SELF-ATTENTIONAL PROCESSES IN ANXIETY: AN EXPERIMENTAL STUDY

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Thesis submitted for the degree of Doctor of Philosophy

THE UNIVERSITY OF ASTON IN BIRMINGHAM

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SUMMARY

Self-attention research has demonstrated a relationship between dispositional self-focus, anxiety proneness and fear arousal. In addition, the effect of self-focus manipulations on approach-avoidance tasks involving a feared stimulus are strikingly similar to the effects obtained from manipulation of other cognitive factors such as perceived self-efficacy. A number of experiments were designed to explore the relationship between self-focused attention and anxiety. Data from the experiments demonstrate that self-attention influences a variety of cognitive variables which have been considered as central factors in anxiety. Concomitants of self-focus are increased awareness of physiological arousal and overestimation of such arousal, the identification of self-discrepancies, cognitive failures and performance deficits and the activation of physical threat concepts in memory. These factors are conceptualised as central in the negative evaluation of physiological arousal and coping resources in anxiety.

Clinically anxious individuals typically have high scores in dispositional self-consciousness and body-consciousness. In patients suffering from generalised anxiety or panic disorders maladaptive self-focusing tendencies can be related to specific life stressors which render aspects of the self salient.

An analysis of the ideational component of anxiety revealed three subcomponents; negative social ideation (worry about other people's reaction to the self), negative somatic ideation (worry about physical symptoms and health) and obsessional ideation (the experience of uncontrollable and repetitive thoughts) which were differentially associated with measures of dispositional self-focus. The frequency and content of anxious worry is associated with specific self-focusing tendencies.

It is proposed that the 'attentional style' of the individual is an important determinant of the nature and intensity of their affective response in a threatening situation. A self-attentional model of anxiety is proposed and the complex interaction between self-focus and other cognitive factors in anxiety such as appraisal of arousal and coping resources and perceived levels of self-efficacy is discussed. The model presents new directions for research and therapeutic intervention in anxiety.

SELF-ATTENTION : SELF-CONSCIOUSNESS : ANXIETY : WORRY
SELF-EFFICACY

DEDICATION

To my Mother and Father for the most important teachings.

ACKNOWLEDGEMENTS

First I offer my warmest thanks to my supervisor, Dr D R Davies, of the Applied Psychology Division at Aston University for his guidance and support during the period of this research. Sincere thanks also to Dr G Matthews for his suggestions on statistical analysis, in particular his advice on the data analysis reported in Chapter 4. To Dr S M Khan of the District Psychological Services Department, St Georges Hospital Stafford, thanks are due for permission to carry out research in her department. Last but by no means least I should like to thank everyone who participated in the experiments and Miss J Beardmore and Mrs P Newman for their patience and care in typing this thesis.

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Chapter 1

1.1 INTRODUCTION

Personality and clinical psychologists have given little consideration to the behavioural and emotional consequences of attentional processes, in contrast to the early contributions of Titchener and James who observed the importance of attention as a determinant of behaviour. In William James' words, 'my experience is what I agree to attend to. Only those items which I notice shape my mind - without selective interest, experience is an utter chaos' (James, 1890). An exception is provided by some of the text-anxiety literature, which has been studied primarily because the cognitive consequences of test anxiety are easily discernible in terms of task performance. Decrements in performance which are characteristic of highly test anxious individuals have been attributed to attentional processes (Wine, 1971, 1982a, b; Sarason 1972, 1975). The test-anxious individual engages in off-task cognitive activity characterised by negativistic and self-evaluative ideation. Such 'worry' is an attentionally demanding cognitive activity which results in less attention being paid to the task at hand. More simply put, highly test-anxious individuals engage in self-focusing behaviour rather than task-focusing in evaluative situations.

Recent research has shown that self-attentional processes are associated with depression. (Smith and Greenberg, 1981; Ingram and Smith, 1984). Self-attention appears to play a significant role in anxiety as well, (Dickstein, Wang and Whitaker, 1981; Wells, 1985).

This review was prompted by the apparent lack of theory on attentional processes in anxiety and by recent research on self-attention and affective states.

In general cognitive analyses of anxiety have previously focused on the content of thought which typifies that state (Becke, Laude and Bohnert, 1974; Hibbert, 1984), and the role of appraisal processes in the elicitation of stress and coping responses (Lazarus and Folkman, 1984), and approach-withdrawal behaviour (Bandura, 1977). Such approaches represent 'steady-state' theories of cognition and emotion. That is they rely on the conceptualisation of a central knowledge structure as the determinant of the features of negative affective reactions. Scherer (1982) has however emphasised that emotional reactions should be viewed as processes rather than steady states. The emphasis of this review is on a conceptualisation of anxiety in terms of attentional processes rather than cognitive 'steady-states'. However process and 'state' theories are not considered to be incompatible. The thesis of this review is that an individual's 'attentional style' is an important factor which determines their behavioural and affective response to threat. Typically, anxiety is characterized by self-focus on physiological activity. It is proposed that specific self-focusing responses activate negative cognitions in memory which are associated with the arousal response.

Multicomponent views have distinguished between the cognitive and somatic aspects of anxiety (Barrett, 1972; Schwartz, Davidson and Goleman, 1978). Liebert and Morris (1967) have proposed a two-component conceptualization of test anxiety, in which test anxiety

consists of 'emotionality' and 'worry' components. Emotionality refers to the physiological aspects of the response, e.g. fast heartbeat, whereas worry refers to the negative ideational component, e.g. feeling regretful. The distinction between emotionality and worry subcomponents is maintained in this review and their relationship with self-attentional processes is discussed independently. In the remainder of this review the concept of self-focused attention is briefly discussed first. Second the effects of self focus on the awareness of physiological reactions is considered. Third the role of self-focus in 'worry' is reviewed. Finally conclusions drawn from the evidence are presented.

1.2 THE CONCEPT OF SELF-FOCUSED ATTENTION

Although self-awareness is a fundamental concept in the psychotherapies and cognitive-behavioural therapies it has not received the attention which it deserves as an important therapeutic variable. The psychotherapies e.g. Ellis (1962), view emotion in terms of self-talk or internal sentences. Anxiety consists of irrational thoughts typified by over-generalization. Cognitive-behavioural approaches e.g. Beck (1976), Meichenbaum (1977) also take the view that anxiety results from maladaptive thought processes typified by negative ideation. In all of these approaches an important aim of therapy is to increase clients' awareness of their negative thoughts so that they can be replaced with thoughts which are more positive. Duval and Wicklund (1972) have elaborated a theory of self-awareness in which a dichotomy in the direction of attention has been proposed. Attention, they maintain, may be directed inward

towards the self or outward towards the environment. They proposed that stimuli such as mirrors, cameras and the presence of an audience direct attention toward the self, whereas external distractions and engaging tasks direct attention away from the self. It was assumed that self-focus would induce self-evaluation and the identification of discrepancies along salient dimensions between ideals and actual behaviour. Negative affect would result when attention became fixed on such discrepancies. However in addition to the conceptualisation of self-focus as a situationally determined variable, Fenigstein, Scheier and Buss (1975) have considered the individual differences in a person's tendency to think about themselves to be a personality trait. They have termed the tendency of person's to direct attention inwards self-consciousness. Self-awareness they maintain, refers to a state; self-directed attention which results from transient situational variables, dispositions or both. Dispositional self-consciousness is measured by the self-consciousness scale (Fenigstein et al, 1975), factor analysis of which has revealed three components of self-consciousness; Private and Public self-consciousness and Social anxiety (Fenigstein et al 1975; Carver and Glass, 1976; Turner, Carver, Schier and Ickes, 1978; Vleeming and Engelse, 1981). Test-retest correlations for the whole scale and the individual subscales are quite high. The scales were completed twice by undergraduate men and women with a two-week interval between administrations. Test-re-test correlations for the subscales were: private self-consciousness +0.79; public self-consciousness +0.84; social anxiety +0.73; and total score +0.80. (Fenigstein et al 1975).

The private self-consciousness subscale measures the extent to which individuals focus on themselves, persons rating high in private self-consciousness are considered to be more cognisant of their thoughts, feelings, moods and attitudes. The public self-consciousness subscale purports to measure individual's awareness of the outwardly observable aspects of the self. A social anxiety measure consititutes the third subscale, and represents an individual's reaction to being focused on by others. Fenigstein et al (1975) contend that public self-consciousness may be a necessary antecedent of social anxiety, a proposal derived from the low but significant correlation between these two subscales. More recent research however has indicated that private self-consciousness is also significantly and positively correlated with social anxiety (Boyce, 1981). This finding is consistent with a conceptualisation of anxiety in terms of self-attention processes. The concept of dispositional private self-consciousness is useful within the present analysis as it provides the conceptual backdrop against which self-attentional processes in anxiety can be reviewed. A number of studies have investigated the relationship between the three subscales of self-consciousness and a variety of other personality dimensions. Dickstein, Wang and Whitaker (1981) have shown that both private and public self-consciousness are positively correlated with trait anxiety measured by the Spielberger, Gorsuch, and Lushene (1970), State-Trait-Anxiety Inventory (STAI). Private self-consciousness has also been found to correlate positively with state-anxiety and 'worry' in a threatening situation (Wells, 1985). These findings demonstrate that dispositional self-focus is associated with anxiety at both a trait and state level.

Other correlational studies have found that private self-consciousness is correlated significantly with the Guilford-Zimmerman Thoughtfulness Scale and the Paivio Imagery Scale (Turner, Carver, Scheier and Ickes, 1978). Recent research has also indicated that all three self-consciousness subscales are positively correlated with 16 PF emotionality factors. Private self-consciousness correlates significantly with only one factor, emotionality (factor C). Although both public self-consciousness and social anxiety also correlate with factor C the basis for the correlation appears different. Whereas public self-consciousness and social anxiety correlate with factor Q4 (tension), private self-consciousness does not. As would be expected social anxiety correlates most highly with the shy-venturesome dimension (factor H). The significant correlation between factor C (emotionality) and private self-consciousness (Davies, 1982) is concordant with earlier research (Scheier and Carver, 1977) which has shown that persons high in private self-consciousness are more attentive to their internal states and feelings than those low in private self-consciousness. Scheier and Carver (1977) designed four experiments to study the effect of self focused attention on the experience of attraction, repulsion, elation and depression. In the first experiment subjects were required to view and rate slides of nude women whilst in the presence of a mirror (self-focus condition) or with no mirror. In the second experiment subjects were exposed to the same self-focus manipulation and read mood statements which became either increasingly positive or increasingly negative. The other two experiments replicated the first studies, however subjects were selected on the basis of private self-consciousness and mirror manipulations of self-attention were not used.

In each study self-focused attention increased subjects responsiveness to their transient emotional states. These findings suggest that when attention is self-focused it may not only be focused on discrepancies between behaviour and ideals (Duval and Wicklund, 1972), it may be focused on affect. It follows from this that the behavioural and emotional consequences of self-focus will be determined by the specific aspects of self which attention is focused on. Returning to the relationship which was noted earlier between self-attention and depression and self-attention and anxiety it is possible that anxiety and depression are associated with focus on different aspects of the self. Consider anxiety which is characterised by negative thoughts about physiological or psychosocial trauma. Such thoughts represent an anticipation of danger and may be understood in terms of a reaction to somatic symptoms. (Becke, Laude and Bohnert, 1974; Beck, 1976; Hibbert, 1984). Thus self-focus on physiological activity may be a pre-requisite for anxiety. In the remainder of this chapter first the relation between self-attention and somatic responses is discussed and second the relation between self-attention and cognitive processes in anxiety are considered.

1.3 SELF-ATTENTION AND SOMATIC REACTIONS

Due to a lack of research on self-attention and the somatic responses in anxiety this section is based chiefly on the relationship between self-attention and a variety of other physical reactions. Many of such studies have been concerned with the differential effectiveness of various coping procedures on pain tolerance. Kanfer and Goldfoot

(1966) for example, found that increased tolerance of cold-pressor pain was facilitated by attention to external stimuli rather than attention to pain sensations. However results from this type of study are equivocal and more recently McCaul and Haugtuedt (1982) found that on a cold pressor trial of four minutes duration, distraction reduced distress for the first half of the trial but attention to pain sensations proved to be a superior strategy for the final two minutes. They concluded that the direction of attention may be differentially effective depending on the duration of the painful stimulus.

Pennebaker and Skelton (1978) have investigated psychological processes which affect symptom occurrence. Individuals' reports of symptoms appears to be influenced by their self-focus of attention. Private self-consciousness was found to correlate significantly with a summary index of twelve physical symptoms e.g. headache and muscle soreness. Pennebaker and Lightner (1980) investigated the effect of internal and external information on the perception of physical symptoms and fatigue in an exercise situation. Subjects performed at a constant rate on a treadmill, however a group of subjects hearing distracting sounds reported less fatigue and fewer symptoms than subjects hearing an amplification of their own breathing during the exercise task. These results suggest that self-directed attention is associated with an increased awareness of physical symptoms. Following from this it can be expected that self-focused subjects should also be more aware of the absence of such responses. This hypothesis has been investigated in some studies which have utilised the 'placebo' affect and the effect of suggestibility. In the second of two separate studies Scheier, Carver and Gibbons (1979) conducted

an experiment on the affect of suggestion on taste, in which subjects' expectancies about flavour intensity and the actual intensity of a solution were varied. Only subjects scoring high and low in private self-consciousness were selected for the experiment. Each subject tasted and rated the flavour intensity of the same first solution, this rating was used as a relative measure against which their second rating was compared. Depending on the experimental condition subjects tasted a second solution which was either stronger or weaker than the first solution. Subjects' were required to rate the intensity of the second solution on an 11-point scale ranging from "extremely weak" to "extremely strong". Subjects' expectancy about the intensity of the second solution were varied by the experimenter who stated "the second solution should be a little stronger (weaker) than the first". The solution against private self-consciousness manipulation did not reach significance. For half of the subjects in each manipulation there had been no conflict between expectancies and actual intensity of solution. It was reasoned that in the absence of conflict subjects high and low in private self-consciousness should have been equally accurate in their assessment of flavour intensity. In view of this, subjects were divided into those who had experienced conflict and those who had not. Analysis of these data revealed no significant difference between subjects high and low in private self-consciousness in the no conflict situation. However where actual flavour intensity conflicted with expectancy, subjects high in private self-consciousness displayed significantly greater accuracy in their ratings compared with subjects low in private self-consciousness. These findings suggest that persons high in private self-consciousness

are more cognisant of their actual bodily states than persons low in private self-consciousness.

Gibbons, Carver, Scheier and Hormuth (1979) predicted that self-awareness would inhibit the placebo effect. They found that mirror-induced self-awareness led to self-reports of lower arousal and certain side effects which had been ascribed to a placebo. Scheier, Carver and Matthews (1983) have suggested that self-focused attention encourages accurate reports about internal states by increasing awareness of them, as a consequence, it also decreases the effect of suggestibility about these states. A study by Gibbons and Gaeddert (1984) however, indicates that although self-focused subjects may be more aware of their internal states, they are no more accurate in identifying the cause of such states. In their study subjects were given a placebo which was said to either inhibit or facilitate performance on an arithmetic task. Non self-aware subjects attributed more of the arousal produced by the task to the inhibiting drug than the facilitating drug, as such an attribution supported subjects' perceptions of their arithmetic ability. The subjects that were made self-aware did not respond differently to the two types of drug information. They responded to the arousal induced by the task by attributing some arousal to both drugs.

Miller, Murphy and Buss (1981) have applied the public-private distinction of the self-consciousness construct to body awareness and have developed the body consciousness scale which has three subscales; private body consciousness (awareness of internal sensations); public body consciousness (awareness of externally observable bodily aspects)

and body competence. Examples from each subscale are: 'I can often feel my heart beating', 'I like to make sure my hair looks right' and 'I'm capable of moving quickly'. Private body consciousness significantly correlated with private self-consciousness and with public self-consciousness. Public body consciousness was also related to private self-consciousness but was more strongly related to public self-consciousness. These data indicate that private self-consciousness is associated with focus on both public and private bodily aspects.

The literature supports the contention that self-directed attention increases an individual's awareness of bodily states. However, in addition to the dispositional determinants of body awareness there are also situational determinants. Internal events are an important source of cognitive information and following Schachter and Singer's analysis (1962), persons seek to label and understand such information. In this way self-directed attention may represent an activation of specific cognitive processes aimed at the perception and interpretation of autonomic change. Valins has investigated some of the cognitive effects of internal events. In one study (Valins, 1966) male subjects were required to view slides of semi-nude females while hearing accelerating or decelerating sounds that were allegedly their heart beats. One group of subjects heard a marked decrease to half of the slides and no change to the other half, and a second group of subjects heard a marked increase to half of the slides and no change to the other half. The slides accompanied by a change, regardless of the direction of that change, were rated as significantly more attractive during the experiment and in an interview conducted 4-5

weeks later. They were also chosen significantly more as a reward for experimental participation. The finding that non-veridical represenations of physiological change has the same effect as veridical ones supports the contention made by Schachter and Singer (1962) that cognitive representations of internal events are important for emotional behaviour. When subjects in the Valins study thought their heart rate had changed an attempt was made to evaluate the reaction. The most appropriate contextual explanation for the change was as indicating varying degrees of attraction. Wegner and Guiliano (1980) have conducted research that directly demonstrates that increments in general arousal can induce self-focused attention. Subjects in three groups were exposed to manipulations designed to vary their levels of general arousal (running in place, waiting in a chair and reclining in an armchair) and were then given a measure of self-focused attention. The measure consisted of the number of first person singular pronouns subjects used to complete a set of sentences. A heartrate measure taken immediately before testing for self-focus revealed that running in place produced greater arousal than waiting in a chair, however reclining in a lounge chair did not reduce arousal below the level experienced while waiting. Subjects who had run were significantly more self-focused than subjects who had waited and reclining subjects were less self-focused than waiting subjects. The self-focus measurements were taken approximately two minutes after the arousal manipulations, thus the manipulations themselves were relatively less important than residual arousal in engaging self-focus. These findings were interpreted within the Schachter and Singer (1962) formulation of an epistemic search that occurs in the

processing of information about fluctuations in internal bodily states.

A study by Fenigstein and Carver (1978) also supports the idea that arousal causes self-focus. They conducted an investigation indicating that heart rate feedback leads to an increase in self-directed attention. Subjects were required to complete an attribution task considered to be a measure of self-awareness whilst hearing clicks which supposedly represented their heartbeat or a simulation of 'real world noises'. In the attribution task subjects were required to imagine themselves in a series of hypothetical situations which were read aloud by the experimenter. Half of the situations had favourable outcomes, the other half did not. Subjects were asked to estimate in percentage terms the degree to which they thought they were responsible for the outcome. This was a duplication of a procedure used by Duval and Wicklund (1973) in which the level of self-attribution of responsibility is considered to be positively related to the degree of self-awareness. In addition all subjects were given a colour-naming task in which self-relevant and non self-relevant words were printed in different coloured inks. Subjects in the false heart rate feedback condition experienced greater self-focus, indicated by greater self-attributions of causal responsibility and had a longer colour-naming time for self-related words compared to the 'noise' and 'no noise' control group. These results suggest that when an internal physiological process such as heartrate is rendered salient it can be a powerful determinant of self-awareness. This has parallels with reports made by clinically anxious patients of a heightened attentiveness to specific physiological reactions such as

changes in heartrate or muscle tightness (Beck, 1976). However outside the laboratory setting self-focus is most likely to result from actual physiological change, rather than non-veridical feedback of change.

Although persons high in dispositional self-focus may be more aware of autonomic responsivity, such individuals may in fact experience greater autonomic activity in the first place. An investigation conducted by Mandler, Mandler and Uviller (1958) contributes to an understanding of this issue. Mander et al required subjects to complete a questionnaire dealing with the frequency and intensity of autonomic self-perceptions (the Autonomic Perception Questionnaire, APQ). The questionnaire consists of three sections, the first of which requires descriptions by subjects of their states of feeling and reactions when in a state of anxiety, apprehension and pleasure. The second section consists of 30 items dealing with the perception of bodily activity and covering seven areas; heart rate, perspiration, temperature changes, respiration, gastrointestinal disturbance, muscle tension and blood pressure. Each item was composed of such questions as: "When you feel anxious, how often are you aware of any change in your heart action?". Responses were made on a 14.5 cm scale, the end points of which were marked "Never" and "Always". The third section of the APQ consists of items from the Manifest Anxiety Scale (Taylor, 1953) and the MMPI which deal with internal bodily stimulation. Subjects scoring high and low on the APQ were selected for a stress experiment. They were required to complete three tasks which were supposedly a series of standardised intelligence tests which they were told should present no difficulty to the average college student. In

fact the tasks were designed to be extremely difficult and none of the subjects managed to complete them. During the experiment, heart rate, psycho-galvanic skin response, respiration rate and blood volume were measured. Following the experiment an interview was conducted in order to assess subjects' perceptions of autonomic changes during the stress situation. The autonomic measures taken related to the questions on the APQ and in this way subjects' scores on the perception of a particular autonomic response could be compared with the actual intensity of the relative autonomic response. Analysis of the results revealed that high perceivers (persons with high APQ scores) overestimated their reactivity while low perceivers underestimated it. However high perceivers also showed a significantly higher degree of autonomic reaction than low perceivers. Thus subjects who reported high levels of autonomic activity not only showed a high degree of autonomic reaction but also tended to overestimate that stimulation, whereas low perceivers showed less activity and also underestimated it. Based on these findings it can be inferred that the tendency to overestimate reactivity observed in high perceivers is a function of their heightened attentiveness to autonomic change. These data suggest that persons who self-focus on autonomic reactions have a tendency to overestimate the intensity of those reactions. In addition the findings are consistent with the notion that autonomic reactions may produce self-attention, high perceivers not only overestimate reactivity, but also show a higher degree of autonomic reactivity compared to low perceivers.

In summary, the evidence reviewed in this section suggests that self-focused attention increases individuals' awareness of physiological

states that deviate from baseline levels. In consequence it can be assumed that self-focused attention also increases awareness of autonomic arousal and may be associated with an overestimation of arousal intensity. Hibbert (1984) has interviewed patients suffering from clinical anxiety and demonstrated that in 50% of cases the onset of anxiety was marked by a physiological disturbance other than the somatic symptoms of anxiety. In addition, an analysis of the negative thoughts characteristic of clinically anxious individuals reveals that such thoughts represent a reaction to somatic symptoms (Beck, Laude and Bohnert, 1974; Hibbert, 1984). Thus the perception of deviations in physiological activity from baseline levels may be of particular etiological significance in the development of anxiety states. However, it would be an oversimplification to consider that awareness of physiological activity is solely responsible for anxiety. The way in which such activity is interpreted is likely to be of importance, for example the interpretation of deviations in heart rate as a sign of a heart complaint and breathing difficulty as a sign of imminent loss of self-control such as fainting will result in anxiety.

Although persons high in dispositional self-focus are more aware of physiological activity in the first place, a fact which may partially account for the association between self-focus and anxiety proneness, arousal induced self-attention may be a normal cognitive process aimed at the interpretation and labelling of the physical response. This conceptualisation considers arousal induced self-attention as analogous to Schachter and Singer's (1962) proposal of an epistemic search process which occurs as a result of physiological arousal and is aimed at the interpretation of such arousal. The

cognitive-ideational component of anxiety is reviewed in the next section.

1.4 SELF-ATTENTION AND IDEATIONAL PROCESSES IN ANXIETY

Morris, Davis and Hutchings (1981) have reviewed literature generated by the Liebert and Morris (1967) two-component conceptualisation of anxiety, specifically test anxiety. These authors regard anxiety as separable into at least two major components, worry and emotionality. Worry refers to the cognitive aspects such as negative ideation whereas emotionality refers to the perception of the physiological-affective response. When attention is self-directed it may be focused on one or both of these components. Worry need not be accompanied by the emotionality component. Task decrements characteristic of subjects high in test anxiety in evaluative situations are assumed to be a consequence of self-directed attention. In effect high test anxious subjects are in a divided attention situation, they process both task relevant and task irrelevant information, (Wine, 1971; 1982; Sarason, 1972, 1975; Deffenbacher, 1978; Doctor and Altman, 1969, Eysenck, 1982). These authors attribute performance decrements to the 'worry' component of anxiety, which is considered to be an attentionally demanding cognitive activity. However Eysenck (1982) has provided an explanation of such decrements in terms of working memory; "Since task-irrelevant cognitive activities such as worry pre-empt some of the limited capacity of working memory, it is clear that they will produce decrements in the quality of performance". (p 365). Borkovec, Robinson, Priyinsky and Depree (1983) have found worry to correlate more highly than general tension reports with

various affect scales. Worriers reported significantly greater anxiety, depression and hostility, a lower frequency of focused attention and a greater number of negative thought intrusions than non-worriers prior to a worry period.

The worry-emotionality distinction is not only applicable to test anxiety. Barrett (1972) has analysed items from a large battery of commonly used scales and two subsets have emerged; awareness of somatic changes and awareness of unpleasant feelings typified by worry. A number of scales have been devised to measure the worry and somatic subcomponents of anxiety independently. For example Morris, Davis and Hutchings (1981) provide a revised version of the Liebert and Morris (1967) 'worry-emotionality scale', and Schwartz, Davidson and Goleman (1978) have designed a scale to assess cognitive and somatic trait anxiety. They have used the scale to study the differential effects of physical exercise and a meditation procedure on the subcomponents of anxiety, and found that subjects who practiced physical exercise reported relatively less somatic and more cognitive anxiety than did meditators. The conceptualisation of anxiety as separable into cognitive and somatic components is potentially useful in the study of the effects of anxiety on performance. In addition it has stimulated research on cognitive processes in anxiety. This research is discussed below.

1.4.1 MALADAPTIVE SCHEMATA

Beck, Laude and Bohnert (1974) have investigated the ideational material of patients with anxiety reactions. In the second of two

separate studies 20 patients with anxiety neurosis were subjected to a structured interview which consisted of general questions about symptomatology followed by open-ended questions concerning the ideation related to the patients' anxiety. Finally patients were asked to reproduce a fantasy or daydream which they had experienced just before or during an anxiety attack. All patients reported having consistent thoughts or visual fantasies, or both, related to the theme of danger just prior to or during the onset of anxiety. Anxiety occurred in relation to certain stimulus situations, the central feature of these situations being that they were defined as dangerous by the patient. In addition the beliefs were quite specific, for example; "I am having a heart attack," and "I will look foolish" (p 321). In the more severe cases the patient attached a high degree of probability to the event occurring. In 18 out of 20 cases patients reported having experienced fantasies of being subjected to psychosocial or physical trauma or both. An interpretation of these data is offered in terms of certain kinds of stress activating schemata relevant to danger. Activation of such "danger schemata" leads to the features of anxiety neurosis (Beck, et al, 1974). Hibbert (1984) has conducted a more recent study which confirms Beck's findings on the nature of the ideational components of anxiety, furthermore his findings show that the negative thoughts characteristic of clinically anxious individuals can be understood in terms of a reaction to the perception of somatic symptoms.

Schachter and Singer (1962) have commented on the key role played by interpretive cognitions in eliciting particular emotional states. "Danger schemata" may in fact represent misinterpretations of

environmental and self-related stimuli. Innocuous stimuli such as deviations from baseline levels in autonomic activity may be interpreted as dangerous and produce cognitions such as "I am having a heart attack". Mathews and Macleod (1984) have utilised a more direct approach in studying the nature of "danger schemata". A modification of the Stroop (1935) paradigm was used in which physical threat, social threat and control words were printed in coloured inks. Forty-eight subjects were tested, half of whom had been referred by their physician for anxiety-management training and half who were selected as normal controls. Subjects were required to name the word colours as quickly as possible without making errors. Immediately afterwards recognition memory for the words was tested using a list of target and distraction words. Anxious patients were also asked if they characteristically worried about physical dangers such as illness or social dangers such as failures. Results indicated that although anxious subjects were generally slower than control subjects at colour-naming all categories of words, they were particularly slow with threat words. Subjects who reported worrying about physical dangers took longer to name the colours of physical threat words than those of social threat words. However the converse was not found. Subjects who reported worrying about social dangers did not take longer to name the colours of social threat words compared to physical threat words. The authors interpreted these results as evidence that the content of danger schemata determine the type of material that is selectively processed, while the level of state anxiety determines the extent of interference observed. In order to further investigate selective attention in anxiety Macleod, Mathews and Tata (1985) have used a novel paradigm. Twenty-four words related to physical threat

and 24 words related to social threat were matched for length and frequency of occurrence with 48 neutral words in order to make 48 word pairs. A further 240 neutral word pairs were created to act as filler material. The word pairs were simultaneously presented to two areas of a microcomputer screen and the distribution of visual attention was measured by a secondary task involving a key-press response on the detection of a visual probe which could appear in place of either of the two displayed words. By examining the effect of threat words on detection latency it was possible to determine whether visual attention had moved towards or away from such stimuli. The threat word in each pair could appear with equal probability in either of the two screen locations, as could the position of the visual probe. Sixteen subjects diagnosed as suffering from generalised anxiety disorder and 16 control subjects were required to complete the attention task. The anxious subjects were divided into two groups according to whether they reported worrying primarily over physical concerns or over socially related concerns. Data from the study revealed that there was a significant interaction between threat position and probe position for both anxious and non-anxious subjects. However the interaction was different for each group. Anxious subjects consistently shifted attention towards threat words whereas control subjects consistently shifted attention away from threat words. The interaction between threat type, dominant worries and probe position was not significant. Both physical and social threat words attracted similar degrees of visual attention in both subgroups of anxious subjects. Thus it appears that the content of danger schemata does not necessarily determine the type of threat material focused on. However the data suggests that non-anxious subjects have

a tendency to inhibit processing of threat words, they consistently shifted attention away from such stimuli, whereas anxious subjects consistently shifted attention towards threat words. This is concordant with the proposal that anxious patients have over-active danger schemata which facilitate the processing of danger-related information.

Negative ideation in clinical anxiety can be understood in terms of a reaction to the somatic symptoms of anxiety, and the onset of panic attacks in 50% of clinically anxious patients is precipitated by somatic symptoms other than those of anxiety, (Hibbert, 1984). A logical progression is to assume that danger schemata originate from specific types of self-directed attention, that is, focus on somatic activity and represent the negative appraisal of such activity. In this way specific self-focusing responses may become associated with 'danger' concepts in memory. The negative appraisal of physiological activity may be determined by a number of cognitive phenomena such as the availability of coping resources, perceptions of control and self-efficacy. However, self-focus induced by physiological arousal leads to a general increase in self-awareness (Wegner and Guiliano, 1980). In Duval & Wicklund's (1972) theory of self-awareness, self-focus leads to the perception of discrepancies between individual's actual behaviour and ideal standards of behaviour. Such a discrepancy could lead to a negative interpretation of somatic activity in the absence of a readily identifiable cause. Thus negative concepts associated with specific self-focusing responses could be stored in memory. A study by Geller and Shaver (1976) has demonstrated that in a Stroop task requiring colour naming of self-relevant and neutral words,

induced self-awareness produced longer colour naming latencies for self-relevant words. These data support the contention that self-focused attention activates self-relevant or self-evaluative thoughts in memory.

In addition to self-attention increasing an individual's awareness of discrepancies in behaviour, self-focusing on physiological arousal and negative thoughts can lead to decrements in the performance of certain attention demanding tasks (Wine, 1971; 1982, Carver, Peterson, Follansbee and Scheier, 1983), thereby increasing the discrepancy between actual behaviour and the ideal standard of behaviour. Thus it is conceivable that self-focusing on internal physiological arousal will often be associated with negative thoughts about performance. Self-focusing may increase individuals' awareness of their inability to cope effectively in particular situations.

1.5 SELF ATTENTION AND COPING BEHAVIOUR

Research on self-focused attention and reactions to fear has demonstrated that self-focused attention disrupts behaviour and increases the likelihood of withdrawal from threatening situations. Carver and Blaney (1977) required subjects with snake phobia to approach a non-poisonous snake in the presence of accelerating heart beat feedback. Subjects who were doubtful about their ability to approach the snake withdrew from the attempt sooner than confident subjects. In another study Carver, Blaney and Scheier (1979) required subjects with a fear of snakes to approach and pick up a Boa Constrictor. Self-focus was manipulated by having subjects perform in

the presence or absence of a mirror. Self-focused subjects withdrew sooner than non self-focused subjects from the approach attempt, in addition confident subjects, although frightened, focused attention on task completion whereas subjects doubtful about their ability to complete the task focused attention on physiological arousal. Similar results have also been obtained for subjects scoring high in private self-consciousness. In one experiment Scheier, Carver and Gibbons (1981) required subjects high and low in private self-consciousness to submit to electric shocks. Subjects high in private self-consciousness were more likely to withdraw from the experiment. These data suggest that in threatening situations self-directed attention increases avoidance behaviour. It would seem that self-focus renders salient an individual's perceived inability to successfully complete specific behavioural tasks. This has obvious links with the theory of self-efficacy (Bandura, 1977, Bandura, Adams and Beyer, 1977, Bandura, Reese and Adams, 1982), which deals with cognitive factors which affect performance. The theory states that the persistence and effort invested in coping is determined by expectations of personal efficacy. Furthermore that the positive psychological effects obtained through a variety of different therapeutic procedures can be explained in terms of their effects upon increasing the level of self-efficacy. In one set of studies Bandura, Reese and Adams (1982) induced differential levels of self-efficacy in snake and spider phobics by therapist modeling or enactive mastery. Subjects were required to perform a number of approach tasks after judging their perceived ability to perform the tasks. The studies demonstrated that the higher the level of induced self-efficacy, the higher were the subjects' performance

attainments. Subjects failed those tasks which exceeded their perceived coping capabilities.

The level of self-efficacy is determined by: performance accomplishments, vicarious experience, verbal persuasion and emotional arousal (Bandura, 1977). Self-focused attention may have an important role in determining self-efficacy perceptions. Self-focus itself increases responsivity to emotional arousal (Scheier and Carver, 1977, Carver, Blaney and Scheier, 1979), and in cases of high arousal self-focus may induce performance decrements and thus decrease perceptions of self-efficacy. In addition arousal induced self-attention may increase individuals'awareness of existing negative discrepancies in their behaviour along salient dimensions. The individual's interpretation of physiological arousal will also affect self-efficacy perceptions. If arousal is interpreted in a dangerous way, for example as a sign of imminent loss of self-control, physical or psychosocial trauma, the level of perceived self-efficacy may decrease.

Another factor which is associated with the level of self-efficacy perceptions is the controllability of events, that is belief that outcomes are determined by one's actions (Bandura, 1977). Wachtel (1966, 1967) has contended that the controllability of threatening stimuli also has implications for self-directed attention. He has investigated the effect that threat of electric shock has on the performance of a dual attention task. The central task was tracking and the peripheral task was reaction to the occasional illumination of two peripheral lights. One group of subjects, the anxiety group, were told that they would receive non-contingent electric shocks during the

task. The subjects in this group showed no decrement in central task performance but performed worse on the peripheral task. These results were interpreted in terms of attention focused on anxiety leading to the availability of less attention for task performance. However, when subjects were provided with a means of coping with the threat, that is they could avoid a shock if their performance on both tasks was above a required level, they did not show peripheral task impairment. It was suggested that perception of an anxiety state is an intermediate step which directs behaviour toward threat reduction. When a coping behaviour is unavailable the anxious individual remains focused on the internal state. Thus, self-focused attention may represent a normal step in the search for and elicitation of a coping response.

The research reviewed in this section reveals that self-attention influences a variety of cognitive processes in anxiety. More specifically self-focus on physiological arousal may be a normal step in the labeling of emotion and the elicitation of a coping response. However self-focus may also activate a number of cognitive processes which are responsible for the creation and maintenance of negative mood states such as anxiety.

1.6 SUMMARY AND IMPLICATIONS

The literature reviewed supports a cognitive attentional model of anxiety in which self-attention processes are a central factor. This conceptualisation offers an integrative framework for cognitive

research in emotion and self-awareness theory. In the model self-attention is considered to be a normal pre-requisite for the evaluation of physiological arousal. However the literature reveals that self-focus can lead to an overestimation of the intensity of arousal. It is proposed that self-focus results in the activation of nodes (Bower, 1981) in memory aimed at the interpretation of arousal, and in situations perceived as threatening it is involved in the elicitation of a coping response. A concomitant of self-focus however is the evaluation of behaviour and identification by the individual of discrepancies between actual behaviour and ideal standards for behaviour. Thus, the identification of negative discrepancies resulting from self-focus may increase the probability of a negative assessment of arousal and coping ability by activating negative and self-relevant material in memory. In addition self-focusing on arousal often results in performance decrements because it leads to less attention being paid to the task at hand. Thus when arousal becomes salient, negative cognitions concerning performance accomplishments and coping ability may be activated. This effect would be exacerbated by the overestimation of arousal intensity which can result from self-focus. It is conceivable that negative processes of this type would be short-circuited when an adequate coping response is found and attention is subsequently directed away from the self in the execution of coping behaviour. However when a coping behaviour is unavailable or the individual perceives events to be uncontrollable self-attention will persist and negative cognitions concerning the outcome of arousal and personal efficacy will be reinforced. In addition increments in arousal and a perceived inability to cope may result in behavioural withdrawal, which in turn may reinforce perceptions of self-inefficacy because it results in the avoidance of

feared situations which provide an opportunity for mastery, increasing self-competence, and challenging negative beliefs. Maladaptive schemata may develop in this way which represent 'danger' concepts and can be activated by specific self-attention processes. Thus subsequent focusing on a specific aspect of self may automatically elicit negative thoughts. The relationship between self-attention and cognitive processes in anxiety is a complex one, and the model presented in this thesis illustrates how self-attention may influence a variety of cognitive processes in anxiety.

A conceptualisation of anxiety in terms of self-attentional processes is more dynamic than structural schemata theories. Therapeutic approaches directed at modifying clinical anxiety have generally been concerned with increasing individual's self-awareness as a pre-requisite for self-control e.g. verbal relaxation procedures, biofeedback and cognitive restructuring. Such procedures have been widely used in the treatment of general anxiety, panic disorder and psychosomatic complaints. However the present model suggests that caution be exercised in selecting patients for this type of treatment, since such procedures could potentially reinforce maladaptive self-attentional processes. Furthermore on the basis of the present conceptualisation it may be possible to identify specific cognitive-attentional patterns which increase the individual's proneness to anxiety.

1.7 AIM OF THIS RESEARCH

The aim of this research is to investigate the relationship between self attention and anxiety. On the basis of the literature review a number of hypotheses were generated which were amenable to investigation. The hypotheses are stated in the introduction at the beginning of each chapter. Each chapter consists of a separate experiment.

Chapter 2

SELF ATTENTIONAL CORRELATES OF ANXIETY

2.1 SUMMARY

Two studies were conducted to investigate the hypothesis that self-focused attention is associated with anxiety. In the first study a significant positive relationship was demonstrated between dispositional self-attention and state-anxiety and worry scores in a threatening situation. In addition dispositional self-focus was significantly correlated with trait-anxiety. The relationship between the somatic and cognitive subcomponents of anxiety was investigated in the second study. Subjects scoring high in dispositional self-attention reported a higher frequency of worry and psychosomatic symptoms than subjects scoring low in self-attention. In addition, subjects' personal belief in the uncontrollability of life events was associated with self-focus on negative ideation. Partial correlation data revealed that the relationship between self-attention and psychosomatic frequency is mediated by worry.

2.2 STUDY ONE: THE RELATIONSHIP BETWEEN PRIVATE SELF-CONSCIOUSNESS AND ANXIETY SCORES IN THREATENING SITUATIONS

2.2.1 INTRODUCTION

Duval and Wicklund (1972) have proposed a dichotomy in attentional focus; an individual may direct attention outward towards the

environment or inward towards the self. Fenigstein, Scheier, and Buss (1975) have termed the self-attention construct 'self-consciousness' and consider it a dispositional rather than a situational variable. The construct is measured by the self-consciousness scale (Fenigstein, Scheier, and Buss, 1975), which has three subscales. private and public self-consciousness and social anxiety. The private self-consciousness subscale was utilised in the present study. Persons scoring high in private self-consciousness are considered to be more aware of their feelings, thoughts, moods and attitudes than persons scoring low on the subscale.

Given that attention can be either self-focused or environmentally focused it would be expected that persons high in private self-consciousness would be more aware of their internal state than persons low on this subscale. Thus persons high in private self-consciousness are more likely to be aware of increments in physiological arousal due to their self-focusing tendencies. Such persons may also invest greater capacity in the ideational component of the anxiety experience, namely 'worry'. In this study the relationships between private self-consciousness, state-anxiety, trait-anxiety and worry were investigated. It was hypothesised that persons high in dispositional self-focus will experience greater state-anxiety than persons low in private self-consciousness, when they face threatening situations. Self-focus will also activate salient cognitions associated with the anxiety experience. A trait-anxiety measure was used to investigate the prediction that dispositional self-focus is positively related to anxiety proneness.

2.2.2 METHOD

Subjects

The subjects were 64 undergraduates in the first year of an optics course at Aston University. Of the sample 30 were women (mean age; 19.9 years, range 6, SD 1.44) and 34 were men (mean age 20.9 years, range 18-35, SD 3.40). All subjects had continued education to 18 years of age and were from predominantly middle-class backgrounds.

Materials and procedure

Immediately preceding a course examination and whilst seated in the examination room, subjects were required to complete the state portion of the state-trait anxiety inventory (Spielberger, Gorsuch and Lushene, 1970). Following the examination subjects completed the private self-consciousness subscale, the trait portion of the state-trait anxiety inventory and a structured questionnaire designed to assess 'off task' focus experienced during the examination (see Appendix I). The questionnaire ('worry scale') contained 10 statements, for example; "I was worried about making mistakes; I was continuously evaluating my performance". Responses were made on a five-point scale ranging from "no more than usual" to "very much more".

2.2.3 RESULTS

Spearman rank-order correlation coefficients were computed for state-anxiety with trait anxiety; state-anxiety with private self-

consciousness and worry score; trait-anxiety with private self-consciousness and worry score; private self-consciousness with worry score. These correlations are shown in Table 1, from which it is apparent that all correlations were significant.

An incidental finding was women scored more highly than men on trait-anxiety, private self-consciousness, 'worry' and state-anxiety, although only the latter difference was significant ($p < .001$). For men the mean score was 48.12, s.d. 9.80. For women the mean score was 58.97, s.d. 8.39.

Table 2.1: Values of RHO among subtest scores (n = 64)

	2	3	4	m	s.d.
1. State anx.	.31*	.32**	.30*	53.2	10.6
2. Trait Anx.		.41**	.21*	40.96	7.96
3. Private s-c			.23*	18.81	5.78
4. Worry				7.26	5.66

*p < .05 **p < .001

2.2.4 DISCUSSION

The results support the hypothesis that persons high in private self-consciousness report greater state-anxiety in anxiety provoking situations. Sex differences in private self-consciousness, 'worry' score and trait anxiety were not significant. However trends in the data suggest women were more dispositionally self-focused than men. This may account for the significant difference in state-anxiety

between groups, trait-anxiety ratings alone appear insufficient to account for this difference. Trait-anxiety was significantly correlated with private self-consciousness, supporting a conceptualisation of self-focus as a predisposing factor in the experience of anxiety-states. Private self-consciousness correlated with 'worry' score, that is, self-relevant negative thinking during the test period. Such thoughts predominantly concerned self-monitoring of performance and negative self-evaluation of performance. These data are consistent with test anxiety literature (e.g. Wine, 1971) indicating that the poor task performance characteristic of high test-anxious individuals results from 'off-task' attentional focus, that is, a self-focus orientation consisting of negative and self-evaluative ideation during the test period.

Carver and Scheier (1977) have shown that self-focus of attention can increase an individual's awareness of transient affective states. The contention offered here is that dispositional self-focus has important etiological significance in the development of anxiety states. It is tentatively proposed that in a situation perceived as threatening, increased autonomic arousal will make the self perceptually salient, such deviations from a normal baseline level will be more readily perceived by persons high in dispositional self-focus. Such persons are likely to perceive small deviations which may normally remain unnoticed by persons low in self-focus. Self-focus will also activate cognitions which have become associated with the anxiety experience. Such cognitions may often be self-evaluative and negativistic. In this way the deployment of attention may be an important mediating factor in the experience of anxiety states. Based on this proposal a

second study was designed to test the relationship between self-attention and the somatic and cognitive subcomponents of anxiety.

2.3 STUDY TWO: SELF-ATTENTIONAL CORRELATES OF COGNITIVE AND SOMATIC ANXIETY

2.3.1 INTRODUCTION

In order to investigate the relationship between self-attention and the cognitive and somatic subcomponents of anxiety separate measures of trait-worry and psychosomatic frequency were utilised. It was hypothesised that subjects high in private self-consciousness will report a greater frequency of negative thoughts and anxiety mediated somatic symptoms than subjects low in private self-consciousness.

Research has demonstrated that the provision of control over threatening stimuli reduces task decrements in anxiety-arousal conditions (Wachtel, 1967). Subject's perceived control over life events have also been considered important in the development of self-efficacy perceptions Bandura, (1977). In order to investigate Wachtel's (1967) suggestion that focus on the anxious self in stressful situations is associated with a perceived inability to control events, a locus of control measure was included in the study. A positive relationship between dispositional self-focus and external locus of control was predicted.

2.3.2 METHOD

Subjects

The subjects were 81 undergraduate students at Aston University. Of the sample, 41 were men (mean age 18.76 years, range 18-22, s.d. .86) and 40 were women (mean age 18.39 years, range 18 - 36, s.d. 2.85).

Materials and procedure

Subjects were required to complete the private self-consciousness subscale (Fenigstein, Scheier and Buss, 1975), the Nowicki-Duke (1974) locus of control scale for adults and two questionnaires designed to measure worry proneness and psychosomatic symptom frequency (see Appendix II and III). The eight-item 'worry' scale was based on negative ideation statements taken from the State-Trait Anxiety Inventory, for example: 'Unimportant thoughts run through my mind which bother me; I worry about possible misfortunes". Responses were made on a four-point scale ranging from "Almost never" to "Almost always". The 'psychosomatic rating scale' consisted of 14 statements based on symptom reports of 32 male and female out-patients receiving treatment for generalised anxiety or panic disorder. For example: "When anxious: I suffer from muscle tension; I have palpitations". Responses were made on a five-point scale ranging from "Never" to "Almost always".

2.3.3 RESULTS

Pearson product moment correlations were computed between all scores (Table 1). Private self-consciousness was significantly correlated with psychosomatic frequency and trait-worry. Psychosomatic frquency and locus of control were also significantly correlated with trait-worry. In order to simplify interpretation of these data partial correlations were computed. Private self-consciousness was still significantly correlated with trait-worry when somatic frequency had been partialled out ($r = .42$, $p = .001$), however the effect of partialling out trait-worry reduced the association between self-focus and somatic frequency to a level of nonsignificance ($r = .01$, $p = .47$). Trait-worry was still significantly correlated with somatic frequency after self-focus had been partialled out ($r = .34$, $p = .001$).

Table 2.2: Product-moment correlations between subtest scores (n=81)

	2	3	4	m	s.d.
1. Locus of control	.11	.16	.32*	12.01	4.39
2. Private s/c		.36**	.45**	23.33	6.89
3. Psychosomatic frequency			.41**	10.68	5.93
4. Trait-worry				14.70	3.68

*p<.05 **p<.0001

2.3.4 DISCUSSION

Taken together, the results of the two studies support the hypothesis

that self-attentional processes are associated with the experience of worry and somatic symptoms in anxiety. These data support a process conceptualisation of anxiety in which self-focus is a central factor associated with both cognitive and somatic responses to threat.

Wachtel (1967) proposed that paying attention to the anxiety state may direct behaviour towards threat reduction, and that in the absence of control over threatening stimuli subjects remain focused on the internal state. Although a significant correlation between private self-consciousness and locus of control was not demonstrated in the second study, a significant relationship between external locus of control and trait-worry was observed. Worry is itself a cognitive process requiring self-directed attention and may account for performance decrements in evaluative situations (Wine, 1971, Sarason, 1975). Thus, the proposal that a perceived inability to control events is associated with self-focus has been partially substantiated. In this study a perceived inability to control life events was associated with negative ideation. In Duval and Wicklund's (1972) theory of self-awareness, self-focus results in the discovery by the individual that he or she is far from an ideal point on a particular self-dimension. Thus self-attention may be associated with negative ideation by increasing individuals' awareness of such discrepancies. The results of a study by Carver and Ganellen (1983) are of relevance to the present analysis. They have demonstrated that depression is associated with overgeneralisation tendencies involving broad negative reactions to the self as a result of specific and limited failure experiences. A similar process may exist in anxiety. Failure experiences represent situationally specific dimensions in which

discrepancies exist between an individual's actual behavioural achievements and the ideal goal of behaviour. Self-focus may heighten an individual's awareness of such discrepancies, resulting in an overgeneralised and negative reaction to the self. In addition self-focus can result in performance decrements in attention-demanding tasks and thus increase the saliency of specific self-discrepancies. This analysis is consistent with the conceptualisation of levels of perceived self-efficacy as a determinant of fear arousal and avoidance behaviour, (Bandura, 1977; Bandura, Adams, Hardy, and Howells, 1980). Self-efficacy is measured in relation to task sequences which involve progressive approach to and contact with a feared stimulus. The level of self-efficacy is assessed by confidence ratings subjects give in their ability to successfully complete each task in the sequence (e.g Bandura, Reese, and Adams, 1982). It follows from this that a subject's perception of discrepancies which exist between behaviour and the behaviour goal will be an important determinant of self-efficacy perceptions.

The results of the second study confirms the hypothesis that subjects high in dispositional self-focus report a higher frequency of worry and anxiety mediated somatic sumptoms than subjects low in self-focus. The data indicate that the relationship between dispositional self-focus and somatic symptoms is mediated by worry. Taken together the results of the two studies demonstrate that the 'attentional style' of subjects may be associated with the nature and intensity of their affective response in a threatening situation.

A positive relationship between dispositional self-focus and anxiety in normal subjects has been demonstrated in this chapter. In order to explore the evidence for self-attentional processes in clinical anxiety a third study was designed and is reported in the next chapter. As clinical anxiety is often the most severe type of anxiety response it was reasoned that specific self-attention phenomena and factors responsible for producing self-focus would be readily discernible.

Chapter 3

SELF ATTENTIONAL PROCESSES IN ANXIETY STATES: ORIGIN AND CONTENT

3.1 SUMMARY

Thirty-four out-patients with generalised anxiety or panic disorders were interviewed. Negative ideation centering on the themes of physical harm and psychosocial trauma was identified as a central component of anxiety. The content of ideation typically represented catastrophic appraisals of somatic symptoms. Fifty per cent of patients reported a hypervigilance for specific somatic symptoms. Ninety-one per cent reported experiences of cognitive failure when anxious. The data support a process conceptualisation of anxiety in which maladaptive self-focus on somatic activity and catastrophic appraisal of such activity are central factors. Self-focusing tendencies appear to be a consequence of particular stressors which render specific aspects of the self salient. The relationship between self-focus on somatic symptoms, negative ideation and stress is discussed.

3.2 INTRODUCTION

Recently there has been an increased concern with the ideational components of neurotic anxiety. Beck, Laude and Bohnert (1974) have provided a description of the negative cognitions experienced by clinically anxious patients just prior to or during an anxiety attack. In their study all subjects reported having thoughts concerned with

the theme of personal danger which corresponded with periods of anxiety. Beck et al proposed that stress activates 'danger schemata' which are responsible for the ideational characteristics of anxiety. Hibbert (1984) conducted a similar study which substantiates these findings. In addition he found that in patients with panic attacks the content of ideation was predominantly related to somatic symptoms. Patients with panics interpreted their symptoms as extremely dangerous, for example, patients who experienced palpitations, breathlessness and weakness during their panic attacks interpreted them in this way. The experience of symptoms such as paraesthesiae, sweating, butterflies in the stomach, breathlessness and palpitations were interpreted as a sign of imminent loss of self-control.

Anxious individuals thus tend to misinterpret somatic symptoms as dangerous. Beck (1976) referred to 'attention binding' in anxiety states, that is, a pre-occupation with danger, hypervigilance for stimuli relevant to danger and overscanning of subjective feelings. The hypothesis of the present study is that anxiety states are associated with maladaptive self-attention processes. It is proposed that anxious individuals selectively focus on negative ideation and somatic activity.

The aims of the present study were threefold: first to investigate the content of negative ideation in generalised anxiety; second to investigate the nature of stressors which may predispose the individual towards maladaptive responding. One of the drawbacks of Hibberts (1984) study was that only those stressors occurring within a twelve-month period prior to the onset of anxiety were investigated,

and it was unclear whether such stressors related to the first ever anxiety episode or the most recent one. In the present study stressors occurring during childhood and preceding the onset of the first anxiety attack were investigated in addition to more recent factors. The final aim of the present study was to investigate the relationship between negative thoughts, preoccupation with somatic symptoms in anxiety and life stressors in order to determine the type of factors which may result in maladaptive self-focus.

3.3 METHOD

Subjects

The subjects were hospital out-patients and were recruited from consecutive referrals made by General Practitioners. All of the patients had been diagnosed as having a Generalised Anxiety Disorder or Panic Disorder based on the Research Diagnostic Criteria (RDC; see Spitzer, Endicott and Robins, 1978). Patients with a marked depressive symptoms, marked phobic tendencies or obsessions and compulsions were excluded from the sample. Patients were also excluded if they had a previous diagnosis of organic brain disorder, schizophrenia, drug abuse, mental handicap or if they had ever received any form of psychological treatment.

Of the 34 subjects who met the acceptance criteria for the study, 21 were men and 13 were women. Their ages ranged from 17 years to 74 years with a mean of 40.36 years. Their mean state-anxiety score on the State-Trait Anxiety Inventory (Spielberger et al, 1970) was 50.24,

(s.d. 8.38), and their mean trait-anxiety score was 50.52, (s.d. 8.68). The duration of their anxiety symptoms ranged from 2 months to 30 years with a mean of 6.6 years.

Procedure

Patients were assessed using a standardised interview which opened with questions about the nature and frequency of physical symptoms. Patients were then asked about their thought content when anxious: "What are your main worries when you feel anxious. What are the thoughts you have when you feel anxious?" If this question elicited no thoughts, patients were asked if they had the thought that something disastrous may happen to them when they were anxious. Patients were also required to answer questions relating to their thoughts about their somatic symptoms: "Have you ever had the thought that there may be something seriously and physically wrong with you?" If patients were unclear about the content of their thoughts probe questions were used, patients were asked to remember the last time they felt anxious and recall the types of thoughts they were experiencing just prior to or during the anxiety attack. They also answered questions about the presence or absence of mental imagery when anxious.

Patients were then required to answer questions about cognitive failure when anxious, for example; "Have you been experiencing any memory difficulties, for example being forgetful when you are anxious?" In addition patients were also asked about their preoccupation with specific symptoms. A comprehensive life history

was taken based on standard questions concerning the circumstances relating to the onset of anxiety. Probe questions addressed the presence or absence of stressful events in a twelve-month period prior to the onset of the first anxiety attack and exacerbating factors since that time. Patients were then required to answer questions about their childhood and adolescent years with emphasis on particular stressors and early signs of anxiety symptoms.

3.4 RESULTS

Content of ideation

All of the patients identified specific anxiety-related thoughts which occurred just prior to or during an anxiety attack. The cognitions centred around expectations of physical harm and/or social embarrassment. Only three patients had to be probed considerably before reporting anxiety related cognitions. Sixteen patients (47.06%) had negative thoughts which were dangerous interpretations of the somatic symptoms of anxiety. The remaining patients had negative thoughts concerned with social embarrassment and rejection by others. Of the patients who had negative thoughts which were dangerous interpretation of symptoms, 11 of them (68.75%) related the content of their thoughts to illness or death of friends or relatives. The negative thoughts reported by patients and the types of anxiety mediated somatic symptoms are displayed in Table 3.1. Table 3.2 contains information about the stressors precipitating anxiety, childhood stressors and the physiological disturbance at the time of onset of anxiety.

Table 3.1: Negative thoughts and somatic symptoms of patients preceding and during an anxiety attack

Patient No	Age	Sex	Negative Thoughts	Somatic Symptoms
1*	31	F	I'm developing cancer. I may have a heart attack.	Sweating, breathing difficulty, shaking
2	40	M	I may lose control of my bowels and not find a toilet in time.	Stomach pain, loose bowels, shaking, sweating dizziness.
3	31	M	I may be unable to breathe. I'm having a heart attack.	Neck tension, tightness across chest, palpitations.
4	40	M	I can't swallow. I may choke to death.	Dry mouth, muscle tension, difficulty swallowing.
5*	21	F	I may be unable to breathe and suffocate. Help will not reach me in time.	Stomach pain, breathing difficulty, tightness across chest.
6	50	M	I may collapse in public and make a fool of myself.	Dizziness, abdominal pain.
7	37	M	I'm having a heart attack. I may collapse in public.	Chest pain, headache, stomach pain.
8	41	M	I may faint in public and make a fool of myself.	Shaking, sweating, chest pain.
9	17	F	I may vomit and suffocate.	Shaking, stomach pain, nausea.
10	34	M	I may get cancer and die. I'm going to die.	Sweating, palpitations, muscle tension.

*Patients with panic attacks

11*	33	M	I am going to suffocate.	Tightness across chest, difficulty breathing.
12	34	F	I may faint in public and make a fool of myself.	Dizziness, palpitations, headache, sweating.
13	27	F	I may be attacked. I may make a fool of myself.	Stomach churning, nausea, headache, sweating.
14	74	F	Something terrible is going to happen to me. I may be involved in an accident.	Muscle tension, stomach churning.
15*	62	F	I may die. There may be something seriously wrong with me.	Trembling, neck tension.
16	57	M	I am unable to perform adequately in my job.	Sweating, neck and shoulder pain, muscle tension.
17	37	M	I am inefficient at my work and I may make a fool of myself.	Fatigue, muscle tension, shaking.
18	59	M	I may spray people with saliva and make a fool of myself. I can't cope with work.	Neck and shoulder tension, sucking and biting lips and tongue.
19*	42	F	I may be involved in an accident. I may become ill when away from home.	Muscle tension, palpitations, sweating, stomach pain.
20	41	F	I may be involved in an accident.	Pressure on top of head, stomach churning, shaking.
21	28	M	I may have a brain tumour. I may have a heart attack.	Palpitations, dizziness, sweating.
22	21	M	I am losing my hair, no one will like me.	Numbness in right side of face, muscle tension.

*Patients with panic attacks

23	45	M	People may think I am foolish. I cannot express myself properly.	Shaking, muscle tension, dry mouth.
24	39	F	I may faint in public. I may have cancer.	Dizziness, faintness, headache, heartburn, shoulder pain.
25*	48	F	I am going to die. I may loose control of myself.	Palpitations, stomach churning, sweating, headache.
26	32	M	I may have a heart attack.	Palpitations, dizziness, tingling in extremities.
27	40	F	I may make a fool of myself. I may become seriously ill.	Shaking, dizziness, aching jaw, teeth clenching, blushing, dry mouth, tongue feeling swollen.
28*	53	M	I am having a heart attack. I may lose control of my bowels. I may faint.	Tightness across chest, palpitations, stomach churning, loose bowels.
29	37	M	I am going to faint.	Dizziness, difficulty breathing, palpitations.
30	26	M	I may loose control of my bowels and make a fool of myself.	Stomach churning, sweating, shaking.
31*	57	F	I may collapse in public and make a fool of myself.	Sweating, faintness, palpitations.
32	47	M	I am unable to perform my job adequately. I lack ability.	Palpitations, difficulty breathing, insomnia.
33	40	M	I may faint. I am suffocating.	Palpitations, headaches, difficulty breathing.
34*	46	M	I can't breathe. I'm going to die.	Difficulty breathing, dry mouth, insomnia.

*Patients with panic attacks

Table 3.2: Stressors during childhood and in a twelve month period preceding onset of anxiety

Patient No	Precipitating Stressors	Physiological Disturbance at Onset	Childhood Stressors
1*	Death of father from lung cancer following stressful period of illness.	Nil	Nil
2	Promotion at work leading to increased responsibility.	Collapsed with nervous exhaustion.	Parental conflict, with frequent physical fights. Father showing favouritism to other siblings. Father authoritarian and very critical. Outside toilet at home some distance from house and therefore had to monitor bowel movement. Loose bowels at school.
3	First experienced symptoms after taking LSD. Problem exacerbated following death of friend from cancer and death of father following heart attack.	Side effects of LSD: palpitations, disorientation.	Insular life living on a farm. Mother overprotective and limited contact with peers.
4	Father-in-law ill with cancer of oesophagus from which he later died.	Choked on some food whilst eating with in-laws.	Authoritarian father, very strict about table manners, patient nervous eating in unfamiliar situations. Father had 2 'nervous breakdowns'.

*Patients with panic attacks

5*	Distressed by a television programme about physical handicap.	Neck pain following party game. Difficulty breathing and stomach cramp whilst running a mini marathon. Stomach pain persisted for 2 days afterwards.	Mother afraid of being alone.
6	Death of mother from renal failure following long illness. Death of father from bowel cancer. Son recently in trouble with police.	Nil	Mother ill with renal failure for some time. Death of mother when patient 15 years of age.
7	Birth of first child after 3 previous miscarriages. increased work pressure.	Noticed chest pains after practising Karate.	Death of father when patient 5 years old following work accident. Suffered fainting fits when 5-6 years of age. Bullied at school.
8	Returned from work abroad to find wife having an affair. More recently made redundant. Involved in RTA.	Nil	Parental conflict. Parents divorced when patient 5 years old.
9	Birth of illegitimate child. Patient's mother ill with vomiting.	Suffering from gastric disturbance following birth.	Nil
10	Wife had difficult pregnancy and almost died. Increased work pressure. More recently waiting for in-vitro fertilization.	Nil	Nil

*Patients with panic attacks

11*	Promotion at work and learning new skills. Wife ill with cervical cancer. More recently threat of redundancy.	Collapsed lung requiring surgery.	Father very critical. Death of close friend from leukaemia when patient 10 years old.
12	Marital conflict, husband heavy drinker. More recently 5 year old son severely scalded his arm and face.	Migraine headache whilst shopping.	Insular life living in country. Limited social contact.
13	Joined special constables. Recent media coverage of rapes.	Nil	Nil
14	Death of husband and sudden death of son 4 months later.	Nil	Nil
15*	Death of mother, death of father 6 months later. Stress of caring for sick mother. More recently sister's husband killed in RTA.	Choking episode due to sweet lodged in throat.	Mother had violent epileptic fits. Pressure to perform well at school.
16	Marital conflict almost leading to separation. More recently change in work position with increased responsibility.	Nil	Nil
17	Stepfather recently developed cancer. Nephew developed leukaemia. Wife experiencing stomach pains. having to work away from home.	Nil	Nil

*Patients with panic attacks

18	Death of mother from heart attack. More recently redundancies at work have caused increased workload. Death of father.	Nil	Away from school for 9 months suffering from rheumatic fever when 12 years of age. On returning felt intellectually inadequate.
19*	Father-in-law undergoing major lung surgery. Daughter admitted for emergency appendicectomy.	Taking laxatives for a bowel blockage, experienced abdominal pain whilst on holiday.	Nil
20	Coping with a Down's syndrome child. Death of close friend from a brain tumour.	Nil	Nil
21	Experienced symptoms after smoking cannabis. Distressed by friend talking about brain tumours. Recently ended relationship with girlfriend.	Side effects of cannabis: palpitations, sweating, restlessness.	Very strict and critical father.
22	Move to college living in poor accommodation. Academic work difficult and limited social contacts. Colleague told him he was balding.	Noticed hair loss in comb.	Nil
23	Divorce and death of uncle and father. Limited social contact at work. Feeling isolated.	Nil	Authoritarian father. Father in Navy and mother worked, spent most of time with grandparents. Father very critical. Limited social contact outside school - lived in different neighbour hood to peers.

*Patients with panic attacks

24	Nil	Suffering from sinus trouble. Coughed up blood. Miscarriage.	Mother had 'nervous breakdown' when patient 5 years old.
25*	Stress at work. Physically abused by husband. Husband heavy drinker. Eventual divorce.	Nil	Nil
26	Made redundant. Took on new job. Involved in RTA.	Caught worms and suffering bowel pains. Concussion following RTA.	Bullied at school. Mocked at school due to speech impediment (stammering).
27	Nil	Removal of several teeth following persistent toothache. More recently a hysterectomy following discovery of cancerous cells.	Mother had 'nervous breakdown' when patient 8 years old.
28	Increased pressure at work. Colleague suffered coronary.	Nil	Parental conflict, mother very critical of patient and father. Lived 6 miles away from nearest town and school and had to travel by bus each day and suffered from frequent travel sickness. much pressure to perform well at school.
29	(See Childhood Stresses) More recently move from regular career to self-employment (exacerbatory factor).	Dizziness after blow to head.	Death of close cousin from renal failure when patient 11 years old. Fell and hit head in swimming pool when 12 years old. Suffered dizziness for couple of weeks. Death of grandfather at this time. Patient told that he may die by his brother.

*Patients with panic attacks

30	Father ill with cancer. Death of grandmother. Recently father relapsed and died. Having to return to college.	Nil	Father often complained about his duodenal ulcers.
31	Husband suffering with chronic bronchitis.	Dizziness associated with hypertension.	Parental conflict, mother and patient physically abused by father. Father heavy drinker. Mother attempted suicide when patient 11 years old. Lived in shadow of older brother who performed better at school.
32	Move in work post leading to increased responsibility for others. has fewer qualifications than subordinates.	Nil	Nil
33	Facing possible redundancy. Living with girlfriend who has lost her job. Financial difficulties.	Nil	Parental conflict, frequent rows. Suffered from bad asthma which cleared up after treatment at 14 years of age.
34*	Marital problems.	Sinus trouble, had cyst removed. More recently another operation. Often experiences nasal congestion.	Nil

*Patients with panic attacks

Somatic Symptoms

A total of 30 different anxiety related somatic symptoms were reported by patients. The most commonly reported symptoms were sweating and palpitations, each reported by 12 patients (35.29%). Muscle tension was reported by 11 (32.35%) patients and breathing difficulty by 7 (20.58%) patients.

Duration of anxiety

Seventeen patients (50%) reported longstanding and recurrent anxiety symptoms with a duration of greater than five years. Only five patients (14.71%) reported a duration of symptoms of less than one year. Nine patients (26.47%) reported that their anxiety symptoms had been intermittent for a period of greater than ten years.

Preceding stressors

All patients reported stressors which had occurred in a twelve-month period preceding the onset of anxiety.

Physiological disturbance

Eighteen patients (52.94%) reported experiencing some physiological disturbance other than the somatic symptoms of anxiety as an immediate precursor to the onset of their problem.

Preoccupations

Seventeen patients (50%) reported a preoccupation with and hyper-attentiveness to specific somatic symptoms. Of those patients, four (23.53%) reported a hyper-attentiveness to gastro-intestinal motility/discomfort and four reported a hyper-attentiveness to deviations in heart rate. The remaining nine patients reported hyper-attentiveness to swallowing, chest pain, nasal congestion, breathing, dizziness and salivation.

All the patients who reported preoccupations with specific physiological symptoms had negative thoughts about those symptoms. Of those patients twelve (70.59%) had experienced some physiological disturbance other than the somatic symptoms of anxiety as an immediate precursor of their problem. Of the twelve patients with preoccupations who had experienced such physiological disturbances, eight (66.66%) reported continued hyper-attentiveness to specific physiological subsystem which had been affected by the transient disturbance. Four (25.53%) patients with preoccupations reported specific physiological disturbances in childhood which they related to their self-monitoring tendencies.

Attention diversion

Twenty-four patients (70.59%) reported that they experienced relatively fewer anxiety symptoms when they were performing engaging tasks at work or hobby pursuits.

Cognitive failure

Thirty one (91.18%) patients reported the experience of cognitive failure when anxious. Of those patients, three (9.68%) reported memory impairment only, 17 (54.84%) reported impairment of concentration and eleven (35.48%) reported a combination of both types of cognitive failure. Two patients spontaneously reported that cognitive impairment resulting from anxiety had reinforced negative thoughts concerning personal efficacy, and negative thoughts of that type were central to their anxiety state in the first place.

Childhood stressors

Twenty one (61.76%) patients reported specific stressors which had occurred during their childhood and prior to 15 years of age. Patients reported a combination of specific stresses. The most commonly reported stresses were: the experience of some particulary stressful physiological disturbance other than the somatic symptoms of anxiety, serious illness of one parent, frequent and violent conflict between parents, exposure to frequent criticism by a critical parent. Each of these factors was reported by five (23.81%) of patients reporting childhood stresses.

Mental imagery

Only five patients (14.71%) reported the occurrence of mental imagery when anxious. Typically they visualised situations in which they

experienced personal embarrassment or physical harm, for example, imagining what would happen as a result of collapsing in the supermarket.

3.5 DISCUSSION

The findings of this study are concordant with those of Beck et al (1974) and Hibbert (1984). Patients suffering from generalised anxiety and panic disorders have negative thoughts which centre around the theme of physical harm such as becoming seriously ill, being involved in an accident or being physically attacked, and psychosocial trauma such as being rejected or humiliation. All patients reported having 'dangerous thoughts' just prior to or during an anxiety attack. In 47 per cent of cases negative thoughts represented dangerous interpretations of somatic symptoms. Half of the patients who interpreted their symptoms as extremely dangerous related the content of their thoughts to illness or death of friends or relatives, which presumably rendered specific interpretations of symptoms salient. Patient 1 for example reported negative thoughts about developing cancer, her first anxiety attack occurred soon after the death of her father from lung cancer, and breathing difficulty was one of her predominant psychosomatic symptoms.

In addition to the somatic symptoms of anxiety 53 per cent of patients reported other physiological disturbances as immediate precursors of their anxiety. Patient 3, for example, experienced adverse symptoms after taking LSD, the symptoms were misconstrued as a heart attack, and this event marked the onset of his anxiety state and negative

thoughts concerning symptomatology. Patient 7, for example, experienced chest pains after practising Karate and patient 19 experienced abdominal pain after taking laxatives for a bowel blockage. In all of the cases where a physiological disturbance was associated with the onset of anxiety, patients had interpreted their symptoms as extremely dangerous. A higher proportion of patients with panics had experienced physiological disturbances prior to the onset of anxiety compared to patients without panics.

Seventeen (50%) patients reported a preoccupation with somatic symptoms, the most common manifestations of this were hyper-vigilance for deviations in heart rate or gastro-intestinal motility (discomfort). All patients who reported over-awareness of specific physiological symptoms had negative thoughts which were primarily concerned with those symptoms. These findings are consistent with Beck's proposal of 'attention binding' in anxiety states, in which an over-vigilance for stimuli relevant to danger and overscanning of subjective feelings are central components.

The experience of some physiological disturbance other than somatic symptoms of anxiety appears to be a typical pre-requisite for hyper-vigilance of somatic symptoms. Seventy five per cent of patients who reported hyper-awareness of somatic symptoms had experienced such a disturbance which marked the onset of their anxiety problem. Although the physiological disturbance was in most cases transient, attention typically remained focused on the specific physiological subsystem which had been affected. The physiological disturbances experienced by patient 5, for example, were stomach cramp and difficulty breathing

whilst running in a mini-marathon. Although the symptoms had subsided within two days, at interview she reported being attentive to stomach discomfort and breathing over the previous four months, that is, since the onset of her anxiety marked by the physiological disturbance. Other patients reported hyper-attentiveness to specific symptoms lasting several years. The physiological distrubances experienced by patient 3, for example, were palpitations and disorientation following drug abuse. Hyper-attentiveness to deviations in heart rate had persisted since that disturbance, a period of eleven years.

The present findings suggest that anxious individuals engage in self-focus on negative ideation and monitoring of physiological activity. The content of ideation can be chiefly understood as a reaction to somatic symptoms. Anxious patients systematically misconstrue the somatic symptoms of anxiety as physiologically or psychosocially dangerous. According to Schachter and Singer (1962) persons seek to label and interpret internal bodily events, self-focus may be an important pre-requisite for such a process. Anxious patients may be conceptualised as making 'dangerous' appraisals of somatic symptoms. The data on stressors preceding the onset of anxiety suggest that an individual's tendency to focus on and make catastrophic appraisal of physiological activity may be associated with specific life stressors. Stressors which render specific aspects of the self salient may be powerful determinants of maladaptive self-focus. Physiological disturbances represent one type of self-focusing event. Typically patients who encountered death or illness of relatives interpreted their own somatic symptoms as a manifestation of a similar illness. In other cases patients had negative thoughts about losing control of

bodily function, for example fear of fainting or loss of bowel control in public situations.

The data suggest that specific childhood stressors may also be associated with the development of maladaptive cognitive-self-attentional processes. The most common childhood stressors reported were physiological symptoms other than the somatic symptoms of anxiety, serious illness of a parent and exposure to consistent criticism by a parent. It is proposed that such stressors render specific aspects of the self salient and may lead to maladaptive self-focus. This conceptualisation is clearly illustrated in the reports by patient 2, who reported having to monitor his bowel movement as a child because the lavatory was situated outdoors and some distance from the house. Hyper-attentiveness to gastro-intestinal motility mediated by negative thoughts about losing bowel control in public was a central aspect of his anxiety problem which developed some years later. Patient 29 related stresses in childhood to his anxiety problem. When 11 years old a close cousin died from renal failure. When he was 12 years old he suffered a blow to the head following a swimming accident and symptoms of dizziness and sleeplessness persisted for a couple of weeks following the accident. The patient's grandfather died during those weeks, and he was told by his brother that his symptoms were an indication that he would die. The events rendered cognitions concerning death salient, and he reported an over-awareness of symptoms of dizziness which have occurred since then as a result of stress. His symptoms were accompanied by predominant negative thoughts about loss of control and death.

The present findings support the hypothesis that anxiety states are associated with maladaptive self-attentional processes. Anxious individuals may be conceptualised as engaging in maladaptive self-focus on physiological activity and negative ideation. Stressors which render specific aspects of the self and interpretive processes salient may be powerful determinants of self-focus. The data suggests that maladaptive self-focusing can become an enduring disposition, and may serve to perpetuate the anxiety state. Impairment of concentration and memory associated with anxiety may be the function of self-directed attention. Ninety-one percent of patients reported cognitive failures of this type when anxious, furthermore such impairment may have implications in the perception of self-competence. In the next study the relationship between dispositional self-focus, anxiety, and cognitive failures was investigated.

CHAPTER 4

RELATIONSHIP BETWEEN ANXIETY, SELF-CONSCIOUSNESS AND COGNITIVE FAILURE

4.1 SUMMARY

A study is reported which investigated the role of self-consciousness as a possible mediator of the association between cognitive failures and stress vulnerability. A multiple regression analysis verified the hypothesis that the positive association between cognitive failure score and anxiety is mediated by individual differences in self-consciousness. It is concluded that subjects with high cognitive failure scores are vulnerable to stress because self-attentional processes disrupt their coping strategies.

4.2 INTRODUCTION

The Cognitive Failures Questionnaire (CFQ; Broadbent, Cooper, Fitzgerald and Parkes, 1982) consists of 25 items concerning failures of memory, action and perception in everyday life. A significant positive correlation has been demonstrated between CFQ score and trait-anxiety measured by the Spielberger state-trait anxiety inventory (Broadbent et al 1982). Matthews, Coyle and Craig (1987) have investigated trait and state correlates of the CFQ in a sample of students and have demonstrated a correlation between 16 PF anxiety and CFQ score. In addition CFQ scores were found to correlate significantly with self-reports of 'tense-arousal' measured by the UWIST Mood Adjective Checklist (Matthews, 1985) prior to the

performance of a thirty minute sustained attention task. Thus it appears that high CFQ scores are associated with increased susceptibility to stress. Broadbent et al (1982) have suggested on the basis of data from a study of student nurses that high levels of self-reported cognitive failure may indeed indicate vulnerability to stress. They employed a measure of everyday errors which was obtained while the students were receiving class instruction before they started work on hospital wards. Subsequently there was a correlation for everyday error scores with symptom scores on stressful wards but not on less stressful wards. Broadbent, Broadbent & Jones (1986) also describe unpublished work by Parkes which shows that in controllable stressful situations nurses with low CFQ scores use more direct or active means of coping with problems than do high CFQ nurses. In that study coping was assessed by asking each of a sample of nurses to report a stressful incident and to indicate the manner in which the nurse handled the situation. The methods of coping showed a general factor representing the size of the repertoire of strategies used and separable factors of direct (active) methods of coping, and of suppression (passive coping). The implication of these data is that high vulnerability to stress in high CFQ nurses is associated with a failure to engage in direct (active) methods of coping.

A different line of evidence on the relationship between anxiety and cognitive failure is provided by work on clinical patients. In an interview with 34 patients suffering from generalised anxiety or panic disorder, 31 reported experiencing cognitive failures of attention or memory when anxious, (see Chapter 3). In addition Wells (see Chapter 5) compared 28 anxiety patients with 16 normal controls and found a

significantly higher level of private self-consciousness in the patient group. Wells (1985; Chapter 2) has demonstrated that in students private self-consciousness is associated with greater state anxiety and worry in threatening situations. These data demonstrate that the cognitive processes of self-directed attention, measured by private self-consciousness, are positively associated with the emotional state of anxiety. However the high level of reported cognitive failure in patient groups noted above suggests that perhaps self-focus of attention may also be associated with cognitive failure. Since self-focused attention in stressful situations has been conceptualised as resulting in performance decrements characteristic of high test anxiety subjects (Wine, 1971), self-focus may also result in cognitive failures in everyday life. Thus it is possible that individual differences in self-focus of attention underlie both the predisposition to state-anxiety as indicated by trait anxiety (see Chapter 2), and the empirical association demonstrated by Broadbent et al (1982) between trait-anxiety and cognitive failure.

The aim of this study was to test the hypothesis that the relationship between anxiety and cognitive failure is mediated by self-focus against the simplest alternative, that cognitive failures are caused by the emotional components of anxiety. If the correlation between trait-anxiety and cognitive failure is mediated by self-focus, then self-focus should be a stronger predictor of cognitive failure than anxiety. A multiple regression analysis was used to test this relationship. The multiple regression technique was selected in preference to simple partial correlation techniques because it can accommodate a greater number of variables. (Five variables were of interest in this study).

If the relationship between trait-anxiety and cognitive failure is mediated by self-focus then self-focus but not anxiety should predict cognitive failure when both variables are included as predictors in the regression equation. If however cognitive failure is associated with the emotional components only of anxiety, then anxiety should predict cognitive failure irrespective of whether self-focus is included in the regression equation or not.

4.3 METHOD

Subjects

The subjects were 100 Aston University undergraduates, 38 male and 62 female. Their mean age was 19.56 years (range 18-33 s.d. 2.01).

Materials and procedure

Subjects completed the following questionnaires: the CFQ, the Spielberger Trait Anxiety Inventory (Spielberger et al, 1970), and the self-consciousness scale of Fenigstein, Scheier and Buss (1975). The self-consciousness questionnaire measures private self-consciousness (focus on thoughts and feelings), public self-consciousness (focus on outwardly presented aspects of the self), and social anxiety (reactions to being focused on by others).

4.4 RESULTS

Pearson product-moment correlations between the variables measured are

shown in Table 4.1, from which it is apparent that all four predictor variables were significantly positively correlated with CFQ score, with trait anxiety showing the largest single correlation.

Table 4.1: Intercorrelations of predictor variables, and CFQ score (n=100)

	2	3	4	5	m	s.d.
1. Trait anxiety	.40**	.39**	.49**	.48**	41.54	8.67
2. Private s-c		.53**	-.06	.42**	21.58	5.54
3. Public s-c			.13	.29*	18.23	4.26
4. Social anxiety				.36**	13.14	4.88
5. CFQ					45.90	11.30

* p = .01, ** p = .001

s-c: self-consciousness

To test the statistical inter-dependency of the correlations in Table 4.1 a multiple regression was performed. All four predictors were entered into the regression equation. For each predictor, an F value was obtained for the contribution to the equation made by its unique variance. The predictions can be tested by observing which of these Fs reach significance. Statistics for the overall regression equation were as follows. The multiple R of 0.58 was quite large, and significant ($p < .001$). The value R^2 adjusted for shrinkage was .31, showing that a substantial part of the variation in CFQ scores was predictable from the anxiety and self-consciousness variables. Summary statistics for the individual predictors are presented in Table 4.2,

the partial correlations indicate the magnitude of the contributions of the unique variances of the individual predictors to the equation.

Table 4.2: Multiple regression summary statistics for CFQ score regressed on anxiety and private, public self-consciousness and social anxiety

Variable		Partial r	F	Sig of F
Trait anxiety	.20	.19	3.38	.07
Private s/c	.36	.33	11.30	.001
Public s/c	.28	.27	7.60	.007
Social anxiety	-.04	-.02	0.0	NS

Table 4.2 shows that only private and public self-consciousness made a significant individual contribution to the equation. The two self-consciousness variables predict CFQ score when their covariances with anxiety is controlled, but the converse does not apply. Thus the correlation between anxiety and CFQ appears to be dependent on self-consciousness. The data suggest that anxiety has no direct causal effect on CFQ score and the data are consistent with the hypothesis that self-consciousness affects both anxiety and cognitive failures. It appears that self-consciousness is associated with both vulnerability to stress, as expressed in trait anxiety, and with a more specific predisposition to cognitive failures.

4.5 DISCUSSION

The data indicate that the vulnerability to stress associated with high CFQ score is a function of high private and public self-consciousness. Broadbent et al (1986) suggested that cognitive failures have an effect

on coping strategies. Self-directed attention has also been implicated as a central factor in the elicitation of coping responses (Wachtel, 1967). Wachtel proposed that in the absence of coping responses subjects remain focused on the internal anxiety state. Subjects with low CFQ scores may be conceptualised as focusing away from the self in the execution of their active task oriented coping, however high CFQ subjects who show coping responses typified by repression may be conceptualised as focusing on themselves. Thus following from Wachtel's (1966) proposal, it seems likely that high CFQ subjects have a perceived inability to control events relative to low CFQ subjects. Broadbent et al (1986) sites unpublished data by Parkes which demonstrates that nurses with low CFQ scores use more direct or active means of dealing with problems only when the problem is percieved as potentially under their own control. This suggests that high CFQ subjects who generally use passive means of coping may normally perceive problems as outside of their own control. The effect of cognitive failure on coping strategies may reflect the disruptive effects of self-directed attention. In addition it is plausible that cognitive failures resulting from self-focus may reinforce negative thoughts about coping efficacy, resulting in fewer attempts at active coping. The difference in coping style between high and low CFQ subjects may be a function of different degrees of self-directed attention rather than level of cognitive failure. A future aim of research would be an investigation of this proposal.

Chapter 5

EFFECTS OF DISPOSITIONAL SELF-FOCUS AND COGNITIVE APPRAISAL ON RESPONSES TO A THREATENING STIMULUS

5.1 SUMMARY

A study was designed in which subjects cognitive appraisals of a threatening stimulus were experimentally manipulated. It was postulated that self-focused attention is associated with increments in state-anxiety in threatening situations by increasing awareness of somatic symptoms and salient negative appraisal processes. Stress appraisal was associated with greater worry during a threatening film, however there was no effect of interaction between dispositional self-focus and negative appraisal on state-anxiety. A main effect was obtained for self-focus on state-anxiety, worry and somatic symptoms experienced during the film. Partial correlations revealed that the relationship between self-focus and state-anxiety is mediated by somatic symptoms. The findings were interpreted as evidence that specific self-focusing behaviours determine the nature and intensity of anxiety-states. The results are discussed within an associative-network framework of memory and emotion.

5.2 INTRODUCTION

Cognitive-attentional processes are considered to be important in the experience of negative emotional states such as depression (Smith and

Greenberg, 1981; Ingram and Smith, 1984; Kovaks and Beck, 1978; Beck, 1976) and anxiety (Lazarus and Folkman, 1984; Lazarus, Kanner and Folkman, 1980; Hibbert, 1984; Bandura, 1977; Bandura, Reese and Adams, 1982). The work on cognitive processes in anxiety has been predominantly concerned with the investigation of thought content during anxiety and the individual's perceived ability to cope. Hibbert (1984) for example proposed that negative thoughts characteristic of individuals suffering from neurotic anxiety can be understood as a reaction to somatic symptoms. Anxious individuals misconstrue the somatic symptoms of anxiety such as palpitations and breathing difficulty as dangerous. Lazarus (1966) has postulated that anxiety is associated with cognitive-appraisal processes, that is, the evaluation by the individual of the harmful significance of an event and of the available coping options. In this way appraisal represents the central cognitive process responsible for the stress response and the subsequent reduction of that response. A similar proposal has been offered by Bandura (1977), he advocates that the avoidance behaviour of anxious individuals is determined by their perceptions of 'self-efficacy', that is, their personal belief in whether or not they can carry out a particular task successfully. Bandura has argued that behavioural change can be implemented through strategies which produce mastery and in turn increase perceptions of self-efficacy. Treatment techniques which are effective in ameliorating fear and avoidance behaviour are considered to do so by increasing perceived self-efficacy.

Self-efficacy is not the only cognitive factor associated with fear arousal and avoidance behaviour. Research on self-awareness has

revealed that self-focused attention increases the likelihood of behavioural withdrawal from threatening situations. Carver and Blaney (1977) required subjects to approach a Boa Constrictor in the presence of accelerating or constant heartbeat feedback. Prior to the task subjects rated how confident they were in their ability to carry out the task. They found that confident subjects tended to approach more closely than doubtful subjects when hearing accelerating feedback rather than constant feedback. These results were explained in terms of autonomic arousal feedback causing heightened self-focus followed by individuals' assessment of their ability to match behaviour with the goal. For subjects who doubted their ability such an assessment was aversive and withdrawal occurred sooner than with confident subjects. In a different study, Scheier, Carver and Gibbons (1981) asked subjects with high and low scores in private self-consciousness, a dispositional measure of self-focus, to submit to either mild or strong electric shocks. Subjects high in private self-consciousness were more responsive to fear and were more likely to withdraw from the experiment.

The role of self-attentional processes in anxiety has unfortunately received little consideration. Research has demonstrated that depressed individuals have a tendency to self-focus their attention (Ingram and Smith, 1984; Smith and Greenberg, 1981), and dispositional self-focus has been found to be correlated with trait-anxiety (Dickstein, Wang and Whitaker, 1981) and state-anxiety and worry in threatening situations (Wells, 1985).

The aim of the present study was to investigate the nature of the relationship between cognitive appraisal, self-focused attention and anxiety. It was hypothesised that self-attention increases awareness of salient cognitive-appraisal processes, when such appraisal processes are negative self-attention will lead to increments in anxiety. In addition, it was proposed that self-focus is associated with increments in anxiety by increasing an individual's awareness of somatic symptoms. In order to investigate these hypotheses an experimental paradigm similar to that designed by Spiesman, Lazarus, Mordkoff and Davison (1964) for manipulating subjects interpretive sets and thus appraisals was utilised. In the present study the interpretive sets of subjects scoring high and low in private self-consciousness were manipulated by presenting a stressful narrative or a denial narrative prior to showing a gruesome film about a workshop accident. The showing lasted approximately eight minutes and portrayed events leading up to and involving the accident.

5.3 METHOD

Subjects

The subjects were 81 students at the University of Aston who responded to posters calling for subjects to participate in a 'film experiment'. Of the sample 45 were men (mean age 21.53 yrs, range 18-34, s.d. 2.92) and 36 were women (mean age 20.25 yrs, range 18-25, s.d. 1.89). All subjects were paid a small fee for their participation in the experiment.

Procedure

All subjects were required to complete the private self-consciousness subscale (Fenigstein, Scheier and Buss, 1975) and the trait-anxiety subscale (form X2; Spielberger, Gorsuch and Lushene, 1970). Subjects were then assigned to one of three experimental groups, there being no significant differences between trait-anxiety and private self-consciousness scores between groups. Fifteen men and twelve women were assigned to each group. Subjects in groups one and two were then given a narrative designed to affect their appraisals of a gruesome film. Subjects in group one (stress orientation) received a narrative in which the humanistic and traumatic consequences of the accident were emphasised. Subjects in group two (coping orientation) received a narrative in which the events portrayed in the film were described in a detached, intellectual manner with emphasis on work safety. The narratives are given in Appendix I. Subjects in group three (control group) were given no information about the film. All subjects then completed the state-anxiety subscale (Spielberger et al, 1970), and then watched an excerpt from a colour film portraying the events leading up to a workshop accident that actually happened. It was presented without soundtrack and lasted approximately eight minutes. Following the film subjects completed the state-anxiety subscale, and a questionnaire designed to measure the degree of somatic symptoms and negative ideation experienced during the film. The questionnaire comprised of two subscales, the first contained ten items relating to physiological symptoms, for example; "I noticed my heart beating quickly; I felt tense". The second subscale contained five items relating to negative thoughts, for example; "I thought the film was going to be worse than it turned out to be; I was worried that I might

not be able to cope with watching the film". Responses were made on a four-point scale ranging from "not at all" to "very much so". (See Appendix for questionnaires).

Subjects' scores on state anxiety measured following specific orientation were subtracted from state-anxiety scores measured after viewing the film in order to give a measure of change in anxiety (Q-value).

5.4 RESULTS

The mean scores for post-orientation state-anxiety and post-film state anxiety, Q-value, worry and somatic symptoms for subjects in each group are displayed in Table 5.1.

Table 5.1: Means and standard deviations for state-anxiety, worry and somatic symptom scores for each group (n = 81)

	Stress Group (n = 27)	Coping Group (n = 27)	Control Group (n = 27)
Post-Orientation State Anxiety	45.96 (13.65)	40.70 (9.70)	36.11 (10.34)
Post-Film State Anxiety	53.37 (15.40)	48.93 (11.91)	47.63 (11.09)
Q-value	7.41 (8.53)	8.22 (10.59)	11.52 (9.57)
Worry score	11.15 (3.55)	8.93 (2.88)	8.85 (2.57)
Somatic symptoms	20.56 (7.62)	17.56 (5.11)	17.48 (5.58)

Note: standard deviations in brackets

Subjects in group one (stress orientation) showed higher state-anxiety scores following orientation and following presentation of the film than subjects in the coping group or control group. Subjects in the stress group also reported a higher frequency of negative thoughts and somatic symptoms experienced during the film compared with subjects in the other groups.

The data shown in Table 5.1 were analysed using several 3x2 analysis of variance with unequal ends to detect any effects due to group (stress orientation, coping orientation and no orientation control) and private self-consciousness (high vs low). For purposes of the analysis the self-consciousness data were split at the median value, in order to investigate the effect of high and low self focus on the dependent variables. Nine subjects scored at the median and were omitted from the analysis in order to obtain more extreme values of self-consciousness. Three subjects from the stress group, five subjects from the coping group and one subject from the control group were omitted. Significant main effects were found for group and private self-consciousness, however there were no significant interactions involving group x private self-consciousness. Subjects in the stress group had significantly higher state-anxiety scores than subjects in the other two groups following orientation ($F(1,71)=3.52$, $p<.035$). Subjects in the stress group also had a higher score on worries experienced during the film than subjects in the coping or control groups, ($F(1,71)=3.90$, $p<.025$). Similarly, subjects high in private self-consciousness had higher worry scores than subjects low in private self-consciousness ($F(1,71)=4.05$, $p<.048$), and they also had significantly higher somatic symptom scores ($F(1,71)=5.21$,

p<0.026) and showed significantly greater imcrements in state anxiety over the film (F(1,71)=4.09, p<.048) than subjects low in private self-consciousness. The mean scores for worry, somatic symptoms and Q-value for subjects scoring high and low in self-focus in each group are displayed in Table 5.2.

Table 5.2: Mean worry, somatic, and Q-scores for subjects high and low in self focus in each group

Self-focus:	Stress Group Hi (n=15)	Lo (n=9)	Coping Group Hi (n=10)	Lo (n=12)	Control Group Hi (n=14)	Lo (n=12)
Worry Score	11.40	10.22	9.40	8.08	9.57	7.83
Somatic Symptoms	19.87	18.67	21.50	15.25	18.64	16.42
Q-Score	8.87	4.56	12.30	6.42	13.43	9.17

Pearson product moment correlations were computed between all subtest scores for each group in order to investigate the relationship among variables. There were no significant differences in correlations between groups, thus product moment correlations were computed for the whole sample. These data are displayed in Table 3. Private self-consciousness correlated significantly with all scores. Somatic symptoms correlated significantly with worry and Q-value. However, worry and trait-anxiety were not significantly correlated with Q-value. Trait-anxiety correlated significantly with somatic symptoms and worry.

Table 5.3: Product moment correlations between subtest scores (n=81)

	2	3	4	5	m	s.d
1. Private self-consciousness	.33**	.25*	.22*	.19*	23.12	4.79
2. Trait-anxiety		.20*	.25*	-.04	41.54	8.57
3. Somatic symptoms			.47**	.42**	18.53	13.01
4. Worry				-.06	9.64	6.29
5. Q-score					9.05	9.65

* $p<.05$, ** $p<.001$

Partial correlations were computed between the variables in an attempt to disentangle the various measures and discover which was contributing most to the Q-score and worry score. Somatic symptoms were still significantly correlated with Q-value and worry after private self-consciousness had been partialled out ($r=.39$, $p<.001$, and $r=.44$, $p<.001$, respectively). However, after somatic symptoms had been partialled out the correlation between private self-consciousness and worry was insignificant ($r=.12$, $p<.14$). When the worry score had been partialled out the correlation between private self-consciousness and somatic symptoms was above the 0.05 level ($r=.17$, $p<.07$). Private self-consciousness was not significantly correlated with Q-value after somatic symptoms had been partialled out ($r=.10$, $p<.19$). Private self-consciousness was still significantly correlated with somatic symptoms after Q-value and trait-anxiety had been partialled out ($r=.19$, $p<.04$, and $r=.21$, $p<.04$, respectively). Thus the relationship between private self-consciousness and worry, and between private self-consciousness and Q-value appears to be mediated by

somatic symptoms. The effect of partialling out private self-consciousness reduced the correlation between somatic symptoms and trait-anxiety to a level of nonsignificance ($r=.13$, $p < .13$). Trait-anxiety was still correlated with worry when private self-consciousness had been partialled out.

5.5 DISCUSSION

The main finding of this study was that subjects scoring high in dispositional self-focus reported more worry and somatic symptoms than subjects scoring low in self-focus when faced with a threatening situation. In addition self-focused attention was an important determinant of increments in state anxiety during exposure to a threatening stimulus whereas type of cognitive appraisal determined by orientation condition (Lazarus et al, 1964) was not. However, there was a main effect of type of appraisal that is stressful or non-stressful on worry experienced during the film. The effect was not confined to appraisal, there was also a significant effect of private self-consciousness on worry score. Both stressful appraisals determined by orientation and high self-focus were associated with high levels of worry during exposure to a threatening stimulus. However, the absence of a significant interactive effect of self-focus and negative appraisal on worry indicates that the variables may not be related to worry in exactly the same way. The partial correlation data revealed that the relationship between self-focus and worry was mediated by somatic symptoms. Appraisal on the other hand may have affected the content of thought in a more direct way. In addition to worry being increased by negative appraisal of the film, increased

worry appears to have been associated with subjects' negative appraisals of their physiological response. This contention is concordant with the proposal made by Schachter and Singer (1962) that persons attempt to label and interpret physiological arousal, and the labelling process is based on contextual information. A partial explanation of worry in terms of negative appraisal of a physiological response is also consistent with data concerning the ideational components of neurotic anxiety (see Chapter 3). The content of negative thoughts can be understood in terms of a reaction to physical symptoms (Becke, Laude and Bohnert, 1974; Hibbert, 1984).

The predicted interaction between high self-focus and stress appraisal on state-anxiety was not obtained. Thus it may be concluded that self-focus was not associated with increments in state-anxiety because it increased subjects' awareness of salient negative appraisals. The data suggests that self-focus is associated with increments in state-anxiety because it increases subjects' awareness of somatic symptoms. An important finding of this study was that subjects high in self-focus reported greater state-anxiety than subjects low in self-focus when exposed to a threatening stimulus regardless of their salient cognitive appraisals being stresssful or non-stressful. The best explanation for this is that self-focus on physiological activity was a more powerful determinant of increments in state-anxiety than negative appraisal of a threatening stimulus.

Self-focusing may be an important pre-requisite for the analysis of threat and the elicitation of a coping response. Wachtel (1967) advocated that paying attention to the anxiety state may be a step

which directs behaviour towards threat reduction. It is proposed that if self-focusing occurs predominantly in situations characterised by threat, through a process of learning self-focusing may become directly associated with increments in anxiety. Thus, focusing on a specific aspect of the self may automatically elicit an anxiety response. This proposal can be understood in terms of associative-network theories of memory and emotion. Network theories (Bower, 1981) suppose that each emotion, for example, fear, is represented by a specific unit in memory and has its associated autonomic reactions, expressive behaviours, verbal labels assigned to the emotion and descriptions of standard situations leading to the emotion stored around it. Once activated the emotion unit transmits excitation to those nodes that produce the pattern of autonomic arousal and expressive behaviour assigned to that emotion. The current proposal assumes that focusing on a specific aspect of the self may lead to the activation of specific emotion nodes.

Based on the findings of this study it is proposed that the attentional style of individuals is an important determinant of their affective response in a threatening situation. The current findings have implications for the effective treatment of anxiety. Procedures designed to change the attentional style of the individual may prove effective as therapy. Cognitive research and therapy has been predominantly concerned with the content and nature of negative thoughts and appraisal processes in anxiety. However, it may be that threat is not only 'short-circuited' by altering cognitive appraisals but also by changing the self-attentional behaviour of the individual. The findings of this study indicate that specific types of attentional

behaviour, that is, self-focus on physiological activity, may be more important than the content of ideation in determining the focus of intensity of emotional reactions such as anxiety.

Existing cognitive approaches to the treatment of anxiety focus on changing maladaptive thought and appraisal processes. However the findings of this study suggest that for subjects high in dispositional self-focus changing cognitive appraisals may not be completely effective in ameliorating the anxiety response. Procedures designed to alter individuals' self-attention behaviour may be a useful adjunct to existing therapeutic approaches.

In summary the data generated by this study demonstrate that self-focus is associated with increments in state anxiety in threatening situations regardless of the nature of appraisal processes. It is proposed that self-directed attention activates nodes in memory which contain information about physical threat. In order to investigate this hypothesis a study was designed (Chapter 6) based on the experimental paradigm used by Mathews and Macleod (1984) for investigating selective processing in anxiety.

(Film used in this experiment entitled: 'Safety and the Supervisor'. Guild Sound and Vision Ltd, Woodston House, Oundle Road, Peterborough PE2 9PZ).

Chapter 6

SELF-ATTENTION AND THE SELECTIVE PROCESSING OF THREAT CUES IN ANXIETY STATES

6.1 SUMMARY

A study was designed to investigate the hypotheses that specific self-attention processes are associated with clinical anxiety and the activation of physical threat material in memory. The results support the hypotheses. Private self-consciousness and private body-consciousness were associated with state-anxiety scores in a sample of 28 out-patients with generalized anxiety disorder. Clinically anxious subjects had significantly higher private self-consciousness and private body consciousness scores than non-anxious control subjects. Both self-consciousness measures were associated with worry proneness and private body-consciousness was associated with somatic symptom frequency in both the clinically anxious and non-anxious control samples. In the control group private self-consciousness was positively correlated with slower colour naming time on a physical-threat related Stroop task. In the clinical group private body-consciousness was positively correlated with slower colour-naming time on both a threat and neutral Stroop task. Anxious subjects showed significantly slower colour naming performance than control subjects on the threat related task. These results support the hypothesis that self-focus is associated with the activation of physical 'threat' material in memory. In addition the data demonstrate that clinical anxiety is associated with high levels of dispositional self-focus.

6.2 INTRODUCTION

Recent research has demonstrated that dispositional self-attention is positively associated with the report of state-anxiety in threatening situations, and also trait-anxiety (Wells, 1985, Dickstein, Wang and Whitaker, 1981). However such research has been concerned with the relationship between self-attention and anxiety in normal subjects. The aims of the present study are twofold. First, to investigate the relationship between dispositional self-attention and anxiety states in a clinical population. It is hypothesized that self-attention processes characterized by hyper-vigilance for somatic activity are associated with clinical anxiety. Second, to investigate the relationship between self-attention and the activation of physical threat concepts in memory. Previous research (Geller and Shaver, 1976) has shown that a manipulation of self-awareness, that is, requiring subjects to perform in front of a mirror and video camera increased colour naming latencies on a modified Stroop task (Stroop, 1935) for self-relevant and self-evaluative words such as "proud", "error" and "failure" but not neutral words. These data suggest that self-awareness activates self-evaluative thoughts in memory.

Mathews and Macleod (1984) have demonstrated that clinically anxious subjects are slower than non-anxious controls in colour naming threat-related words. They found that anxious subjects who reported worrying about their physical health showed greater colour naming latencies on physical threat words compared to social threat or neutral words. These findings were interpreted as supporting the notion that

clinically anxious subjects possess 'danger schemata' which facilitate the processing of threat related stimuli.

Mathews and Macleod (1984) proposed that the content of danger schemata, that is salient worries, determine the extent of interference observed in Stroop performance. Interference is greatest when the content of currently activated danger schemata match the type of threat cues presented. However dispositional self-attention is positively associated with worry (see Chapter 2). Thus delayed colour-naming time with physical threat words may be associated with self-focused attention and not worry per se. Generalised anxiety and panic states can be considered to result from internal processes rather than some external situation as with phobic anxiety. For example in 50% of patients with generalised anxiety or panic disorder the onset of their problem was marked by a physiological disturbance other than somatic symptoms of anxiety (see Chapter 3). In addition the worries experienced by such patients represent negative appraisals of anxiety mediated somatic symptoms (Hibbert, 1984). It is hypothesised that self-directed attention is associated with the activation of memory nodes concerned with physical threat.

The aims of this study are twofold, first to investigate the relationship between dispositional self-focus and anxiety scores in a sample of subjects with generalised anxiety and panic disorder, and second to test the hypothesis that dispositional self-focus is associated with the activation of physical threat information in memory. In order to test the latter hypothesis a modified Stroop task similar to the one used by Mathews and Macleod (1984) was used. The

task consisted of physical 'threat' words which were based on anxiety symptoms. Dispositional self-focus was measured with the Private Self-Consciousness subscale (Fenigstein, Scheier, and Buss, 1975) which measures subjects' tendencies to focus on psychological aspects of self, and the Private Body-Consciousness subscale (Miller, Murphy, and Buss, 1981) which measures subjects' tendencies to focus on the bodily aspects of self in neutral non-affective states. If dispositional self-focus is associated with the activation of physical threat material in memory then a significant positive correlation should be obtained for self-focus with interference score on the 'physical threat' compared to neutral Stroop task. This relationship is most likely to be observed in the non-anxious sample. In the anxious group, mood state may interfere with performance on both Stroop tasks and confound this result.

6.3 METHOD

Subjects

A total of 44 subjects were tested, 28 of whom were recruited from consecutive referrals made by their General Practitioner, and had been diagnosed as suffering from general anxiety or panic attacks. Subjects were excluded from the sample if they had received previous psychological treatment, if there was a marked depression component to their problem, a psychiatric history or alcohol or drug abuse. Sixteen subjects, mostly employees of Aston University were selected as the control group. They were not known to have experienced emotional difficulties. Fifteen subjects in the clinical group were

men and 13 were women; mean age for the anxious group was 36.4 years (range, 17-59, s.d. 10.8). In the control group there were seven men and nine women; mean age for the control group was 30.8 years (range, 20-58, s.d. 10.4).

Materials

Twelve words relating to the physical symptoms of anxiety were selected from 34 clinical interview reports. Twelve control words were also selected which were matched with the threat words for length and frequency of occurrence in English (Table 6.1) Thorndike and Lorge (1963). Each set of words was written in block capitals approximately 7 cm high on a white card (A3 size). Each card contained a total of 96 words which were arranged so that corresponding threat and control words appeared in the same order on each card. The words were coloured either blue, green, brown, red or purple. The same colour did not occur more than once in succession, and each colour was repeated the same number of times on each card.

Table 6.1: Physical threat and neutral words used in the Stroop tasks

Physical Threat Words	Neutral Words
1. Tension	Textile
2. Anxiety	Evident
3. Sweat	Minor
4. Faint	Greet
5. Dizzy	Hinge
6. Nausea	Dredge
7. Panic	Hatch
8. Breathe	Inquire
9. Heart	Glass
10. Headache	Likeness
11. Insomnia	Unopened
12. Palpitate	Sidetrack

Procedure

Subjects were required to complete the state subscale from the State-Trait Anxiety Inventory (Spielberger, Gorsuch and Lushene, 1970). Each subject was then presented with the two Stroop cards, a control Stroop containing neutral words and threat Stroop containing physical threat words. The order of presentation was counterbalanced across subjects. They were asked to name the word colours as quickly as possible without making errors such as reading the word itself. The length of time taken to name all of the word colours on a card was recorded in seconds by the experimenter who used a digital stopwatch incorporating an audible starter signal. Subjects were instructed to

begin the task on hearing the starter signal. Following the Mathews and Macleod (1984) example error scores were not recorded. A pilot study with the Stroop task revealed that subjects made few errors anyway. Immediately after task completion subjects were required to complete the private self-consciousness subscale (Fenigstein, Scheier and Buss, 1975) and two questionnaires designed to measure proneness to worry and somatic subcomponents of anxiety. The worry scale was based on worry statements taken from the State-Trait Anxiety inventory (Spielberger et al), for example; 'I worry about possible misfortunes, unimportant thoughts run through my mind which bother me'. Responses were made on a four-point scale ranging from 'Almost Never' to 'Almost Always'. The psychosomatic rating scale was composed of 14 statements based on symptom reports of 32 male and female out-patients receiving treatment for general anxiety. For example: "When anxious: I suffer from muscle tension; I have palpitations'. Responses were made on a five-point scale ranging from 'never' to 'almost always' (see Appendix II and III). Subjects also completed the private body consciousness subscale (Miller, Murphy and Buss, 1981). All testing was conducted on an individual basis.

6.4 RESULTS

The difference (d-value) between colour naming speed on the threat and control Stroop task were obtained for each subject. Pearson product-moment correlations were computed between all subject scores for the anxious and non-anxious samples. In the anxious sample significant positive correlations were obtained for state-anxiety with private self-consciousness, private body-consciousness, trait-worry and

somatic frequency. Significant correlations were also obtained for private self-consciousness with trait worry, and for private body-consciousness with trait-worry, somatic frequency and disruption scores on both Stroop tasks. Trait-worry was significantly correlated with somatic frequency. These data are displayed in Tables 6.2.1 and 6.2.2.

The correlational data for the non-anxious sample are displayed in Table 6.3.1. Significant positive correlations were obtained for state-anxiety with private body-consciousness, trait-worry and somatic frequency. Private self-consciousness was significantly correlated with trait-worry, somatic frequency and d-score. Private body-consciousness was significantly correlated with trait-worry and somatic frequency. Trait-worry was significantly correlated with somatic frequency. Private self-consciousness was significantly correlated with somatic frequency in the control group but not in the anxious group. The difference between the correlations was significant ($z = 2.92$, $p = .002$).

Computation of the t-value between sample scores revealed that the anxious subjects had significantly higher state-anxiety scores ($t=4.90$, $p<.001$), private self-consciousness ($t = 2.18$, $p <.037$), private body-consciousness ($t = 5.20$, $p <.001$), trait-worry ($t = 5.86$, $p <.001$), and somatic frequency ($t=4.45$, $p <.001$) scores than non-anxious subjects. Anxious subjects also had significantly slower colour-naming performance on the threatening Stroop task ($t = 2.83$, $p <.007$), compared with the non-anxious sample. There was no

significant difference between anxious and non-anxious subjects in performance on the neutral Stroop task, ($t=1.94$, $p < .06$).

Table 6.2.1: Product-moment correlations between subtest scores for the patient sample (n = 28)

	2	3	4	5	6	7	8
1. State-anxiety	.44**	.37*	.59***	.56***	.14	.17	-.04
2. Private s-c		.18	.48*	.02	-.06	.02	-.16
3. Private b-c			.35*	.58***	.40*	.50**	-.16
4. Trait-worry				.47**	.19	.20	-.02
5. Somatic f.					.08	.11	-.04
6. Anxiety Stroop						.87***	.31
7. Non-anxiety Stroop (response time)							-.20
8. d-score							

* $p < .05$, ** $p < .01$, *** $p < .001$
s-c: self-consciousness
b-c: body-consciousness

Table 6.2.2: Means and standard deviations for subtest scores (patient sample)

	1	2	3	4	5	6	7	8
Mean	50.32	23.07	14.14	21.43	22.61	86.19	84.52	1.67
s.d.	9.03	5.90	3.77	4.21	11.37	14.18	13.75	7.24

Table 6.3.1: Product-moment correlations between subtest scores for the non-patient sample (n = 16)

	2	3	4	5	6	7	8
1. State-anxiety	.39	.55*	.68**	-.66**	-.13	-.13	.02
2. Private s-c		.56***	.53**	.77***	.01	-.24	.48*
3. Private b-c			.60**	.62**	.09	-.06	.29
4. Trait worry				.77***	.03	-.07	.20
5. Somatic f.					.05	-.13	.35
6. Anxiety-Stroop (response time)						.87***	.12
7. Non-anxiety Stroop (response time)							-.39
8. d'score							

* p<.05, ** p<.01, *** p<001

Table 6.3.2: Means and standard deviation for subtest scores (non-patient sample)

	1	2	3	4	5	6	7	8
Mean	35.75	18.75	7.80	14.00	10.31	75.29	76.86	-1.57
s.d.	9.74	6.54	4.24	3.95	6.87	11.06	11.9	16.00

6.4 DISCUSSION

This study has yielded findings which demonstrate that private self-

consciousness and private body-consciousness are associated with state-anxiety scores in subjects suffering from generalized anxiety and panic disorders. In addition private self-consciousness is associated with worry proneness in anxious and control subjects. A significant and positive relationship was observed between private self-consciousness and somatic symptom frequency in the control group but not the anxious group. The best explanation for the significant difference between these correlation coefficients is that clinically anxious subjects are so highly self-focused on physiological aspects of themselves that self-focusing on their psychological aspects does not increase their awareness of somatic symptoms. This ceiling effect is supported by the data which demonstrates that the anxious subjects had significantly higher scores than the control subjects on private body consciousness and somatic frequency.

In this study, measures of both private body-consciousness and somatic symptom frequency were utilized. Although both measures assess the degree of an individual's body-directed attention, a conceptual distinction between the measures can be made. Private body-consciousness measures an individual's tendency to focus on internal bodily events in neutral (non affective) states (Miller, Murphy and Buss, 1981, p. 398). However the somatic symptom scale was designed to measure self-reports of the physiological concomitants of anxiety. In the present study both anxious and control subjects scoring high in dispositional body-consciousness reported a greater frequency of anxiety mediated somatic symptoms. In addition body-consciousness was positively associated with a measure of worry proneness in both samples.

The hypothesis that self-focussed attention is associated with the activation of physical threat concepts in memory is supported by the present data. In the non anxious sample there was a positive correlation between private self-consciousness and the difference in colour naming speed on the physical threat against neutral Stroop task. However this relationship was not observed in the anxious group. In the anxious group high private body-consciousness scores were associated with slower colour-naming performance on both the threat and the neutral Stroop tasks. It would seem that the significantly greater levels of body-consciousness in the anxious sample cause disruption in performance on both tasks. However the anxious subjects had significantly longer colour naming times than control subjects on the physical threat Stroop task.

These data suggest that general interference in performance on both Stroop tasks was associated with high levels of private body-consciousness, however the specificity of the interference effect was related to private self-consciousness. The absence of a significant correlation between anxiety state and Stroop performance suggests that the interference effect was not associated with current mood. Taken together these data support the hypothesis that clinical anxiety is associated with self-directed attention. Furthermore the data support the hypothesis that self-focusing activates physical threat material in memory. Mathews and Macleod (1984) have proposed that anxiety is associated with the activation of 'danger schemata' which account for the impairment in colour naming of threat related words. However an alternative view is supported by the present findings which suggest

that self-focused attention may lead to the activation of physical threat concepts in memory. Individuals high in dispositional self-focus have a lower threshold for perceiving threatening somatic stimuli. Hyper-vigilance for specific physiological responses may be of particular etiological significance in the formation and subsequent activation of physical threat nodes in memory. Such nodes may have a specific pattern of autonomic activity and negative thoughts associated with them (Bower, 1981). It is conceivable that other forms of dispositional self-focus, for example public self-consciousness, that is individuals' tendencies to focus on outwardly observable aspects of self are associated with the activation of different memory nodes. Thus public self-consciousness may be associated with the activation of social threat nodes in memory which produce a different pattern of arousal and negative thoughts. The nature of self-attention may therefore be associated with different types of negative thoughts in anxiety. The study reported in Chapter 7 was designed to explore the content of anxious worry and its relationship with various self-attention and personality measures.

Chapter 7

ASSESSMENT OF 'ANXIOUS'-WORRY AND ITS CORRELATES: THE NEGATIVE IDEATION QUESTIONNAIRE

7.1 SUMMARY

A self-report scale was constructed to assess individual differences in worry. Factor analysis of the scale revealed that worry has three components: negative social ideation (worry about social status), negative somatic ideation (worry about physical health) and obsessional ideation (the experience of uncontrollable and repetitive thoughts). For each factor, norms, test-retest reliability data and correlations with other personality measures are presented. The content of worry appears to be associated with specific self-focusing tendencies.

7.2 INTRODUCTION

Cognitive processes typified by irrational and negative thinking are considered to be central components in several theories and treatments of anxiety, (Ellis, 1962; Meichenbaum, 1977; Beck, 1976). One of the most influential approaches to cognitive therapy is Beck's theory of dysfunctional behaviour. The theory is based on the assumption that certain psychopathological states such as generalised anxiety and depression are either caused and/or maintained by automatic and maladaptive patterns of thinking. In one study Beck, Laude and Bohnert (1974) investigated the nature of negative thoughts in

generalised anxiety disorders. They found that all patients in their study could identify thoughts relating to the theme of personal danger which occurred just prior to or during an anxiety attack. The thoughts concentrated around the themes of physical harm or psychosocial trauma such as embarrassment or humiliation. It was proposed that certain kinds of stress activate 'danger schemata' which lead to the ideational components of anxiety. Hibbert (1984) has conducted a more recent study which substantiate the findings of Beck et al concerning the ideational component of anxiety. In addition Hibbert found that the negative thoughts characteristic of individuals suffering from generalised anxiety or panic disorder can be predominantly understood in terms of a reaction to somatic symptoms.

The role of negative ideation, more commonly referred to as worry, has received most attention in the field of test-anxiety research. Liebert and Morris (1967) have proposed a two-component conceptualisation of test-anxiety in which the response is separable into cognitive and somatic components. The cognitive component is typified by negative and self-evaluative thoughts concerned with task performance. Wine (1971, 1982) has proposed that task decrements characteristic of subjects high in test anxiety result from divided attention, that is focus on both self-relevant negative thoughts and task relevant matters. Eysenck (1979) has proposed that task-irrelevant cognitive activities such as worry produce performance decrements because they pre-empt some of the limited capacity of working memory. In test-anxiety research self-report scales have been devised which measure the separate cognitive and somatic subcomponents of anxiety, (e.g. Morris and Liebert, 1969; Morris, Davies and

Hutchings, 1981; Spielberger, Gonzalez, Taylor, Algaze, and Anton, 1978). Although the study of worry-processes in anxiety has evolved primarily in the context of test-anxiety research, the concept of worry is equally important in the analysis of other anxiety experiences. However as Schwartz, Davidson, and Goleman (1978) point out most general anxiety questionnaires provide a single global score reflecting an unknown mixture of typologically different forms of anxiety. Barrett (1972) has performed an item analysis of anxiety items from a large number of scales and found two factors: awareness of somatic changes, and awareness of unpleasant feelings about self or environment typified by worry. Based on a multicomponent view of anxiety Schwartz, Davidson, and Goleman devised a self-report measure of cognitive and somatic components of anxiety in order to investigate the differential effects of a somatic (physical exercise) and a cognitive (meditation) relaxation procedure on the somatic and cognitive components of anxiety. Results from the study demonstrated that subjects who had practised physical exercise reported relatively less somatic and more cognitive anxiety than meditators. These data suggest that a distinction between cognitive and somatic components of anxiety may have implications for the selection of appropriate treatment procedures. However, O'Neil (1985) has argued that a separate concept of worry has little utility. Worry appears to be a component of anxiety, and as both worry and anxiety seem to relate to behaviour in the same way the treatment of worry as a separate concept may be unnecessary. In addition O'Neil states that if worry refers to the cognitive component and the term anxiety includes the autonomic component, it is unnecessary to design treatments to eliminate worry, as existing treatments which are effective against anxiety will be

sufficient. These criticisms have emerged from the analysis of worry offered by Borkovec, Robinson, Pruzinsky, and Deree (1983). They propose that "worry is a chain of thoughts and images, negatively affect-laden and relatively uncontrollable. The worry process represents an attempt to engage in mental problem solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes. Consequently worry relates closely to fear processes." (p. 10). Borkovec (1985) in a reply to O'Neil has stated that 'worry' is a potentially useful concept as the study of the phenomenon may increase knowledge about human anxiety, lead to an elucidation of the process and its relationship with other behaviour.

The aims of the present study are twofold, first to investigate the content of anxious worry and develop a relevant assessment instrument, and second to elucidate the relationship between negative ideation and other personality measures such as dispositional self-focus, locus of control and anxiety proneness. In a previous study Wells (1985; see Chapter 2) demonstrated that private self-consciousness is positively correlated with self-reports of worry in a threatening situation. In addition perceived control over life events appears to be associated with worry proneness (Chapter 2). In the present study the relationship between components of worry and relevant personality traits, in particular private and public self-consciousness was investigated to test the hypothesis that focusing on a specific aspect of the self is associated with a particular pattern of negative ideation.

7.3 METHOD

Item selection and factor analysis

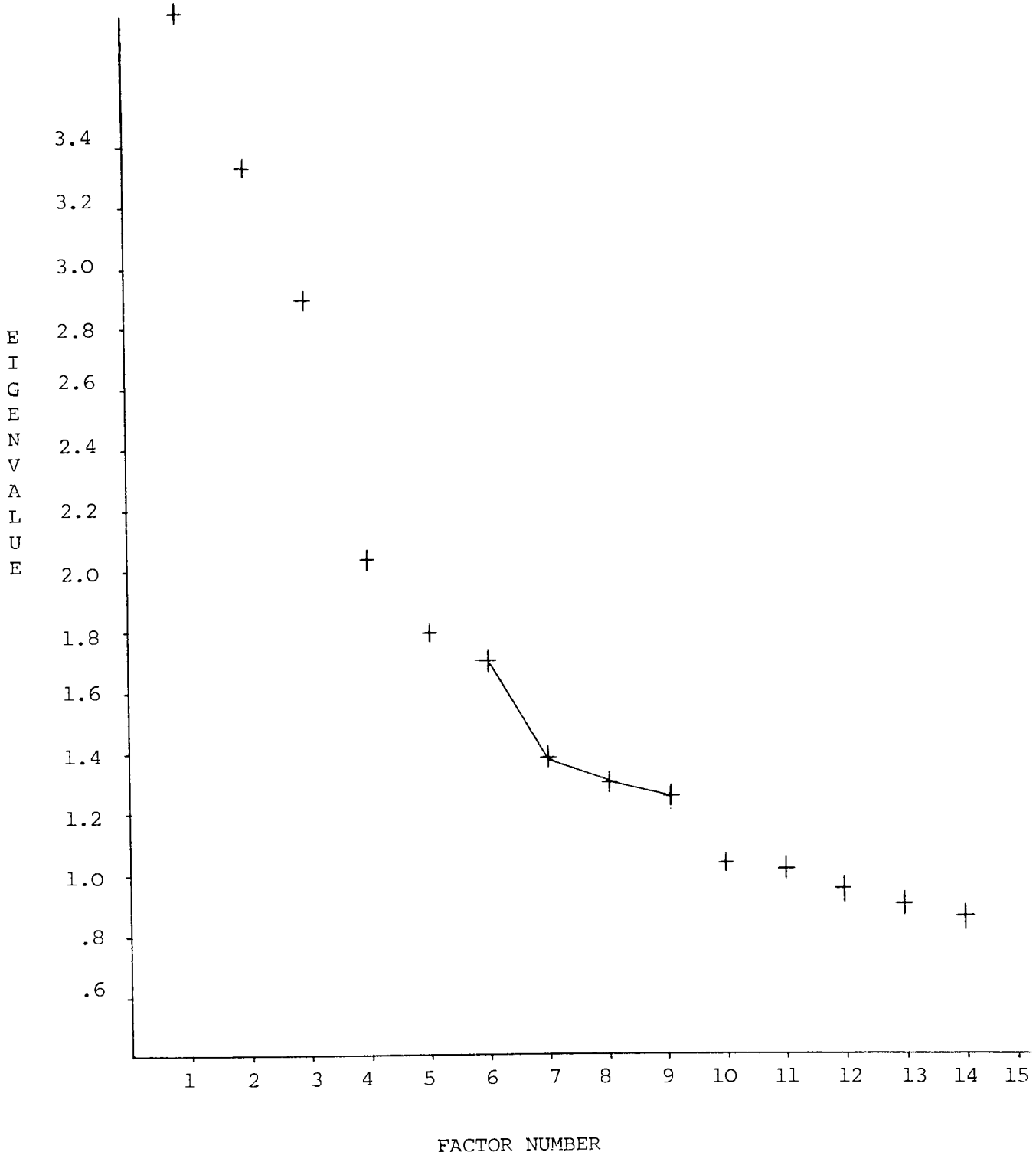
The first set of items used in constructing the scale were based on Beck, Laude and Bohnert's (1974) and Hibbert's (1984) reports of negative thoughts in clinical anxiety and the results of an interview study with 34 outpatients receiving treatment for general anxiety or panic disorder. Six domains of worry were utilised based on the following classification; (a) overconcern with trivialities, (b) physical health worries, (c) worry about loss of self-control, (d) worry about physical appearance and social inadequacy, (e) anticipation of future calamities involving self or relatives, (f) negative thoughts about helplessness and failure.

Forty-four items were devised to sample this domain, and the scale was administered to 101 undergraduate men and women (see Appendix VIa for pilot worry scale: first version). A principal factor method of factor extraction was used (an oblique rotation with direct oblimin criterion). A six-factor solution was chosen based on results from the Scree Test (Cattell, 1978). A plot of eigenvalue against factor number revealed a sharp break of slope between factors six and seven and factors nine and ten (Figure 6.1). A six-factor solution was chosen in preference to a nine factor solution which produced several uninterpretable factors containing few items. The first six factors accounted for 54.6% of the variance. Factor 4 contained only three items and was uninterpretable. The remaining five factors suggested that worry consists of general worry over trivialities, health

worries, worry about misfortunes, repetitive thoughts including thoughts about helplessness, and worry about social embarrassment/inadequacy.

Revisions of the scale were necessary as a few items loaded highly on more than one factor and factor five consisted of items of both a depressive and obsessional type. Accordingly some items were discarded and new items were added (see Appendix VIb). The scale was then administered to a further 110 male and female undergraduate students. Analysis of the data revealed four factors which were similar to the factors obtained in the previous study. The first four factors accounted for 35% of the variance and were: 1) worry about people's reaction to the self and social interaction, 2) physical health worries, 3) depressive worry and 4) repetitive thoughts of an obsessional nature. The factor patterns for men and women were similar, and their data were therefore combined in all subsequent factor analyses. The depressive factor consisted of only four items and the obsessional factor of only three items, thus new items were added and the scale was administered to 239 undergraduate male and female students, their mean age was 20.12 years (range 18-35, s.d. 2.19) (see Appendix VIc for third version of scale). The basic factor structure was replicated with the exception of depressive worry, thus three factors were obtained: 1) worry about people's reaction to the self, 2) physical health worries, and 3) the experience of repetitive thoughts of an obsessional nature.

Figure 7.1 Scree test for optimum number of worry factors



7.4 RESULTS

The final version of the scale consisted of 22 items (see Appendix VII). Each item was rated on a scale ranging from 1 (almost never) to 4 (almost always). The items which constitute the three factors are presented in Table 7.1. The names assigned to each factor reflect their item content: negative social ideation, negative somatic ideation and obsessional ideation. The items retained from previous versions of the scale loaded essentially the same way as they did earlier, and all items loaded at least .40 with the appropriate factor.

Table 7.1: Items and Factor Loadings of the Negative Ideation Scales

Scale/item	Factor loading
Negative Social Ideation	
I worry about my appearance	.43
I worry about my failures and weaknesses	.43
I worry about my abilities not living up to other people's expectations	.50
I worry about not being able to cope in life as adequately as others seem to	.45
I worry about saying and doing the wrong things when among strangers	.66
I get embarrassed easily	.56
I think that I am a failure	.58
I worry about making a fool of myself	.74
I worry that people don't like me	.67

Negative Somatic Ideation	
I have thoughts about being seriously ill	.65
If I experience unexpected physical symptoms I have a tendency to think the worst possible thing is wrong with me	.71
I worry about death	.51
I worry about having a heart attack or cancer	.45
When I suffer from minor illnesses such as a rash I tend to think it is more serious than it really is	.70
I worry about my physical health	.64
Obsessional Ideation	
When looking to my future I give more thought to the negative things than the positive things that might happen to me	-.41
I take disappointments so keenly that I can't put them out of my mind	-.44
I have repetitive thoughts such as counting or repeating phrases	-.41
Unpleasant thoughts enter my mind against my will	-.51
I have difficulty clearing my mind of repetitive thoughts	-.69
I think that I am missing out on things in life because I worry too much	-.41
I worry that I cannot control my thoughts as well as I would like to	-.66

Only factor loadings of over .40 are reported: using this criterion there were no overlapping items.

Subscale correlations

In order to determine the relationship among the three factors, data from the sample of 239 subjects were used. Negative social and

somatic ideation correlated .30 ($p = <.001$), which suggests that people who have social worries also worry about their physical health. Negative social ideation and obsessional ideation correlated .54 ($p < .001$) and negative somatic and obsessional ideation correlated .39 ($p < .001$). These data suggest that people who have physical health and social worries also have repetitive negative thoughts, in fact their health or social worries may be highly repetitive and uncontrollable in nature.

Norms

Subscale means and standard deviations are presented separately for men and women in Table 7.2. Women scored significantly higher than men on negative social ideation ($t = -3.32$, $p < .001$). There were no other gender differences.

Table 7.2: Means and standard deviations on Negative Ideation Questionnaire scales for men and women

	MEN		WOMEN	
Scale	m	s.d.	m	s.d.
Negative social ideation	17.16	4.09	19.12	4.98
Negative somatic ideation	8.61	2.53	9.02	3.04
Obsessional ideation	11.57	2.80	11.09	3.55

(men, n = 98; women, n = 141)
(mean age = 21.22 years mean age = 20.64 years)
(s.d. 5.41 s.d. 2.37)

Reliability

In order to determine the stability of individual scores over time, the questionnaire was administered to 64 undergraduate men and women on two separate occasions, six weeks apart. Test re-test correlations for the subscales were: negative social ideation, .76; negative somatic ideation, .84; obsessional ideation, .77; and total score, .80. These correlations demonstrate that the scale and the subscales are reasonably reliable.

Personality correlates

The relationship between the worry subscales and a number of relevant personality measures was investigated in a sample of 96 undergraduate men and women. Correlations between the negative ideation questionnaire subscales and other personality traits are presented in Table 7.3.

Table 7.3: Correlations between the Negative Ideation Questionnaire and relevant personality traits (n = 96)

	Negative Social Ideation	Negative Somatic Ideation	Obsessional Ideation
Trait anxiety	.63**	.36**	.68**
Private s-c	.39**	.28*	.37**
Public s-c	.57**	.14	.33**
Social anxiety	.66**	.26*	.31**
Locus of control	.44**	.29*	.46**
Neuroticism	.62**	.52**	.60**
Extraversion	-.45**	-.15	-.33**

* p <.01, ** p <.001
s-c: self-consciousness

Earlier research (see Chapter 2) suggests that private self-consciousness is positively associated with worry. In order to determine the relationship between self-consciousness subscales and worry subscales, the Self-Consciousness Scale (Fenigstein, Scheier and Buss, 1975) was used. The Self-Consciousness Scale has three subscales; private self-consciousness which measures an individual's tendency to focus on thoughts, feelings, moods and attitudes, public self-consciousness which measures the tendency to become shy and embarrassed when with others. It was predicted that private self-consciousness would be positively correlated with all subcomponents of worry, whereas for public self-consciousness and social anxiety the highest correlations would be with negative social ideation. Private self-consciousness was found to correlate significantly with all of the worry subscales. However public self-consciousness correlated significantly with negative social ideation and obsessional ideation but did not correlate significantly with negative somatic ideation. Social anxiety was significantly correlated with all subcomponents of worry.

Wachtel (1967) has proposed that self-focus in threatening situations may be an important step which directs behaviour toward threat reduction and in the absence of control over threat attention remains fixed on the self. In a previous study (Chapter 2) the control dimension was assessed with a locus of control measure (Nowicki and Duke, 1974). In that study a positive correlation between external locus of control and worry proneness was demonstrated. In order to further investigate the relationship between locus of control and self-focus on negative ideation the Nowicki-Duke (1974) locus of

control scale for adults was utilised in the present study. Significant correlations were obtained for external locus of control with all worry subscales. An incidental finding of some theoretical importance was the significant positive correlation for external locus of control with private self-consciousness ($r = .21$, $p < .02$), public self-consciousness ($r = .32$, $p < .001$) and social anxiety ($r = .27$, $p < .004$).

The Eysenck Personality Inventory (Eysenck et al, 1963) was used to investigate the relationship between subcomponents of worry, extraversion and neuroticism. Neuroticism was significantly and positively correlated with all worry subscales. Extraversion significantly negatively correlated with negative social ideation and obsessional ideation, although it did not correlate significantly with negative somatic ideation.

The trait-anxiety subscale (Spielberger, Gorsuch and Lushene, 1970) was included to explore the relationship between subcomponents of worry and anxiety proneness. There was a significant positive correlation for trait-anxiety with all subcomponents of worry.

7.5 DISCUSSION

There appear to be three separate aspects of anxious worry: the first is concerned with psychosocial trauma and involves thoughts concerned with humiliation and the negative reactions of others to the self. The second aspect is concerned with physiological trauma, and consists

of negative thoughts about somatic reactions and illness. This dimension is characterised by thoughts which represent 'dangerous' and exaggerated interpretations of physical symptoms. The first two worry dimensions are similar to the analyses made by Beck, Laude, and Bohnert (1974) and Hibbert (1984) of the ideational component in generalised anxiety and panic disorder. Patients have negative thoughts about physical or psychosocial trauma, they systematically misconstrue the symptoms of anxiety (and conceivably other somatic responses) as dangerous.

The third worry dimension consists of unwanted and/or uncontrollable thought intrusions. The subscale is consistent with the conceptualisation of maladaptive thoughts in anxiety as 'automatic' and uncontrollable in nature (Beck, 1976). Borkovec, Wilkinson, Folensbee and Lerman (1983), have postulated that although worry is elicited by internal or external fear cues, the uncontrollable nature of the cognitive process results in its occurrence in and association with a wide variety of environmental circumstances, thus creating poor control for the activity. In the present study the correlations between the obsessional ideation subscale and negative social and somatic ideation subscales indicate that negative social and somatic ideation may be repetitious and uncontrollable in nature. The controllability of cognitive-ideation processes may in itself be an important factor associated with worry-proneness. The repeated emergence of obsessional ideation as a separate factor indicates that worry can be directed at the controllability/uncontrollability of ideational processes in general. Taking the three worry factors into account it appears that the content of negative ideation is

predominantly socially oriented, health oriented, and/or concerned with lack of control over thought processes.

Although significant correlations were obtained between all negative ideation subscales, the subscales consistently emerged as separate factors with a constant factor pattern. The correlation between somatic and social worry suggests that some individuals who have one type of worry also have the other type. Perhaps such individuals have the thought that they may faint or panic and lose control in public as a consequence of their somatic symptoms. The pattern of correlations between each factor and several personality measures are different, suggesting that a potentially useful distinction can be made between the subcomponents of worry.

Test-retest correlations for the whole scale and individual subscales are quite high indicating that the tendency of individuals to have specific negative thoughts is relatively stable. This finding is consistent with schemata theories of worry (Beck, Laude and Bohnert, 1974; Beck, 1976), in which negative thoughts are considered to result from the activation of specific maladaptive knowledge structures. The activation of such schemata leads to a pattern of cognitive activity characterised by thoughts about personal danger and the misconstruing of experiences as a result of drawing arbitrary inferences, overgeneralisation, misinterpretation and so on. This misinterpretation process is particularly evident in some of the items constituting the negative somatic ideation subscale, for example; "If I experience unexpected physical symptoms I have a tendency to think the worst possible thing is wrong with me".

The relationship between the worry subcomponents and several personality measures yielded interesting results. As expected all subscales correlated significantly with trait-anxiety. However the relationship between negative somatic ideation and trait-anxiety was smaller than that between trait-anxiety and the other worry subscales. Of particular interest is the finding that private self-consciousness positively correlates with all worry subscales. However public self-consciousness correlates significantly with only the negative social and obsessional ideation subscales. These data may be explained in terms of Duval and Wicklund's (1972) theory of self-awareness. The theory states that when attention is self-focused it leads to self-evaluation and the identification of discrepancies between the real self and the ideal self along salient dimensions. It follows from this that focus on specific aspects of the self may be differentially associated with particular types of negative cognitions. Thus private self-consciousness which measures an individual's tendency to self-focus on thoughts, feelings, moods and attitudes is associated with negative ideation in general, however public self-consciousness which measures an individual's tendency to focus on observable body aspects is associated with negative social ideation. Thus it appears that the content of negative ideation is associated with specific self-focusing tendencies. These data are consistent with the proposal that specific self-focusing tendencies are associated with the activation of negative (threat) material in memory (see Chapter 6). In addition self-focus may be associated with the perpetuation of worry. Once established self-focus on negative thoughts may lead to a spiral of negative cognitions as subjects are

unable to mobilise sufficient attention to process stimuli which are inconsistent with negative ideation, this may contribute to the 'automatic' and repetitive nature of worry.

In Chapter 2 a positive relationship between external locus of control and worry proneness was demonstrated. In the present study external locus of control correlated significantly with all worry subscales. Wachtel (1967) has proposed that self-focus may be an important pre-requisite for coping with threat, this contention is similar to the conceptualisation of worry as a secondary cognitive process whose function is to avoid future trauma and elicit coping responses (Borkovec, Wilkinson, Folensbee and Lerman, 1983). Wachtel has contended that in the absence of coping responses subjects may remain focused on the internal state. Thus a perceived inability to control life events measured by external locus of control may result in self-focus on negative ideation. In turn self-focus maintained in the absence of coping responses may perpetuate negative thoughts by increasing the saliency of discrepancies between actual and ideal behaviour and narrowing attention such that positive stimuli are not processed.

The most interesting factor to emerge from the present analysis of worry is the obsessional one. This factor essentially measures an individual's perceived control over thought processes. Negative thoughts in anxiety are characterised by their uncontrollable nature, an aim for future research is a more detailed study of individual's perceived control over thought processes. Individuals who perceive their thought processes as relatively uncontrollable may be more prone

to anxiety and other forms of psychopathology because they do not attempt to engage in cognitive problem solving and cognitive coping strategies. The concept of perceived control over external life events appears relevant in an analysis of cognitive processes in anxiety, it is conceivable that perceived control over internal cognitive events may also be important.

In summary, the present study has demonstrated that worry is a multicomponent process. In addition specific personality traits are associated with various combinations of worry subcomponents. The data presented here suggest that the concept of worry may prove useful in the theory and research on cognitive processes in emotion and personality. Worry appears to be associated with a number of other cognitive factors which are considered important in the study of affective reactions and a questionnaire similar to the one presented here may prove useful in exploring the structure of worry across different clinical syndromes.

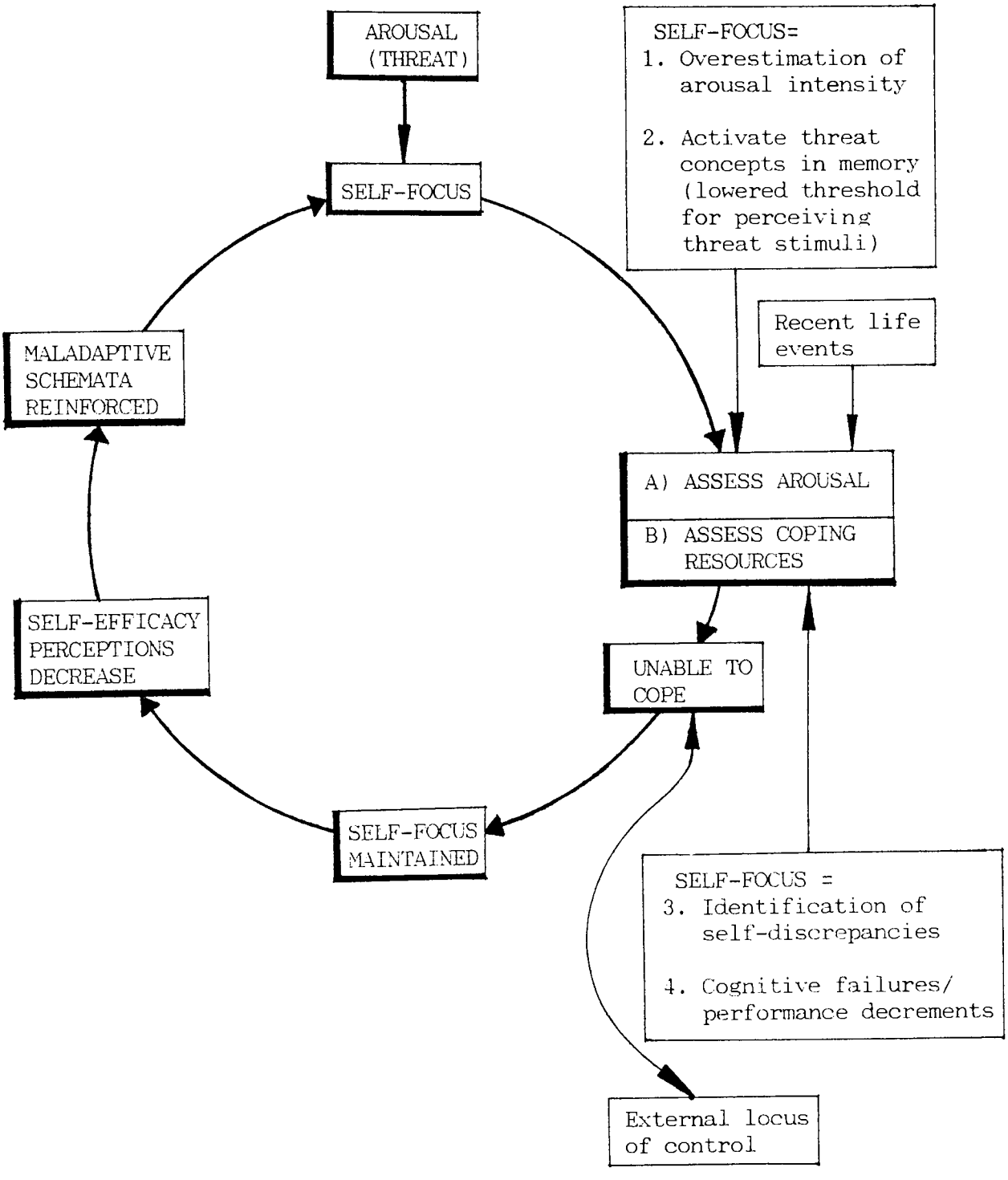
Chapter 8

GENERAL DISCUSSION

8.1 OVERVIEW

This thesis comprises several experimental studies which have demonstrated and explored a relationship between self-attention and anxiety. The starting point for the investigations was the relationship which has been observed between dispositional measures of self-attention, trait anxiety and proneness to depression. A review of the relevant literature revealed that self-directed attention, a construct derived from social psychological theory, has implications for affective behaviour. The effect of self-focus on approach-avoidance tasks involving a feared stimulus are strikingly similar to the effects obtained from manipulation of other cognitive factors such as perceived self-efficacy (Carver, Blaney and Scheier, 1979; Bandura, Adams and Beyer, 1977). Thus it appeared that self-focused attention may influence other cognitive factors considered as important determinants of emotional states such as anxiety. The experiments reported here demonstrate that self-attention is associated with cognitive variables such as selective processing, cognitive failures, locus of control, negative ideation, and awareness of somatic arousal. Based on these findings a self-attentional model of anxiety is proposed. A schematic representation of the relationship between self-focus and other cognitive factors in anxiety is presented in Figure 8.1.

Figure 8.1: Schematic representation of the relationship between self-focus and other cognitive factors in anxiety



8.2 CONCLUSIONS AND IMPLICATIONS

The data presented in Chapter 2 were correlational and demonstrated that dispositional self-focus is positively associated with anxiety and worry proneness and reports of anxiety mediated psychosomatic symptoms. In addition subjects high in private self-consciousness report greater state anxiety and worry in threatening situations compared with subjects low in private self-consciousness. The relationship between dispositional self-attention and anxiety is not confined to normal non clinically anxious subjects. In a comparison study of clinically anxious subjects and normal controls, private self-consciousness and private body-consciousness were significantly positively correlated with state anxiety, trait anxiety, worry proneness and psychosomatic' frequency in the clinical sample. The anxious subjects had significantly higher scores in private self-consciousness and private body-consciousness compared with the non-anxious control group. These data demonstrate that the cognitive and somatic subcomponents of anxiety are associated with individuals self-focusing tendencies. Dispositional self-focus is associated with anxiety at both a state and a trait level and neurotic anxiety may be an important concomitant of high levels of self-attention.

Self-focused attention has been conceptualised as an intermediate step involved in the elicitation of a coping response in threatening situations (Wachtel, 1967), and in the absence of control responses subjects remain focused on the internal state. A measure of locus of control was utilised in the present thesis to investigate the relationship between self-focus and the control/coping dimension.

Significant positive correlations were obtained for worry proneness and private self-consciousness with external locus of control. In addition public self-consciousness and social anxiety were also significantly positively correlated with external locus of control. These data suggest that individuals' tendencies to self-focus attention are associated with a perceived inability to control life events. Although these data do not provide direct support for the contention that self-focus is responsible for the elicitation of a coping response and with a perceived inability to cope self-focusing persists, the data are consistent with this contention.

In Duval and Wicklund's (1972) theory of self-awareness, self-focus results in the discovery by the individual that he or she is far from an ideal point on a particular self-dimension. Thus self-attention may be associated with negative ideation by increasing individuals' awareness of such discrepancies. A perceived failure to control life events represents a specific dimension in which discrepancies exist between an individual's actual behavioural achievements and the ideal goal of behaviour. In this way self-directed attention may increase perceptions of an inability to control life events in specific situations. This analysis has parallels with the conceptualisation of levels of perceived self-efficacy as a determinant of fear arousal and avoidance behaviour (Bandura, 1977; Bandura, Adams, Hardy and Howells, 1980). Self-efficacy is measured in relation to task sequences which involve progressive approach and contact with a feared stimulus. The level of self-efficacy is assessed by confidence ratings subjects give with respect to their ability to complete each task in the sequence. It follows from this that a subject's perception of discrepancies

which exist between behaviour and the behavioural goal will be an important determinant of self-efficacy perceptions. Self-attention may increase the saliency of such discrepancies and thus decrease perceptions of self-efficacy. Bandura (1977) has stated that a number of factors such as locus of control and physiological arousal may be important determinants of perceived self-efficacy levels. The relationship between self-attention and locus of control has already been discussed in this chapter. The relationship between physiological arousal and self-focus will be considered next.

The literature on self-attention and awareness of bodily states suggests that self-focus increases individual's awareness of physical symptoms, (e.g. Pennebaker and Skelton, 1978). Self-focus may also be associated with an overestimation of arousal intensity (Mandler, Mandler and Uviller, 1958). Data from the research reported in this thesis, demonstrates that subjects high in private self-consciousness report a higher frequency of anxiety mediated psychosomatic symptoms than subjects low in private self-consciousness. An increased awareness of arousal symptoms and an overestimation of arousal intensity resulting from self-focus may diminish levels of perceived self-efficacy.

Another factor which is relevant in the relationship between self-attention and anxiety and also has implications for coping behaviour and self-efficacy is the individual's experience of performance decrements. In the test-anxiety literature task decrements characteristic of subjects high in test anxiety are considered to

result from self-focus in evaluative situations. The results of the interview study reported in Chapter 3 demonstrate that patients suffering from clinical anxiety report impaired concentration and memory when anxious. Furthermore in some cases cognitive impairment resulting from anxiety exacerbates that state by undermining beliefs about personal competence. In order to investigate the relationship between anxiety and everyday slips of action the Cognitive Failures Questionnaire (Broadbent, 1985) was used, in a study of 100 students. The results were analysed using a multiple linear regression model to test the hypothesis that the relationship between anxiety and cognitive failures is mediated by self-directed attention. The results demonstrated that cognitive failure score can be predicted from private and public self-consciousness and adding trait-anxiety to the equation does not significantly increase its predictive power. Thus it appears that the relationship between anxiety and cognitive failure (Broadbent et al, 1982) is mediated by self-focused attention.

Performance failures resulting from self-attention may have an effect on the experience of anxiety. Such decrements can undermine perceptions of self-efficacy and thus influence the amount of effort which is invested in coping. Cognitive failures may increase discrepancies between actual behaviour and ideal standards of behaviour. Broadbent, Broadbent & Jones (1986) contend that persons who score high in cognitive failures make fewer direct and active coping behaviours and experience greater symptoms in stressful situations. The current data demonstrate that the relationship between anxiety and cognitive failures is mediated by self-directed

attention. It is proposed that self-attention processes interrupt coping behaviour. The repressive and non-active coping style of people with high cognitive failure scores represents a coping strategy consisting of self-focused attention. In contrast the direct and active coping strategies of subjects with low cognitive failure scores require task-directed attention.

The relationship between self-attention and worry has been mentioned above. In summary it appears that high levels of self-focus and a perceived inability to control life events are associated with high levels of worry. Results of an interview study with clinically anxious patients are presented in Chapter 3. These results are consistent with those from other studies (Beck, Laude and Bohnert, 1974; Hibbert, 1984) and demonstrate that the negative thoughts typical of patients suffering from generalised anxiety or panic disorder are primarily concerned with physiological or psychosocial trauma. Furthermore patients' negative thoughts can be understood in terms of a reaction to somatic symptoms. Fifty percent of the patients interviewed reported a hypervigilance for specific somatic symptoms. Cognitive analyses of the ideational component of anxiety have generally considered that negative thoughts result from the activation of specific knowledge structures which have been called 'danger schemata' (Beck, Laude & Bohnert, 1974). The tendency of anxious individuals to selectively process threat-related stimuli has also been attributed to the activation of such schemata (Matthews & Macleod, 1984). However the data reported in Chapter 6 indicate that the selective processing of threat material is associated with self-focused attention. In a study utilising a modified Stroop paradigm to

compare anxious subjects with normal controls in their speed of colour-naming words relating to physical symptoms and neutral words, clinically anxious subjects took significantly longer than normal subjects to colour name physical symptom (threat) words. In the clinical sample private body-consciousness was significantly positively correlated with slower colour naming speed on both the threat and neutral Stroop task. However in the non-anxious sample there was a significant positive correlation between private self-consciousness and the difference between threat and neutral Stroop performance. Non-anxious subjects high in dispositional self-focus were slower than subjects low in self-focus at colour naming threat words. The clinically anxious subjects had significantly higher scores in private body-consciousness and private self-consciousness than the control subjects. It appears that the significantly greater levels of private body-consciousness in the anxious sample cause disruption in performance on both Stroop tasks. However the findings that anxious subjects were significantly slower in colour naming physical threat words than controls, and in the control sample private self-consciousness was associated with reduced speed in colour naming physical threat compared with neutral words, demonstrates that the selective processing of physical threat stimuli is associated with self-attention. It is proposed that self-attention is associated with the activation of physical threat nodes in memory. In this way self-directed attention may be of etiological significance in the formation and subsequent activation of 'danger schemata'. However the cognitive processes attributed to the activation of such schemata, that is, negative ideation and selective processing can be accounted for by the concept of self-attention. Thus the utility of the schemata concept

in anxiety theory is questionable, particularly as such a concept offers few therapeutic implications.

In this thesis the term 'threat-node' based on associative network theories of emotion (Bower, 1981) is preferred to the term 'danger schemata'. A conceptualisation of worry and selective processing in anxiety in terms of the activation of 'threat-nodes' resulting from self-focus is more dynamic than purely structural schemata theories.

In a study of the effects of dispositional self-focus and cognitive appraisal on responses to a threatening stimulus (Chapter 4), subjects' appraisal of a threatening film stimulus were manipulated. Negative appraisal was associated with greater worry during a threatening film compared with coping appraisal or a control condition (no appraisal manipulation). There was no interaction between dispositional self-focus and negative appraisal on state-anxiety. A main effect was obtained for self-focus on state anxiety, worry and somatic symptoms experienced during the film. Both negative appraisals and high self-focus were associated with high levels of worry during exposure to a threatening stimulus. However, the absence of a significant interactive effect of self-focus and negative appraisal on worry indicates that the variables may be related to worry in a different way. Partial correlation data revealed that the relationship between self-focus and worry was mediated by somatic symptoms. In addition to worry being increased by negative appraisal of the film, increased worry may also have been associated with subjects appraisal of their physiological response. This contention is consistent with findings which demonstrate that the content of

negative thoughts in clinical anxiety can be understood in terms of a reaction to somatic symptoms. Self-focused attention may in fact represent an epistemic search process like that proposed by Schachter and Singer (1962) in which subjects attempt to label and interpret internal bodily events. The labelling process is based on contextual information, thus subjects exposed to the threatening film stimulus labelled physiological arousal negatively. The main finding of the appraisal study was that subjects high in dispositional self-focus reported greater state-anxiety than subjects low in self-focus when exposed to a threatening stimulus regardless of their salient cognitive appraisals being stressful or non-stressful. Perhaps the most plausible explanation of this finding is that self-focus on physiological arousal was a more powerful determinant of increments in state-anxiety than was the negative appraisal of a threatening stimulus.

Self-focusing may be an important pre-requisite for the analysis of threat and elicitation of a coping response. If self-focus occurs predominantly in threatening situations it is conceivable that through a process of learning self-focusing may become directly associated with increments in anxiety. Thus, focusing on a specific aspect of the self may automatically elicit an anxiety response. This proposal can be understood in terms of associative-network theories of memory and emotion. Network theories (Bower, 1981) assume that each emotion, for example, fear, is represented by a specific unit in memory and has its associated autonomic reactions, expressive behaviours, verbal labels assigned to the emotion, and standard situations leading to the emotion stored around it. Thus focusing on a specific aspect of the

self may lead to the activation of specific emotion nodes. This proposal is supported by the results of the Stroop experiment (Chapter 6) which demonstrates that dispositional self-attention is associated with the activation of physical symptom (threat) concepts in memory.

Approaches to the study of test anxiety have typically distinguished between the cognitive and somatic subcomponents of the anxiety response, namely 'worry' and the experience of physiological arousal symptoms. Worry is itself an attentionally demanding cognitive activity which in evaluative situations has been conceptualised as requiring self-directed attention (Wine, 1971). In the experiments reported in Chapter 2 and 8 a positive relationship has been demonstrated between dispositional self-focus and worry. Thus the aim of the final experiment in the series of studies presented here was an analysis of 'anxious worry' and its relationship with personality measures such as dispositional self-focus. The analysis of worry revealed three subcomponents which, based on their item content, were labelled negative social ideation (worry about other people's reaction to the self), negative somatic ideation (worry about physical symptoms and health) and obsessional ideation (the experience of uncontrollable and repetitive thoughts). Although the subscales were intercorrelated they appear to be relatively independent. Significant positive correlations were demonstrated for all worry subscales with measures of trait anxiety, private self-consciousness, social anxiety, locus of control and neuroticism. Significant positive correlations were demonstrated for public self-consciousness with negative social ideation and obsessional ideation, however public self-consciousness did not correlate significantly with negative somatic ideation. These

data suggest that focus on specific aspects of the self may result in different types of worry. Thus private self-consciousness which measures an individual's tendency to self-focus on thoughts, feelings, moods and attitudes is associated with negative ideation in general, however public self-consciousness which measures an individual's tendency to focus on outwardly observable bodily aspects is associated with negative social ideation. It appears that the content of worry is associated with specific self-focusing tendencies. The most interesting factor to emerge from the study on worry is the obsessional one. This factor essentially measures an individual's perceived control over cognitive thought processes. Beck (1976) has commented on the automatic and uncontrollable nature of thoughts in anxiety. The concept of perceived control over thought processes is an interesting one and may encompass other factors more generally associated with mental control, such as concentration, memory, and cognitive failures. An aim for future research is a more detailed study of individual's perceived control over mental processes. It is conceivable that individuals who perceive their thought processes as relatively uncontrolable may be more prone to anxiety and other forms of psychopathology because they do not attempt to engage in cognitive problem solving and coping strategies. Perceived control over external life events is a factor associated with anxiety and depression, it is probable that perceived control over internal mental processes is also important and may have implications for coping style and perceptions of self-efficacy.

Self-focused attention may itself be associated with the perpetuation of worry. Once established, self-focus on negative thoughts may lead

to a spiral of negative cognitive activity as individuals are unable to mobilise sufficient attention to process stimuli which are inconsistent with their negative thoughts, this may contribute to the 'automatic' and repetitive nature of negative thoughts.

In summary self-focused attention is associated with several other cognitive variables which have been considered as central factors in anxiety and fear arousal. It is proposed that the 'attentional style' of the individual is an important determinant of the nature and intensity of affective responses in threatening situations. Based on the research presented here a cognitive self-attentional model of anxiety is proposed. A schematic representation of the relationship between self-focus and other cognitive factors in anxiety is presented in Figure 8.1. In situations perceived as threatening self-focus represents an analysis of threat and available coping responses. Typical self-focusing stimuli include physiological deviations from baseline levels, self-focus may represent a cognitive process aimed at the labelling and interpretation of such a response. However there are other important concomitants of self-focus which can influence the affective response to stress. Self-focus leads to the overestimation of arousal and symptom intensity, the identification of self-discrepancies, cognitive failures and performance decrements, and the activation of threat concepts in memory. These factors may lead to catastrophic appraisals of arousal and negative appraisal of coping ability. With a perceived inability to cope attention may remain fixed on the anxious self, that is on monitoring physiological arousal and negative thought processes. Such a process may reduce self-efficacy perceptions as self-focus increases awareness of the discrepancy which exists between actual non-coping behaviour and the

ideal standard for behaviour. In this way maladaptive schemata may develop and be reinforced, such schemata are knowledge structures which consist of information about the self and coping efficacy. Maladaptive schemata may also direct attention in a way which perpetuates the anxiety state. In threatening situations behavioural withdrawal resulting from a perceived inability to cope may reinforce perceptions of self-inefficacy because it leads to the avoidance of situations which could provide evidence of coping and mastery and thus challenge negative cognitions.

The conceptualisation of anxiety in terms of self-attentional processes suggests a number of implications for treatment. Procedures designed to direct attention away from specific aspects of the self may be useful adjuncts to traditional cognitive procedures. Shifting of attention may be facilitated through hypnosis, controlled self-monitoring of specifically afflicted physiological processes until awareness diminishes, and relaxation procedures designed to increase subjects attentional control by actively shifting and focusing attention on benign somato-sensory and environmental stimuli. In addition to the implications for treatment offered by the self-attention data, based on the present findings it is suggested that an individual's proneness to anxiety may be discernible from an assessment of their 'attentional style'. Anxiety prone individuals are characterised by high levels of private self-consciousness, public self-consciousness and private body consciousness. A conceptualisation of anxiety in terms of cognitive-attentional processes is more dynamic than cognitive models which have dealt with

single concepts relating to specific responses rather than complex emotional behaviours.

Future research may be aimed at elaborating the role of attentional processes in anxiety, such research will rely on the development of tests to assess individuals 'attentional style'. Research should also be aimed at designing and evaluating new treatments for anxiety based on the current model.

It is proposed that all therapeutic procedures which are effective in the treatment of anxiety cause a shift in attentional focus away from the self. An aim for future research is an investigation of the effects on self-awareness which procedures such as verbal relaxation and biofeedback have. Such procedures could potentially increase maladaptive self-focusing tendencies and exacerbate the anxiety problem. Cognitive and behavioural procedures such as positive thinking (Beck, 1976) and systematic exposure (Bandura, 1977) may change the content of cognitions and increase self-efficacy percpetions, but may represent a case of treating the symptoms rather than the cause of anxiety. If self-focusing tendencies remain unchanged the amelioration of one set of anxiety symptoms may be followed by the emergence of new symptoms. The long term effectiveness of treatment may depend on modifying the 'attentional-style' of the individual.

APPENDICES

Wells, A. (1985) Relationship between Private Self-Consciousness and Anxiety Scores in Threatening Situations. Psychological Reports.

APPENDIX I

OFF-TASK (WORRY) SCALE

The following statements describe the thoughts and feelings which you may have experienced during the test. Read each statement and make your response by circling the appropriate number. Ensure that you respond to all of the statements. There are no right or wrong answers.

		No more than usual				Very much more than usual
1.	I was worried about making mistakes.	0	1	2	3	4
2.	I was worried in case I made a fool of myself.	0	1	2	3	4
3.	I found myself paying attention to my feelings.	0	1	2	3	4
4.	During the test I had thoughts which did not concern the task at hand.	0	1	2	3	4
5.	I felt anxious	0	1	2	3	4
6.	I was continuously evaluating my performance.	0	1	2	3	4
7.	I had difficulty in concentrating on the task.	0	1	2	3	4
8.	I felt self-conscious.	0	1	2	3	4
9.	I had negative thoughts about my performance.	0	1	2	3	4
10.	I was worried in case someone else negatively evaluated my performance.	0	1	2	3	4

WORRY SCALE

A number of statements which people have used to describe themselves are given below. Read each statement and put a circle around the most appropriate number to indicate how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1. I feel regretful	1	2	3	4
2. I worry about possible misfortunes	1	2	3	4
3. Unimportant thoughts run through my mind which bother me.	1	2	3	4
4. I worry too much over something that really doesn't matter	1	2	3	4
5. I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
6. I worry about my physical health	1	2	3	4
7. I have difficulty coping with unpleasant situations	1	2	3	4
8. I lack self-confidence	1	2	3	4

PSYCHOSOMATIC RATING SCALE

A number of symptoms which people have reported when they are anxious are given below. Please read each of these carefully and indicate the extent to which you experience these symptoms by putting a circle around one of the numbers on the right hand scale.

When anxious :	Never	Sometimes	Often	Very Often	Almost Always
1. I suffer from muscle tension	0	1	2	3	4
2. I have difficulty catching my breath	0	1	2	3	4
3. I suffer from headaches	0	1	2	3	4
4. I have difficulty falling asleep	0	1	2	3	4
5. I feel tightness in my chest	0	1	2	3	4
6. I have palpitations	0	1	2	3	4
7. I feel sick	0	1	2	3	4
8. I tremble a lot	0	1	2	3	4
9. I sweat a lot (have hot flushes)	0	1	2	3	4
10. I feel faint	0	1	2	3	4
11. I experience stomach churning (butterflies in my stomach)	0	1	2	3	4
12. I feel dizzy	0	1	2	3	4
13. I experience stomach pains	0	1	2	3	4
14. I have to make frequent visits to the toilet	0	1	2	3	4

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APPENDIX IV

RATING SCALE OF THOUGHTS AND FEELINGS DURING FILM

Below are a number of statements which describe the sensations and thoughts which you may have experienced during the film. Read each statement carefully and put a circle around the most appropriate number to indicate the sensations and thoughts which you experienced during the film.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I felt tense	1	2	3	4
2. I noticed my heart beating quickly	1	2	3	4
3. I felt nervous	1	2	3	4
4. I felt sick	1	2	3	4
5. I felt flushed (hot and sweaty)	1	2	3	4
6. I felt faint	1	2	3	4
7. I was trembling				
8. I had butteflies in my stomach	1	2	3	4
9. I felt jittery	1	2	3	4
10. I felt cold and shivery	1	2	3	4
11. I was worried	1	2	3	4
12. I thought the film was going to be worse than it turned out to be	1	2	3	4
13. I had the thought that I didn't want to continue with the experiment	1	2	3	4
14. I was imagining the terrible things which I might see	1	2	3	4
15. I was worried that I might not be able to cope with watching the film	1	2	3	4

STRUCTURED INTERVIEW SCHEDULE

Patient No.

Age:

Sex:

Occupation:

Marital Status:

1. In your own words what do you feel your problem is?
   How long have you had this problem?

2. Do you experience panic attacks?
   Probe: how often do you have panics?

3. Have you ever suffered from an anxiety problem in the past. What was the cause of your problem at that time?

4. Have you been experiencing any physical symptoms?
   Probe: have you had palpitations, dizziness, muscle tension or other physical symptoms associated with your anxiety?

5. How often do you experience those symptoms. More than once a week for example?

6. Do the symptoms occur in association with any particular situation?

NEGATIVE COGNITIONS

7. What are your main worries when you feel anxious. In other words what are the thoughts that you have when anxious?
Probe: for example do you worry about losing control, making a fool of yourself, having a heart attack or something like that?

8. When you experience an anxiety attack what is the worst thing you think may happen to you?

9. Do you worry about your symptoms?
Probe: have you ever thought that there was something seriously and physically wrong with you?

10. I want you to try and remember the last time you had a typical anxiety attack. Take a moment to remember where you were and what you were doing at the time. (pause). Describe to me how you felt at the time. Tell me the thoughts that were passing through your mind just before and during the attack.

11. In order of significance can you try and tell me what are the three most prominent negative thoughts (i.e. worries) that you have?

12. Just before or during an anxiety attack do you find yourself imagining unpleasant things which might happen to you?
Probe: what sort of things do you imagine, for example do you imagine yourself in unpleasant situations in which you cannot cope?

COGNITIVE FAILURE - PREOCCUPATIONS

13. Do you experience any memory difficulties, for example, being forgetful when you are anxious?

14. Do you find that your concentration suffers as a result of your anxiety problem?

15. Do you find that you have become very preoccupied with your symptoms and worries, such that they are continually on your mind?
Probe: which symptoms are your preoccupied with?

16. Do you find yourself paying too much attention to specific physical symptoms or body processes, such as heart rate etc.

ATTENTION DIVERSION

17. If you keep busy and occupied with tasks do you find that you have fewer anxiety symptoms?

18. Is there anything which you find takes your mind off your problem, for example reading, a hobby or watching television?

HISTORY

19. When did your anxiety problem begin
Probe: what stressful things were happening in your life at that time?

Probe: were there any deaths of relatives, illnesses in the family, changes in life circumstances, marital problems or any other significant events within 12 months of developing your problem?

20. Has the problem been intermittent since then?

21. More recently what stressful events have occurred which may have aggravated your problem?

CHILDHOOD

I would now like to ask you some questions about your childhood.

22. Have you any brothers or sisters?

(a) How many brothers/sisters do you have?

(b) Are they older or younger than yourself?

(c) Did you get on well with them as a child?

23. When you were a child did your parents get on well with each other?
Probe: did they have frequent rows?

24. Did you associate more closely with one parent? Why was that?

25. Would you say that you had a happy childhood?

26. Do you think that your upbringing was particularly strict? In what way?

27. During your childhood did you or any member of your family suffer from any serious illnesses. How old were you at the time?

28. Were there any deaths in the family whilst you were a child. How old were you at the time?

29. Was either of your parents a nervous person, that is, suffered from anxiety.

SCHOOLDAYS

I now want to ask you some questions about your early schooldays.

30. Did you enjoy school?

31. Did you have many friends at school?

32. Did you find it easy to make friends or were you a shy person?

33. Did you experience any anxieties at school?
Probe: were you anxious about role-calls? Were you ever bullied at school?

34. Did your parents take an interest in your work and your achievements?

ADOLESCENT PERIOD

I would now like to ask you a few questions about your teenage years.

35. Did you experience any problems with anxiety during that time?

36. Did you have many friends as a teenager at school?

37. How old were you when you met your first boyfriend/girfriend?

38. How old were you when you had your first sexual encounter?

39. Did you have any stressful experiences during your teenage years?

COLLEGE/WORKING LIFE

40. At what age did you leave school?

41. What did you do after leaving school?

42. Did you enjoy work/college?

43. Did you experience any problems with anxiety at that time?

44. What has happened in your working life since that time. I am particularly interested in the types of stresses which you may have encountered?

MARITAL LIFE

45. Are you married or single?

46. Is this your first marriage
Probe: what happened with your previous marriage?

47. Do you have a happy marital relationship?

48. Have there been any difficulties in your relationship?
Probe: any financial or sexual difficulties or personality differences which have caused problems?

49. Have you any children?

50. Has your wife/husband ever suffered from ill health?

51. What do you think have been the main causes of your anxiety problems?

GENERAL WORRY SCALE (PILOT 1)

A number of statements which people have used to describe themselves are given below. Read each statement and put a circle around the most appropriate number to indicate how you generally feel.

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1.	The harder I try not to think unpleasant thoughts the more they spring to my mind.	1	2	3	4
2.	I have the thought that something terrible is going to happen to me in the future.	1	2	3	4
3.	I think that I am useless.	1	2	3	4
4.	I have thoughts about being seriously ill.	1	2	3	4
5.	I worry about my failures and weaknesses.	1	2	3	4
6.	When looking to my future I give more thought to the negative things than the positive things that might happen to me.	1	2	3	4
7.	I worry about misfortunes which may befall my friends and relatives.	1	2	3	4
8.	I take disappointments so keenly that I can't put them out of my mind.	1	2	3	4
9.	I feel that I am missing out on things in life because I worry too much.	1	2	3	4
10.	I worry about losing control of myself in public.	1	2	3	4
11.	If I experience unexpected physical symptoms I have a tendency to fear the worst possible thing is wrong with me.	1	2	3	4
12.	My mind is so active that it keeps me awake at night.	1	2	3	4

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST
13.	I worry about my abilities not living up to other people's expectations.	1	2	3	4
14.	I worry about not being able to cope in life as adequately as others seem to.	1	2	3	4
15.	I think that life is pointless.	1	2	3	4
16.	I worry about being unable to cope in unfamiliar situations.	1	2	3	4
17.	I think that most people find me uninsteresting.	1	2	3	4
18.	I worry about death.	1	2	3	4
19.	I worry about saying and doing the wrong things when among strangers.	1	2	3	4
20.	I have thoughts about being involved in accidents in which I am injured.	1	2	3	4
21.	I reflect about myself a lot.	1	2	3	4
22.	I worry about being alone.	1	2	3	4
23.	I get embarrassed easily.	1	2	3	4
24.	I worry about fainting or collapsing in public.	1	2	3	4
25.	I think that I am a failure.	1	2	3	4
26.	I worry about having a heart attack or cancer.	1	2	3	4
27.	I generally think back over things that I have said and done and imagine that things were different.	1	2	3	4
28.	I tend to think of minor set-backs in life as major calamities.	1	2	3	4
29.	I worry about my appearance.	1	2	3	4
30.	I worry too much over something that really doesn't matter.	1	2	3	4

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST
31.	I imagine myself in unpleasant situations.	1	2	3	4
32.	I tend to worry about trivialities.	1	2	3	4
33.	I worry about making a fool of myself.	1	2	3	4
34.	When I suffer from minor illnesses such as a rash I tend to think it is more serious than it really is.	1	2	3	4
35.	I worry that people don't like me	1	2	3	4
36.	I have difficulty clearing my mind of repetitive thoughts.	1	2	3	4
37.	I tend to worry about other people's problems.	1	2	3	4
38.	I feel regretful.	1	2	3	4
39.	I have thoughts about killing myself.	1	2	3	4
40.	I have an active imagination.	1	2	3	4
41.	I worry about my physical health.	1	2	3	4
42.	I think that no matter what I try and do things never work out right.	1	2	3	4

GENERAL WORRY SCALE (PILOT 2)

A number of statements which people have used to describe themselves are given below. Read each statement and put a circle around the most appropriate number to indicate how you generally feel.

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1.	I imagine myself in unpleasant situations.	1	2	3	4
2.	I worry about being alone	1	2	3	4
3.	The harder I try not to think unpleasant thoughts the more they spring to my mind.	1	2	3	4
4.	When I suffer from minor illnesses such as a rash I tend to think it is more serious than it really is	1	2	3	4
5.	I reflect about myself a lot	1	2	3	4
6.	I worry about my appearance	1	2	3	4
7.	I worry about my abilities not living up to other people's expectations	1	2	3	4
8.	I tend to worry about other people's problems	1	2	3	4
9.	I tend to think of minor set-backs in life as major calamities	1	2	3	4
10.	I feel that I am missing out on things in life because I worry too much	1	2	3	4
11.	I worry about misfortunes which may befall my friends and relatives	1	2	3	4
12.	I have thoughts about being involved in accidents in which I am injured	1	2	3	4
13.	I worry about what other people think of me	1	2	3	4
14.	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
15.	I get embarrassed easily	1	2	3	4
16.	When looking to my future I give more thought to the negative things than the positive things that might happen to me	1	2	3	4
17.	Unimportant thoughts run through my mind which bother me	1	2	3	4
18.	I have difficulty coping with unpleasant situations	1	2	3	4
19.	I can be so preoccupied with my worries that I become forgetful	1	2	3	4
20	If I experience unexpected physical symptoms I have a tendency to fear the worst possible thing is wrong with me	1	2	3	4
21.	I worry about fainting or collapsing in public	1	2	3	4
22.	When I hear about other people's illnesses I worry about developing similar problems myself	1	2	3	4
23.	I tend to look on the black side of things	1	2	3	4
24.	I worry about losing control of myself in public	1	2	3	4
25.	I think that no matter what I try and do things never work out right	1	2	3	4
26.	I worry about critical comments people make of my work	1	2	3	4
27.	I have difficulty clearing my mind of unpleasant images or memories	1	2	3	4
28.	I have an active imagination	1	2	3	4
29.	I worry about visiting a dentist or physician in case they find something seriously wrong with me	1	2	3	4

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
30.	I tend to worry about trivialities	1	2	3	4
31.	I generally think back over things that I have said and done and imagine that things were different	1	2	3	4
32.	My mind is so active that it keeps me awake at night	1	2	3	4
33.	I worry about my failures and weaknesses	1	2	3	4
34.	I worry about making a fool of myself	1	2	3	4
35	I worry about unpleasant things which might happen to me	1	2	3	4
36.	I worry that if I became seriously ill medical help would be unable to reach me in good time	1	2	3	4
37.	I worry about my physical health	1	2	3	4
38.	I worry about death	1	2	3	4
39.	My concentration suffers when I am worried	1	2	3	4
40.	I have difficulty clearing my mind of repetitive thoughts	1	2	3	4
41.	I feel regretful	1	2	3	4
42.	I become so absorbed in my worries that I fail to notice friends passing me in the street	1	2	3	4
43.	I think that I am useless	1	2	3	4
44	I worry too much over something that really doesn't matter	1	2	3	4

NEGATIVE IDEATION QUESTIONNAIRE (PILOT 3)

A number of statements which people have used to describe themselves are given below. Read each statement and put a circle around the most appropriate number to indicate how you generally feel, do not spend too much time on each Statement, there are no right or wrong answers.

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1.	I imagine myself in unpleasant situations.	1	2	3	4
2.	I worry about being alone	1	2	3	4
3.	I repeat words or numbers to myself to take my mind off my worries	1	2	3	4
4.	I have thoughts about being seriously ill	1	2	3	4
5.	I worry about my failures and weaknesses	1	2	3	4
6.	When looking to my future I give more thought to the negative things than the positive things that might happen to me	1	2	3	4
7.	I worry about misfortunes which may befall my friends and relatives	1	2	3	4
8.	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
9.	I think that some numbers are unlucky	1	2	3	4
10.	I feel that I am missing out on things in life because I worry too much	1	2	3	4
11.	I worry about losing control of myself in public	1	2	3	4
12.	Even when I do something very carefully I feel that it is not quite right	1	2	3	4
13.	If I experience unexpected physical symptoms I have a tendency to fear the worst possible thing is wrong with me	1	2	3	4

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
14.	I worry about contamination if I touch an animal	1	2	3	4
15.	I worry about my abilities not living up to other people's expectations	1	2	3	4
16.	I worry about not being able to cope in life as adequately as others seem to	1	2	3	4
17.	I engage in ritualistic thoughts which I believe protect me from misfortunes	1	2	3	4
18.	I worry about death	1	2	3	4
19.	I worry about saying and doing the wrong things when among strangers	1	2	3	4
20.	Unpleasant thoughts enter my mind against my will	1	2	3	4
21.	I get embarrassed easily	1	2	3	4
22.	I think that I am a failure	1	2	3	4
23.	I worry about having a heart attack or cancer	1	2	3	4
24.	I am excessively concerned about cleanliness	1	2	3	4
25.	I worry about my appearance	1	2	3	4
26.	I worry about making a fool of myself	1	2	3	4
27.	When I suffer from minor illnesses such as a rash I tend to think it is more serious than it really is	1	2	3	4
28.	I worry that people don't like me	1	2	3	4
29.	I have difficulty clearing my mind of repetitive thoughts	1	2	3	4
30.	I have repetitive thoughts such as counting or repeating phrases	1	2	3	4
31.	I worry about my physical health	1	2	3	4
32.	I worry that I cannot control my thoughts as well as I would like to	1	2	3	4

NEGATIVE IDEATION QUESTIONNAIRE

A number of statements which people have used to describe their thoughts and worries are given below. Read each statement and put a circle around the most appropriate number to indicate how often you have these thoughts and worries.

Do not spend too much time on each statement. There are no right or wrong answers and your first response to each item is often the most accurate.

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
Soc 1	I Worry about my appearance	1	2	3	4
Soc 2	I think that I am a failure	1	2	3	4
Obs 3	When looking to my future I give more thought to the negative things than the positive things that might happen to me	1	2	3	4
Som 4	If I experience unexpected physical symptoms I have a tendency to think the worst possible thing is wrong with me	1	2	3	4
Som 5	I have thoughts about being seriously ill	1	2	3	4
Obs 6	I have difficulty clearing my mind of repetitive thoughts	1	2	3	4
Som 7	I worry about having a heart attack or cancer	1	2	3	4
Som 8	I worry about saying and doing the wrong things when among strangers	1	2	3	4
Som 9	I worry about my abilities not living up to other people's expectations	1	2	3	4

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
Som 10	I worry about my physical health	1	2	3	4
Obs 11	I worry that I cannot control my thoughts as well as I would like to	1	2	3	4
Soc 12	I worry that people don't like me	1	2	3	4
Obs 13	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
Soc 14	I get embarrassed easily	1	2	3	4
Som 15	When I suffer from minor illnesses such as a rash I think it is more serious than it really is	1	2	3	4
Obs 16	Unpleasant thoughts enter my mind against my will	1	2	3	4
Soc 17	I worry about my failures and weaknesses	1	2	3	4
Soc 18	I worry about not being able to cope in life as adequately as others seem to	1	2	3	4
Som 19	I worry about death	1	2	3	4
Soc 20	I worry about making a fool of myself	1	2	3	4

		ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
Obs 21	I think that I am missing out on things in life because I worry too much	1	2	3	4
Obs 22	I have repetitive thoughts such as counting or repeating phrases	1	2	3	4

APPENDIX VIII

SELF-CONSCIOUSNESS SCALE

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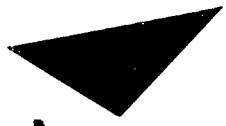

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Fenigstein, A., Scheir, M. and Buss, A. (1975)

SELF-EVALUATION QUESTIONNAIRE

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

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SELF-EVALUATION QUESTIONNAIRE

STAI FORM X-2

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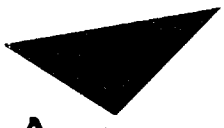
APPENDIX X

PRIVATE SELF-CONSCIOUSNESS SUBSCALE



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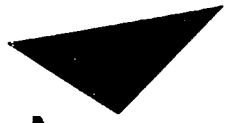

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Miller, L.C., Murphy, R. & Buss, A.H. (1981)

APPENDIX XII

LOCUS OF CONTROL SCALE

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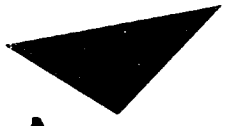

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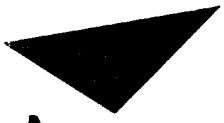
APPDENDIX XVa

STRESS NARRATIVE



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APPENDIX XVb

COPING NARRATIVE

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