires of skills more or less directly in preparation for later skills training exercises. It would also provide the basis for discussions with clients concerning the effectiveness with which they go about their everyday lives. This would relate not simply to the process of dealing with stressful life events, part of the process of what is now termed stress-inoculation training (eg Meichenbaum 1976), but also to managing the state of feeling depressed itself. There would appear to be effective strategies for handling depression which may be abstracted from these patterns. But it is also important, in setting up any remedial regime to ascertain what the individual feels is the natural thing to do, if only to anticipate the bad habits he may relapse back into when the experiencing difficulties in applying the skills taught during therapy.

However, a caveat must be entered. It is clear that certain

of these items produced responses which were directly related to class differences, especially with regard to assumptions about the extent to which people in different work situations control the outcomes. Thus a frequent response of working class subjects to job situations such as 5NC and 3NC was to make statements similar to those made by S33, in response to event 5C: "If someone is your superior, you just have to sort of fall in with what they tell you to do." Others, from the middle class, tended to assume that they had some responsibility in the issue and could even work to reverse the situation. Clearly, behaviour which is adaptive in middle class situations is unlikely to have quite the same effect in working class milieux.

The advantage of this technique would be that it allows the therapist to indicate to the client how his patterns of behaviour may be ineffective in areas outside those which he sees as containing his current problems. In particular it picks up the tendency on the part of the individual to overgeneralise in his behaviour and his interpretations of the world around him and to indulge in behaviour which itself induces a downward spiral. The record of S38, responding to item 5NC, (Appendix 3) provides a good example of the development of a sequence of negativistic behaviour. From the end of his responses to the first question (what would you do immediately?) this subject describes a sequence of behaviour in which, through bitterness, he withdraws voluntary aspects of his services from the work situation, in a punitive fashion, thus minimising the chances of his obtaining future positive reinforcement from his supervisor. "My work would not be to the same standard, neither would I work as fast, and I would not bring work home...Anything which I regard as work over and above the call of duty would not get done. I would be far less

inclined to help out my employer, when he found that he needed help."

This investigative routine would also allow the damage which has been caused to the individual's otherwise normal strategies by an excessive amount of recent stress, to be made evident to him. It would also allow the therapist to ask the client how he would personally feel if people behaved in those ways towards him, one of the steps towards developing empathy with others in one's life situations.

APPENDIX IThe Stories Used1 C

I want you to think of the person who is closest to you in your own family but not your wife/husband or son or daughter. (If there is no-one who fits this, then your best friend.) I want you to imagine that you have been out together somewhere for the evening, with some friends, and that you are now returning home by car. You are driving the car; it is dark and wet and late. Suddenly the car skids on the wet road and crashes. You are hurt but your passenger is killed.

1 NC

I want you to think of the person who is closest to you in your own family but not your wife/husband or son or daughter. (If there is no-one who fits this, then your best friend.) I want you to imagine that one day you return home to be told that that person has been knocked down by a car while crossing the road and has been killed.

2 C

I want you to imagine that you have a good job which pays well and which you like doing. One day you are asked to see the boss who tells you that he has found your work unsatisfactory and that you are dismissed.

2 NC

I want you to imagine that you have a good job which pays well and which you like doing. One day you arrive at work to find that the boss of the place has been dismissed for embezzling the funds and everyone is out of work as there is no money to keep the place going.

3 C

I want you to imagine that you are running your own small business which is essentially providing a steady income. You decide on an ambitious project which you believe will bring in a considerable extra gain. This project fails to work out successfully and you are forced to change to a much less ambitious project in order to avoid financial ruin.

3 NC

I want you to imagine that you are working for a firm or an organisation and that you really believe that what they are doing is important and valuable. You are engaged in some particular work which your boss has described as being particularly important. You have been working on this for quite some time. One day he calls you in to explain that he has been told that this project is no longer to be carried out and that you are to do something else instead. In effect, months of your work are down the drain.

4 C

I want you to imagine that you are discussing with your girl

friend/ boy friend/ husband/ wife, some particular purchase which you have just made and that the matter develops into what may be described as a typical row. At the end of it all one of you abruptly leaves the room or even the house.

4 NC

I want you to imagine that you are discussing with your girl friend/ boy friend/ husband/ wife, some particular purchase which he/ she has just made and that the matter develops into what may be described as a typical row. At the end of it all one of you abruptly leaves the room or even the house.

5 C

I want you to imagine that you are working at a job in which you are very much involved. One day, while your immediate superior (your boss, foreman, supervisor or whatever) is away, an important problem arises which you use your initiative to solve. When he or she returns your superior finds out what you have done and tells you that you have acted quite wrongly. Whatever you say makes absolutely no difference at all. So you are having a row about it in which he or she just won't listen. At the end of this, he or she tells you in no uncertain terms how you should act in the future.

5 NC

I want you to imagine that you are working at a job in which you are very much involved. One day you arrive at work

slightly later than usual due to a traffic jam caused by a road accident. You find that your immediate superior (your boss, foreman, supervisor or whatever) is waiting to discuss something important with you. He or she is very angry at your lateness and whatever you say makes absolutely no difference at all. So you are having an argument or a row about it in which he or she just won't listen. At the end of it all he or she tells you not to be late again or there will be serious consequences.

6 C

I want you to imagine that you have booked to go away on a holiday abroad and that you have been looking forward to this holiday for the past few months. When you arrive at your destination you find that the hotel which you picked out of the brochure has not been completed and you are put instead into a much poorer one.

6 NC

I want you to imagine that you have booked to go away on a holiday abroad and that you have been looking forward to this holiday for the past few months. When you arrive at the airport to leave, you find that the holiday firm, a very well established one, has collapsed suddenly overnight and that your holiday is cancelled. Also, there is no way in which you can get your money back at that particular point in time.

GD

I want you to imagine a day when, for no apparent reason, you just feel downright depressed and miserable.

LAM C

I want you to imagine that you meet someone who tells you a few good tips on how to succeed on the stock market. You act on his or her advice, perhaps they stake you, and you work out some moves of your own. All-in-all you are very successful and at the end of a period of time you find that you have made £250,000, if you cash it all in.

LAM NC

Do you do the Football Pools? Well I want you to imagine that one day (purely by chance) you decide to do the Pools and for once you are entirely successful and you win dividends to the value of £250,000.

APPENDIX IIProtocol from Subject number 38.6C (Spoilt Holiday)

(Q1) Be very angry. I'd be faced with the choice of ruining the holiday by stirring up trouble or whatever one wants to call it. Or by making the best of a bad situation and a lot would depend on what the new facilities would be able to provide and what we were looking forward to out of our holiday. The standard of hotel, as far as I would be concerned, wouldn't be so important as the facilities that were available for us to use our time in the way we wanted to use our time. I would still experience anger that I had been, be it willingly or unwillingly, deceived but I would give notice that I would want a refund in part, or whatever, the money we'd paid for the holiday but would sort that out or attempt to sort that out when I came back rather than during the holiday. Later I'd have a drink of ale or whatever the local alcoholic beverage is, make sure my wife had the same, in an attempt to unwind the tense feelings and emotions and attempt to get both of us in a positive frame of mind for enjoying the rest of the holiday as best we could.

(Q2) Again that would depend on the area of the hotel. If the hotel offered similar facilities to those I was expecting, in terms of ease of getting to swimming water or sunbathing or what have you, then the effect of the lower standards would be minimal. If those facilities were not what I wanted then I would get increasingly irate. And on the assumption that there is somebody to contact I

would attempt to get them to find us a place that would satisfy our requirements for the holiday.

Q3) There would reach a point in time when it would become fruitless or pointless to agitate assuming that the holiday was still a disaster so then one would attempt to make the best of the situation we had. Depending on the experience of the whole fortnight one would actively pursue redress from the company I had booked the holiday from, if necessary through a solicitor. Depending on the results of the exercise, deciding not to use a particular travel agent or tour operator again. Also recommend to others to take our experiences into account when they consider their holidays in the future.

#### 2C (Loss of Job)

(Q1) Again I would feel anger, frustration, coupled with a certain amount of despair. I would go along to the local Job Centre and put my name down as an individual seeking employment. Have a look at the jobs available, to see if anything interested me. Make sure I got an evening paper and actively looked for a job through the paper.

(Q2) I'd have a lie in bed because there would be nothing else I could do. That would be a way of achieving something positive. Because I'm one of the people who always likes to stop in bed in the morning. Would realise that we would have financial problems. Tell the Building Society what the situation was and what facilities if any they could offer us. Or what we could expect from them if money dried up and similarly phone the Bank.

(Q3) I'd find a job somehow and initially it wouldn't

really matter what, so long as it paid more than I would get on Social Security and then it would be attempting to hold the job down while continually attempting to find a better one until such time as I found that our financial needs and personal needs were satisfied.

4 NC (Argument with Spouse)

(Q1) Fume. And it would be my wife that had left the room. There would be nothing I could do about the purchase because it had already been made. And if my wife had made the purchase she would have regarded it as essential anyway and I would find myself in a normal situation of not being able to finance what are regarded as essential requisites which I would then find depressing. It would end where there would be no communication between us and my wife would go to bed at the normal time and I would stop up. I'd end up listening to music until about 2 o'clock in the morning to calm me down at which point I would go to bed.

(Q2) I would become totally withdrawn because I am bearing in mind that the purchase which has been made would be a major draw on finances. I would review the family budget to see what could be cut out to pay for it. And if there was nothing then attempt to get a bank loan to cover it and if that wasn't forthcoming I would have to put it on a credit card facility.

(Q3) Gradually over the following weeks I would become less withdrawn and more myself, accepting the new state of parlous finance and attempt to solve it in the best way I could. I would feel a strong urge to go and spend a similar amount of money myself on something that I wanted but would live with the situation in an imaginary world

and attempt to prevent myself from compounding the problem until the emotional state wore itself out.

5 NC (Argument at Work)

(Q1) I wouldn't do anything. I would feel extremely angry, frustrated and annoyed. I would say nothing at all on the grounds that whatever I say would make the situation worse. And control my emotions as best as I could. And if I found that I wasn't able to control them I would ask to be excused until such time as I could get a grip on my emotional stability, which would be a matter of 10 minutes or so. I would feel upset that my superior was not able to take account of my devotion to duty, for want of better expression, and that the reason for the lateness was entirely genuine. The realisation that my devotion to duty was not taken account of would make me less inclined to be as devoted in the future.

(Q2) I've got my family to think of; I would make sure that I got to work on time. It would make me bitter and I would find myself finding a grudge against my superior. My work would not be to the same standard, neither would I work as fast and I would not bring work home.

(Q3) I would organise my work routine to fit in with the time and disciplines that my superiors wanted. Anything which I regard as work over and above the call of duty, would not get done. I would be far less inclined to help out my employer, when he found that he needed help.

1 C (Death of a Relative)

(Q1) I would fall apart. I would regard myself as responsible for the death and would be extremely self critical and would be desolate that there was no way that I could rectify the mistake. I would become totally withdrawn and would not listen to reason. I would just become more and more withdrawn.

(Q2) Total depression, sorrow. Find myself remembering all the common memories that we had together, which would tend to increase the depression and eventually I would therefore tend to block off from it and stabilise my own emotional state.

(Q3) I would visit the grave once. Basically to say that I was sorry. I would have a cry and then I would block off because there would be nothing else I could do.

3 C Failure of a Work Project

(Q1) It would depend on the reasons for the failure and how much investment had gone up the spout. I'd be cheesed off, which would affect my performance on the smaller project which, would make that less liable to success, therefore I'd have to sort myself out pretty quickly. Again I would have to put the ambitious project behind. Before doing that I would have to analyse the reasons for the failure and on the assumption that one is doing it in conjunction with a bank loan, make sure that the Bank held the same view that I have and eventually arrive at a commonly agreed reason why the project was a failure and then make sure that those reasons were not inherent in the running of the smaller project, rather the opposite.

(Q2) I would feel a certain amount of shame that I could have got myself into a situation which I shouldn't have got into. I

think I'd take my wife out for a meal.

(Q3) Week to week review the state of the new project and see whether it was growing or growing smaller. If it were growing I would become increasingly more self-confident and less easily controllable in terms of ambition. If it became smaller or wasn't going as well as it should, consider that shutting down the whole project to avoid another failure, sooner rather than later.

GD (General Depression)

(Q1) If I was at work I would go to work and carry on in the normal way, doing the best that I could accepting /what/. I would do the best I could with the situation that I found myself in and leave it at that and move onto the next item. If I was not at work I would attempt to get out of the house. Or if I could have a game of squash, I would have a game of squash or go for a walk or/ if that wasn't possible I would listen to music that I found pleasant and soothing and attempt to raise the level of mood in that way. Have a decent breakfast. I would tend to drink a lot of tea or coffee, I would feel an urge to whip down to the pub and have a pint of beer but I would attempt to stop myself because it's, in the short term, an easy way out and, in the long term its expensive and soul-destroying. But if my mood did not shake out by the evening time then I probably would go down and have a pint or two pints.

(Q2) That would depend on the success or otherwise of the previous day. I would continue to try and elevate my mood status and at the same time prevent anything that happened that particular day from affecting my mood by, if I'm at home, the only thing that can

happen that makes me depressed is the spending of money. So I would make sure that I had the cheque book, credit cards, and make sure there's no money spent. If I was at work, I would end up going to the pub at dinner time and having a pint or two of beer and and the meal. And while I was out, cultivating a Sod'em all attitude which I would be able to maintain until the end of the day.

(Q3) Making sure to the best of my ability that life wouldn't get me down, or minimising the downs aspects of life and attempting to highlight the up aspects of life. In other words, continual attempt to maintain my mood level at the highest point I could.

LAM (Large Amount of Money Won)

(Q1) I wouldn't say anything until I realised the 250000, in cash, in my bank account. So that's what I would do I would cash it. I would then pay all my debts off, except the mortgage, I would leave that standing. Then I would go out and have a pint, all on my own, in the quietest pub I could find and just think how I feel with not having any financial worries. I would feel elated. I would believe myself to be in an imaginary situation rather than a real situation and in all honesty I would be at a complete loss as to what to do, for the first few hours. Going on a holiday to (place) in the best hotel in the town for a fortnight, with my wife and the children. Assuming its not a run down hotel when I get there! And I would find old habits dying very hard; I would find myself still attempting not to spend money and I would find it a very strange situation and I would still feel as if I was wrong in believing that my bank account held so much money.

(Q2) There would come a point in time when the realisation sunk in that the money was there. At which point in time I think I'd give my wife 5,000 and myself 5,000 and just let us fritter it away.

(Q3) I would want to use the money effectively, and in a worthwhile manner. I would attempt not to change my working life or home life in any major way but the money in the bank account, assuming that nobody else was aware that I had that much would take all of the pressure out of life and would enable me to enjoy life and see life in a far better or far more different context instead of looking at it through dark-coloured glasses, they would be rosy coloured glasses. I would become far more relaxed, far more easy to live with far more easy to work with. I wouldn't need to consume alcohol for relaxation or shall we say, to use alcohol to control or /not suppress/ calm the emotions down. It would be a case of enjoying the social atmosphere and to be able to be as happy as other people seem to be.

### Appendix III

#### Classification of Responses

##### 1) Active Problem Solving

a) Seek information- from friends, superiors, professionals, books, etc. Check, or double check to ensure that the situation is as it appears to be. Discuss the matter with others. Seek advice from others.

b) Attempt to Reverse Situation - Attempt to get others to return to the conditions obtaining before the incident. Undo the cause of the situation, forgive, make restitution, apologise, make excuses for past behaviour. Attempt to make others understand one's point of view, attempt to make compromises with others. Seek restitution or compensation; complain to this end.

c) Get to grips with the Problem - actively plan, organise and carry out an adaptive strategy for resolving the problem, derived from the subject's own thinking. Think it over in an attempt to work out causes of the situation and what can be done about them. Review all aspects of the situation afterwards. Briefly and actively assess the current position (as opposed to dwelling on it for a long time). Reflect on the situation as an academic problem.

d) Leave the Area of the Problem - leave the situation in order to get the same or similar rewards elsewhere as would have been

obtained from the original source before the incident.

e) Get something out of it - irrespective of the outcome with regard to one's original aims, extract some gain, or "learn from it".

f) Keep Control - of emotions and temper. Take steps to lower the tension, sleep on it, let things calm down, etc.

g) Planned Precautions - mention of steps taken before the situation occurs to prevent or reduce problems. First aid kit, emergency numbers to ring, fire extinguishers, holiday insurance, etc.

## 2) Passive Problem Solving

a) Participate in Ritual - take part in a relevant social ritual, funeral, etc.

b) Use Formal Channels - seek solution or retribution through official or legal channels, Office of Fair Trading, solicitors, ABTA, Police, doctor, Samaritans, British Embassy, Citizen's Advice Bureau.

c) Rationalise - report event as "not important", "not my fault", pass the buck, make excuses to self for past behaviour, justify accepting the situation as it stands, deny that things could

be otherwise, put it "down to bad luck". Feel that things could have been worse. Expect that others will come to terms with the situation in time.

d) Accept Outcome Without Considering it Further - put it down to "experience", see it as a "lesson", be "philosophical about it".

e) Rely on Others - expect or get someone to resolve the problem for one, lean heavily on others, assume that others will do it without being asked.

f) Debase oneself - plead, humble oneself to regain the status quo.

### 3) Active Avoidance

a) Sport - participate in any sport, take physical exercise, go for a walk, etc.

b) Find a Scapegoat - take it out on someone else, make someone else suffer, score off others.

c) Unrelated Activity - engage in work, etc. which is essentially unrelated to the problem area; mow lawn, do housework, go shopping, dress up, go for a drive in the car, play musical instrument.

d) Leave Situation - leave the stress situation without gaining any rewards from it. Erase traces of people and things involved in the incident. Make contingency plans for opting out.

e) Help Others - where this will not improve or reverse the position of the subject in the incident. Give comfort to others.

4) Passive Avoidance

a) Avoid others - passively remain away from others, sulk, hide, etc.

b) Spectate - watch sports, watch television, cinema, listen to radio, records, etc.

c) Consumption - eat, drink (either stimulants or alcohol), smoke, smoke marijuana, etc.

d) Take Drugs - proscribed, prescribed or proprietary.

e) Fantasise - have relevant fantasies in which things come out right, irrelevant fantasies about things other than the immediate problem.

f) Inactivity - have a sit down, go to bed, be apathetic, "do nothing", take a bath, make excuses for not doing anything.

g) Ruminates - feel upset, regret, guilt, disappointment, self-pity, depressed, grief, resentment, rejected, annoyance. Mope or fume. Blame self, worry. Think of suicide. Dwell on the past, on what might have been. Bear grudge.

5) Comfort Seeking

a) Seek Comfort from Others - solicit sympathy, inform others, complain to non-involved others.

b) Emotional Outburst - cry, swear, throw things, slam doors. Be irritable, angry, have a row, cause a scene, moan, "harp on about it", be "sensitive". Laugh at it.

c) Go to Church - say a prayer.

6) Maintain Current Behaviour

a) Conceal Problem - stress, depression, etc. from others completely.

b) Ignore Effects - pretend that there is no problem. Claim that it will cure itself. "Will forget it in time." Act as if nothing is happening, carry on as usual, snap out of it, pull self together, "Not let it bother me", try to forget it.

c) No Change in Behaviour - will not alter current or

future behaviour as a result of the incident, will not back down or give in.

d) Accept Situation as it Stands - get on with whatever has to be done next, "wallow in it", give it up as a bad job, "sign on the dole", etc.

e) Start all over Again - without looking at causes of past failures, lessons learned, etc.

#### 7) Amend Future Behaviour

a) State Intention to Change - would avoid situation in future, do things differently, not make the same mistake. Be a better person.

#### 8) Helplessness Response

a) Useless to Respond - Feel that one is up against a brick wall, that it is a waste of time to try anything.

b) Lack of Response - "don't know" (in the absence of a clear positive response). "I'm hopeless", feel helpless, lack the confidence to take any action at all, feel a failure, feel totally lost, "wouldn't be much I could do about it".

c) Panic - freeze, faint, have "hysterics", feel panic, shock, numb or shattered. Reject information. Have a breakdown, become withdrawn.

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