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**EFFECTS OF STRESSOR CONGRUENCE WITH
SOCIOTROPY-AUTONOMY USING A
MOOD INDUCTION PROCEDURE**

A thesis presented in partial fulfilment of the
requirements for the degree of Master of Science
in Psychology at Massey University

Emma Jane Jensen

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ABSTRACT

Aaron Beck's cognitive theory of depression suggests that depression results from the activation of underlying dysfunctional attitudes, by a congruent stressor. To test the notion of congruence, thirty-five male and sixty-one female university students were classified as sociotropic or autonomous using the Sociotropy-Autonomy scale. These subjects took part in a Velten Mood Induction procedure, in which half of the subjects received a congruent negative mood induction, and the other half received an incongruent negative mood induction. The dependent variables of interest were measures of negative affect and of dysfunctional thinking. Although both congruent and incongruent inductions led to an increase in negative affect and in dysfunctional thinking, the most significant increases were observed for the congruent group.

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INTRODUCTION

Depression

Most people's experiences include negative affective states, but not everyone experiences these states with the same frequency and intensity as persons suffering from clinical depression. Not all negative affect is inappropriate.

Depression often accompanies a serious illness, and it can be considered a normal response to the misfortunes of life, such as a loss of any description. However, clinical depression is considered to be quite different to 'normal' sadness and grief.

Despite the fact that there is considerable agreement on the phenomenology of the clinical picture of depression, there is not yet a completely satisfactory explanation which can account for the mechanisms that underlie the wide variation in symptomatology and course (Kovacs & Beck, 1978). This incomplete understanding of the causal factors of depression is reflected in the fact that there are a large number of competing viewpoints and theories. For example, psychoanalytic theory views depression as resulting from early childhood needs not being met. The individual develops a tendency to be "excessively dependent on others for the maintenance of self-esteem" (Davison & Neale, 1990, p.225). Biochemical theories relate depression to neurotransmitter levels, especially low levels of norepinephrine and of serotonin.

It is believed that rates of depression have increased significantly over the past 25 years. Especially notable are the increases in incidence and severity of depression among young adults (Dean, 1985). It has been estimated that ten to fifteen percent of the general population will experience a depressive episode at some point in their life. It has also been noted that depressive disorders are the most frequent complaint presented by patients at initial contact with a mental health professional (Rush, 1982, cited by Becker & Heimberg, 1985).

The word 'depression' was found in medical dictionaries by 1860. The term suggested both "a physiological and a metaphysical "lowering" of emotional function" (Berrios, 1988). Accordingly, it could be used to describe either a condition or a symptom. By the turn of the century, the term had become a synonym of melancholia.

Early use of the word was mainly restricted to the description of a symptom. In 1921, Kraepelin used "depressive states" as a generic category, including various melancholic disorders (Kraepelin, 1921, cited by Berrios, 1988).

Arieti (1970, cited by Bemporad, 1988), was one of the first psychiatrists to propose that illness maybe the result of conflicting ideas, as opposed to conflicts between biological drives and social repression. Arieti suggested that there are unconscious cognitive schemata, learned in childhood, and later repressed. These schemata that appear predominantly in depression were thought to concern a devaluing of the self, and an overvaluing of others (Bemporad, 1988).

Several theories of depression focus on how the individual's cognitive responses to life events may predispose them to depression. Stressful life events play an important role in the theories, but it is the individual's perceptions of these events as opposed to the events per se, that occupies a central position.

One such theory of depression is the Hopelessness theory, recently reformulated (Abramson, Metalsky, & Alloy, 1989). The hypothesized causal chain begins with the perceived occurrence of negative life events, or the nonoccurrence of positive life events (Abramson et al, 1989).

According to the theory, there are at least three types of inferences people may make that determine whether or not they become hopeless when negative life events occur. First, there are inferences about why the event occurred. Termed causal attributions, depression is most likely to occur when the individual makes

stable, global attributions. (In other words, when the person attributes the cause of a negative event to enduring factors, which affect many outcomes.) Second, there are inferences about consequences that will result from the event. The person is likely to become depressed if he or she thinks that the event will result in negative and important consequences. Third, the person can make inferences about the self, given that the event occurred. Should he or she infer that the event occurred because of his or her negative personal characteristics, depression may follow.

This reformulation of the hopelessness theory of depression is similar to Beck's cognitive theory of depression (Beck, 1963, 1967). Both theories emphasize the importance of maladaptive inferences in depression, and both have diathesis-stress components, which suggest that certain individuals possess some kind of vulnerability to becoming depressed, and that this vulnerability is triggered by stress.

However, there are distinct differences between the hopelessness theory and Beck's (1967) theory. The hopelessness theory proposes the existence of a particular subtype of depression - hopelessness depression, but Beck has not elaborated a cognitively caused subtype of depression. Beck's theory describes the formal characteristics of depressive cognitions, whereas the hopelessness theory does not. Beck also emphasizes negative bias in depressive thinking; the hopelessness theory allows for the possibility of distortions in both depressive and non-depressive cognition.

Beck's Cognitive Theory of Depression

Aaron Beck's central thesis is that depressed individuals feel as they do because they commit characteristic errors in thinking (Beck, 1967). His position is not that depressives think poorly or illogically in general, rather, they "draw illogical conclusions or negatively evaluate themselves, their immediate world, and their future" (Davison & Neale, 1990, p.226). This three-way negative outlook is referred to as the cognitive triad (Beck, 1963).

This cognitive triad is made up of three parts. The first concerns the depressed individual's view of the world. He or she has a defeated attitude towards his or her immediate surroundings, and sees others as rejecting, tasks as insurmountable, and activities as not worth the effort. The second part is the individual's view of the self. The depressed person has a very low opinion of self. They devalue their abilities, attractiveness, and effectiveness, and are sure that success will never be achieved because they are so inept and boring (Bemporad, 1988). Finally, the depressed individual has a pessimistic view of the future. The belief is that the future is hopeless, and nothing will ever improve.

According to Beck, depressed individuals have acquired, during childhood and adolescence, negative schemata. A commonly accepted definition holds that "schemata consist of organized elements of past reactions and experiences that form a relatively cohesive and persistent body of knowledge, capable of guiding subsequent perception and appraisals" (Segal, 1988, p.148). These may develop through parental loss, criticism by teachers and other authority figures, or rejection by peers. These schemata fuel, and are fuelled by, certain cognitive distortions. A distortion can be defined as a "judgment or conclusion that disagrees or is inconsistent with some commonly accepted measure of objective reality" (Alloy & Abramson, 1988, p.226). Some of the principal cognitive distortions of the depressed individual are; arbitrary inference, where a conclusion is drawn in the

absence of sufficient evidence; overgeneralization, where a sweeping conclusion is made on the basis of a single event; and magnification, where, for example, a person believes his or her car is ruined due to a tiny scratch on the door.

These errors in thinking serve to confirm the depressed individual's self-deprecatory schema. The negative schemata held by a depressed person are able to be activated whenever the individual encounters a situation which resembles the conditions in which the schema was learned. For example, if a person has been neglected by a parent, a subsequent situation which is interpreted as a rejection, may activate that schema. Therefore, it can be said that these schemata make an individual "vulnerable" to depression.

Cognitive structures are considered relatively enduring characteristics. They are "organized representations of prior experience" (Kovacs & Beck, 1978, p.526). A schema acts like a template - it screens and evaluates incoming stimuli. The schemata which are active in depression are believed to be initially latent cognitive structures. They are activated when the vulnerable individual is faced with certain stressors. Following their activation, depressogenic schemata gradually replace more appropriate ways of organizing and evaluating information.

According to Kovacs and Beck (1978) there are several characteristics of schemata that predispose an individual to depression. They relate to aspects of the person's prior experience; they organize information about events that are perceived as subtractions from one's personal domain; and they generally involve inflexible or absolute rules of conduct and evaluation. Most of these schemata involve erroneous conclusions stemming from the individual's prior experience, and situations resembling the circumstances under which they developed are likely to activate them.

Cognitive theory does not assume, however, that a well-adjusted, non-depressed individual necessarily thinks rationally. In fact, a study by Kumari and Blackburn (1992), investigated the question of how specific automatic thoughts are to a depressed population. Results revealed that basic cognitive distortions do in fact occur in a normal population, but these distortions differ from those found in depressed persons. While normal subjects expressed themes of a hostile world, depressed subjects expressed significantly more thoughts involving self-depreciation, hopelessness, and illness (Kumari & Blackburn, 1992).

In Beck's (1967) theory, schemata are not only invoked to explain the systematic errors or cognitive distortions of depressed persons, but are also expected to account for the ongoing vulnerability to depression.

The more frequently a construct is activated, the more accessible it becomes. Cognitive theory proposes that a greater accessibility of negative constructs is characteristic of depression. This may be due either to differences between depressed and normal individuals in the constructs that are stored in memory, or to a difference in the ease of which certain constructs are tapped (Segal, 1988). It may be that persons prone to depressive episodes more readily access negative self-schemata, than do those persons not as vulnerable to becoming depressed.

Sociotropy and Autonomy

The sociotropy/autonomy factor is a relatively recent change in cognitive theory. This elaboration by Beck in 1983, was attributed to Bowlby's (1977) work on the disruption of social bonds as a precursor to depression (Haaga, Dyck, & Ernst, 1991). It was also a response to the criticism that cognitive theory did not pay enough attention to depressed individuals' environments. Sociotropy refers to a person's investment in "positive interchange with other people. It includes passive-receptive wishes (acceptance, intimacy, understanding, support, guidance) and narcissistic wishes (admiration, prestige, status). Autonomy refers to the person's investment in preserving and increasing his independence, mobility, and personal rights; freedom of choice, action and expression; protection of his domain;...and attaining meaningful goals" (Beck, 1983, p.272).

The concepts of sociotropy and autonomy have been studied in relation to precipitating factors, clinical symptoms, and response to treatments. There have been many studies investigating the relationship between the personality modes of sociotropy and autonomy, and the occurrence of vulnerability-congruent negative life events. In these studies, subjects have been classified as primarily sociotropic or autonomous, and then the occurrence of life events has been measured, either retrospectively or prospectively. The researcher has then related this to the subject's level of depression. It has generally been found that there is a relationship between sociotropy and negative sociotropic life events, but not so for autonomy and negative autonomous life events (Clark, Beck, & Brown, 1992; Hammen, Ellicott, & Gitlin, 1992; Hammen, Ellicott, Gitlin, & Jamison, 1989; Robins & Block, 1988; Zuroff & Mongrain, 1987). Very few studies have found a relationship between autonomy and negative autonomous life events in the onset of depression, although the study by Hammen, Marks, Mayol and deMayo (1985) is a notable exception.

Sociotropy and autonomy have also been related to differential patterns of clinical presentation in depression. Depressed individuals differ in the types of symptoms they report. Two people scoring equally on the Beck Depression Inventory may not necessarily exhibit the same symptoms. Beck's (1983) theory proposes that depressive symptoms are determined by the nature of the person's underlying cognitive vulnerability. It is proposed that sociotropic persons feel primarily deprived and exhibit clinical features consistent with this feeling. For example, they feel lonely and unlikeable, cry, attempt to gain social gratification, and are also more reactive to the social environment (Robins & Luten, 1991).

Beck (1983) proposed that when autonomous persons become depressed, they tend to feel primarily defeated and exhibit clinical features that reflect this defeat, or that may protect them by withdrawing from the environment. For example, they may not seek help, feel like a failure, blame themselves, avoid other people, are irritable and agitated about hospitalization (Beck, 1983). Two 1991 studies looked at the relationship between the personality modes and clinical symptoms, and between them, found support for relationships between vulnerability and symptoms (Persons, Miranda, & Perloff, 1991; Robins & Luten, 1991). An earlier study by Zuroff and Mongrain also yielded results in support of this relationship (Zuroff & Mongrain, 1987).

Sociotropy and autonomy have also been implicated in treatment responsiveness. Beck (1983) suggested that highly sociotropic or autonomous individuals may respond better to different styles of psychotherapy. Although no data was presented to support this assertion, one study found that autonomous traits related positively to favourable drug response (74% positive response), whereas sociotropic traits had a less positive relationship (38% positive response). In fact, sociotropic individuals responded equally positively to antidepressant drugs and to placebo treatment (Peselow, Robins, Sanfilipo, Block, & Fieve, 1992).

Psychological Stress

An increase in attention given to the etiological role of psychosocial stress in psychiatric illness, has been one of the clearest trends in research over recent years (Lloyd, 1987). The first study to look at the role of life stress in the development of depression was published by Paykel, Myers and Dienelt (1969). The results of this study showed that depressed persons had three times as many life events as did controls, in the month prior to the onset of their depression.

There is strong evidence that environmentally induced stress can produce adverse changes in health. However, it is not merely the occurrence of such events that precipitates problems like depression. If it were, all persons who, for example, lost their job would become very depressed. But not all individuals who are faced with stress in their lives become depressed. Some other mediating factor(s) which account for the effects of life stress on individuals have been proposed. Although there is little doubt that there is a relationship between stressful life events and depression, there is still uncertainty as to whether it can be said that the depression is caused by the events per se.

The effects of negative life events on depression may differ from person to person depending on their individual characteristics. The conceptual links between negative life events and depression certainly warrants further investigation. As a diathesis-stress model, Beck's cognitive theory of depression has provided some theoretical implications to increase an understanding of those links (Kwon & Oei, 1992).

The majority of diathesis-stress theories assume that until the diathesis is activated by stress, the vulnerability is essentially inconsequential. However, this is not strictly true. The very presence of a diathesis may influence how the individual perceives events in his or her life. By definition, people with dysfunctional attitudes view the world through "characteristically different filters."

It is also plausible that a cognitive vulnerability influences the way in which a person negotiates life's course, and consequently the stressors to which he or she is exposed. This may result in differential exposure to different areas of vulnerability. For example, a person with a vulnerability to achievement may be especially sensitive to failure. He or she may constantly strive for new goals, higher and higher levels of success, which would increase the probability of experiencing failure at one point. Small failures may represent major disasters to the individual. The diathesis influences the behaviour, which in turn influences the likelihood of being exposed to stress.

The Onset Hypothesis

Beck's theory contains both descriptive and causal hypotheses. The former deal with descriptive aspects of depression, such as the observation that all depressed people are said to show the cognitive triad. The causal parts of the theory deal more with possible causes of depression. One of the causal hypotheses is known as the onset hypothesis, which examines the interaction between dysfunctional beliefs, event valuation, and stressors (Beck, 1987).

The onset hypothesis states that "initial episodes of nonendogenous unipolar depression can be predicted by the interaction of dysfunctional beliefs, event valuations, and vulnerability-congruent negative events" (Haaga et al, 1991, p.217). (Another hypothesis, the recurrence hypothesis, states that later episodes of depression can be predicted in the same way).

In other words, this implies that if a person holds dysfunctional attitudes, and is faced with a negative event that is congruent with his or her personality mode, depression is likely to result. The concept of event valuation means simply that the significance of an event to an individual can be predicted from that individual's personality mode. For example, it would be predicted that failing an important exam would be an event personally meaningful to an autonomous person.

In order to test the onset hypothesis, it would be necessary to first assess personality modes (sociotropy and autonomy), and then measure both dysfunctional beliefs and negative affect prior to, and then following appropriately stressful conditions. If it was found that dysfunctional thinking and levels of dysphoria did indeed increase following the occurrence of vulnerability-congruent stressors, the onset hypothesis would be supported.

The Stability Hypothesis

One of Beck's causal hypotheses of depression is known as the stability hypothesis. This holds that the dysfunctional beliefs held by vulnerable individuals, should be stable before, during, and after a depressive episode. However, it is recognized that the degree of accessibility may vary. This raises potential measurement problems. For these beliefs to be considered causal, they obviously must precede the depression. But if they are not always equally accessible, this makes them difficult to measure. Which hinders their being verified as causal factors in the onset of depression.

There are three types of evidence that appear to refute the stability hypothesis. First, there have been a number of longitudinal studies which have followed depressed individuals over the course of their illness. The majority of these have shown that as depressive symptoms remit, the underlying dysfunctional beliefs subside also (Dobson & Shaw, 1987; Eaves & Rush, 1984; Persons & Rao, 1985). This is in direct opposition to the proposition that dysfunctional beliefs are stable traits. Second, comparisons of normal and recovered depressives have found that there is no significant difference between the two groups in severity of dysfunctional attitudes (Blackburn & Smyth, 1985; Dohr, Rush, & Bernstein, 1989; Fennell & Campbell, 1984). According to the stability hypothesis, it would be expected that the stable cognitive vulnerability factors would be present in recently recovered depressives. Finally, prospective longitudinal studies testing whether these beliefs predispose individuals to depression have resulted in mixed findings. In a 1985 study by Hammen, depressive self-schemas did not predict later depressive episodes in a four-month follow-up of college students (Hammen et al, 1985, cited by Persons & Miranda, 1992).

Despite the fact that many studies have yielded refutable evidence, it is premature to abandon the stability hypothesis altogether. After all, the hypothesis does acknowledge that these beliefs vary in degree of accessibility over time. It is

possible that, at the time of assessment, these beliefs had not been activated, and were thus not accessible. If this was the case, it seriously undermines the validity of these studies.

Miranda, Persons, and Byers (1990) have proposed a mood-state hypothesis that is consistent with the stability hypothesis, and which can account for much of the negative evidence that has accumulated. It proposes that dysfunctional beliefs are indeed stable, but that the ability of a person to access and report them, depends on one's current mood state. It is believed that the more negative the mood, the more likely it is that a vulnerable person will be able to report negative cognitions. Cognitive theory describes activation of underlying dysfunctional beliefs as resulting from life event stresses. The mood-state hypothesis proposes that any negative mood state may serve this activating role, raising the beliefs to a level where they are more readily accessible. The fact that previous studies may have tested for these beliefs during a time when they were not readily accessible, may well account for evidence against the stability hypothesis. It is therefore maintained, that any attempt to assess cognitive vulnerability factors in non-depressed or asymptomatic persons, must involve some procedure to activate the underlying dysfunctional beliefs. Unless such a procedure is used, any failure to demonstrate the presence of these beliefs may be due to the failure to activate them, rather than to the fact that they do not exist (Persons & Miranda, 1992).

This mood-state hypothesis has much in common with Bower's (1981, cited by Persons & Miranda, 1992) associative network model of mood and memory. According to this, an individual may have a belief, but may not be aware of it unless it is activated in some way. If it is associated with a certain mood, it may not be able to be reported unless that given mood state has been activated. This relationship between mood and accessibility of beliefs is the central thesis of the mood-state hypothesis. Mood induction techniques may be what is needed to raise these attitudes to a level where they can be reported by the individual.

Mood Induction Procedures

Despite the obvious need for some kind of negative mood induction, surprisingly few studies have included such a procedure. And there is a further problem that some methods of mood induction have not been successful. The most commonly used technique, the Velten technique (Velten, 1968), has been the most successful in producing a negative mood, although even it can boast little more than a sixty percent success rate (Slyker & McNally, 1991). Failure to come up with a more successful method of mood induction procedure poses major problems for the testing of the mood-state hypothesis. Clearly, a procedure needs to be developed which can create a negative mood state in a far higher proportion of subjects.

The mood-state hypothesis signifies that any attempt to assess cognitive vulnerability factors in non-depressed individuals must involve some procedure to activate the vulnerability. An activation procedure is vital in cross-sectional studies (comparing non-depressed and never depressed persons), and longitudinal studies, whether they be prospective studies of non-depressed individuals, or repeated assessment of depressed individuals. If such studies do not include some kind of activation procedure, any failure to reveal the presence of dysfunctional beliefs may be due to the failure to activate a cognitive vulnerability that is latent, but nonetheless present (Persons & Miranda, 1992).

Riskind (1989) has proposed that the effects of mood induction are really cognitive priming effects, and therefore mood induction procedures are really cognitive priming procedures (Riskind, 1989). The Velten technique (Velten, 1968), is consistent with this view, in that it actually involves a cognitive priming procedure.

The Velten Mood Induction Procedure

Subjects are asked to concentrate on a series of self-statements, and try to feel the mood involved. The Velten mood induction procedure has been shown to mimic the effects of naturally occurring depressed mood. Over recent years, an increasing number of researchers have used the Velten technique in order to study the effects of depressed mood on cognition (Clark, 1983). The Velten induction procedure (Velten, 1968), consists of asking subjects to read and attempt to feel the mood suggested by self-referent depression, elation, or neutral statements.

Polivy and Doyle (1980) conducted a study to assess the extent to which demand characteristics contributed to the outcomes of experiments employing the Velten technique (Polivy & Doyle, 1980). This study also included two counter-demand groups, in which subjects were told to expect to feel the reverse of what the statements implied. Results showed that counter-demand subjects actually showed similar moods as the neutral group. Although demand possibly contributed to the mood induction, this did not necessarily mean there was no real emotional arousal present (Polivy & Doyle, 1980).

When describing the implications of mood induction for clinical depression, Goodwin and Williams (1982) concluded that the Polivy and Doyle (1980) study did not necessarily mean that the Velten technique had reduced validity. Although demand characteristics do play a part, there is no proof that subjects are 'pretending' to feel depressed or elated. This defense of the technique was also supported by a 1975 study by Coleman. Similarly, Coleman (1975) concluded that the effects of Velten's technique were not just the result of subjects trying to please the experimenter (Coleman, 1975).

The validity of a mood induction procedure, and indeed any manipulation, is influenced by many factors. Meta-analysis is a suitable technique for assessing factors that affect manipulations, as it can calculate the impact of different

experimental procedures on a given manipulation (Larsen & Sinnett, 1991).

Two experimental features believed to be closely related to the elicitation of demand characteristics in the Velten technique, are the use of a cover story, and the type of manipulation check used. It is generally accepted that using an honest cover story, i.e., telling subjects that the aim of the experiment is to induce an emotion), will result in a greater effect size. It is also believed that using a self-report manipulation check yields larger effects than using psychomotor tasks, for example (Larsen & Sinnett, 1991). Therefore, it would be expected that the use of a deceptive cover story in conjunction with a non-self-report manipulation check measure would result in the smallest effect size. However, the 1991 meta-analysis by Larsen and Sinnett found that studies with these features still yielded significant manipulation effect sizes. Although such studies are the most resistant to demand characteristics, the technique still significantly affected mood.

Clark (1983), stated that self-report mood measures are more susceptible to faking, and therefore more open to influence by experimental demand (Clark, 1983). However, there is another way of looking at this. It is equally likely that self-report measures show stronger effects because they draw upon emotional responses more directly than non-self-report measures. If this is the case, they are more valid measures of mood than non-self-report measures.

Taking all these considerations into account, it appears that on balance, the Velten technique is not a bad mood induction procedure at all. However, it does seem that the technique could be strengthened by including some attempt at making the statements personally meaningful to the subjects. Perhaps what is needed is not so much a completely new procedure, rather a refinement of the existing technique. A proposal of the present study is that a possible solution to the problem of unsuccessful negative mood induction may well lie in the concepts of sociotropy and autonomy (Beck, 1983).

The Present Study

As noted, the two individual-difference factors of sociotropy and autonomy are hypothesised to specify the types of stressors most likely to activate the underlying dysfunctional beliefs in a vulnerable individual. It would be expected that stressors accordant with one's personality would be much more likely to activate the underlying belief system, than a non-congruent stressor. For example, an autonomous person would be expected to react more negatively to a failure episode, than to a relationship difficulty. The present study uses this hypothesis to improve a mood induction procedure. By matching the individual's cognitive vulnerability to the activation procedure it is hypothesised that greater mood change will occur. The inclusion of this concept in the Velten technique - having sociotropic individuals read negative self-statements depicting rejection episodes, and autonomous persons read ones based on the theme of failure - could mean that the beliefs are more likely to be activated, thus also providing a test of the mood-state hypothesis.

The aim of the present study was to use the concepts of sociotropy and autonomy in an attempt to improve the success rate of the Velten mood induction procedure (Velten, 1968). It was hoped to successfully integrate these personality factors with a modified version of the Velten technique (Velten, 1968), thereby producing a better mood induction.

HYPOTHESES

Hypothesis One

It was hypothesised that subjects receiving a mood induction congruent with their personality mode would experience higher negative mood change than those receiving an incongruent mood induction.

Hypothesis Two

It was also hypothesised that a similar pattern of change in dysfunctional thinking would occur, consistent with the onset hypothesis (Beck, 1987), and that these changes would mediate the effects of type of induction on mood.

METHOD

Subjects

Subjects were volunteers from undergraduate courses in Psychology and Statistics at Massey University. One hundred and twelve subjects took part in the initial screen, (see procedure section), and of these, fourteen subjects were ineligible for the mood induction because they had levels of dysphoria where it would be unethical to induce a negative mood (see procedure for selection criteria). Two subjects who were eligible chose not to complete the mood induction part of the study, leaving ninety-six subjects who completed the negative mood induction.

Of these subjects, sixty-one (64%) were females, and thirty-five (36%) were males. The mean age for all subjects was 21.21 years, with a standard deviation of 5.32, and there was no significant difference in mean age between males and females.

Instruments

The Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979), is a 21-item self-report questionnaire designed to tap cognitive, affective, motivational, and physiological symptoms of depression. There is considerable psychometric evidence to support the concurrent and discriminant validity of the BDI as a measure of depression, and it is generally considered to be an excellent instrument with which to assess the intensity of depressed mood (Beck, Steer, & Garbin, 1988). In the present study, the BDI was used in the initial screen to assess levels of dysphoria.

The Sociotropy-Autonomy Scale used in the present study is the revised form (SAS; Clark, & Beck, 1991). It is a 59-item self-report questionnaire designed to assess the personality modes of sociotropy and autonomy. It consists of two subscales, the Autonomy subscale, containing 30 items, and the Sociotropy subscale, containing 29 items. Items are rated along a five-point Likert scale, where respondents indicate the amount from 0% of the time, to 100% of the time, according to how much the subject thinks that item applies to him/her. Originally developed in 1983 (Beck, Epstein, Harrison, & Emery, 1983), the scale was revised in response to the weakness of the Autonomy subscale. SAS Autonomy had low correlations with most measures of clinical state or general personality traits. Moreover, the three autonomy subscales derived from the autonomy factor were not highly intercorrelated, which suggested that they may have been tapping distinct personality traits. Research into the original Autonomy subscale led to the conclusion that SAS Autonomy probably measured the absence of dependency, rather than an autonomous mode. New autonomy items were derived directly from Beck's (1983) description of the autonomous personality, so it is held that the revised SAS is a better test of Beck's cognitive vulnerability

model, upon which the present study was based. In the present study, the BDI and the SAS were administered together as one questionnaire for the initial screen.

The Dysfunctional Attitude Scale, Form A (DAS-A; Weissman & Beck, 1978), is a 40-item measure designed to tap beliefs which are thought to constitute predispositions to depression. Subjects indicate their level of agreement with statements regarding self-worth contingencies (e.g., "If others dislike you, you cannot be happy"), along a seven-point Likert-type scale, from 1 (totally disagree), to 7 (totally agree). Summed scores range from 40 to 280, with higher scores indicating a more dysfunctional pattern of thinking. Acceptable reliability and validity have been reported for the DAS (Oliver & Baumgart, 1983).

There have been concerns raised in the past that the two short forms of the DAS were not equivalent. It was believed that Form A contained beliefs more likely to be held by sociotropic individuals, while Form B tapped the autonomous person's belief system more directly. To address this problem, Form A of the DAS was evaluated with respect to a 1991 factor analysis of the 100-item scale (Beck, Brown, Steer, & Weissman, 1991). According to the study, the DAS yielded nine factors, three of which were said to relate to sociotropy, while one was said to relate to autonomy. From this, items from Form A were classified by which factor they fell into, and the relative frequency of sociotropic and autonomous items in the scale was calculated. Results showed that Form A included a very similar number of each type of item. Due to similar numbers of sociotropic and autonomous items, and its brevity, Form A of the DAS was selected for the present study. Moreover, the majority of previous studies have utilized Form A, making it easier for comparison of results from the present study to those gained from past research (e.g. Barnett & Gotlib, 1990; Miranda & Persons, 1988; Miranda, Persons, & Byers, 1990; Zuroff, Igreja, & Mongrain, 1990).

The revised Multiple Affect Adjective Checklist (MAACL-R; Zuckerman & Lubin, 1985) was used to measure mood change. 'The MAACL is a self-report scale, and the most frequently used measure of affect in mood induction studies (Larsen & Sinnett, 1991). Originally developed in 1965, the scale was recently revised, due to concerns about high intercorrelations between the subscales. The Anxiety, Depression, and Hostility subscales typically correlated between 0.7 and 0.9 (Zuckerman & Lubin, 1985). While it was still possible for only one of the three to show a significant change in response to a specific kind of stress, most stressors resulted in changes in all three scales. Correlations of the old MAACL scales with other assessment measures such as questionnaires and observer ratings, showed the Anxiety and Depression scales had convergent, but not discriminant validity (Zuckerman, Persky, Eckman, & Hopkins, 1967, cited by Zuckerman & Lubin, 1985).

Construction of the new scales was attained by administering the 132-item MAACL state form to 536 college undergraduates, on two occasions five days apart. One group was given the scale just prior to an examination, the other group just before a normal lecture. Most of the correlations between the Anxiety, Depression, and Hostility scales were between 0.4 and 0.6. While this was an improvement over correlations between 0.7 to 0.9 for the old version, it still seemed that the three scales represented subfactors of a larger dysphoria factor (Zuckerman & Lubin, 1985). Consequently, it was decided that the most useful structure for the MAACL-R would be to keep scores for the negative affect subscales, and to standardize additive scores for a Dysphoria score (A + D + H). Internal reliabilities for the Dysphoria scale range from 0.80 to 0.96 in college undergraduates (Zuckerman & Lubin, 1985).

The present study used a modified version of the revised MAACL, where only items from the Dysphoria subscale were used. These 37 items were presented,

and subjects were instructed to "circle those words which describe how you are feeling right at this moment".

Procedure

Initial Screening

Subjects were initially approached during lecture time. After reading the information sheet and completing the consent form, participants completed the first questionnaire, consisting of the Beck Depression Inventory and the Sociotropy-Autonomy Scale (see Appendix C). This was designed to identify those subjects who were currently at a level of dysphoria where it would be unethical to further lower their mood. Subjects who scored above 12 on the BDI were excluded from taking part in the mood induction for ethical reasons. This cutoff score was chosen as various studies have resulted in a high false positive rate, and significant instability of the measure when the more standard BDI cutoff score of 10 is used (Kendall, Hollon, Beck, Hammen, & Ingram, 1987). The scores on the SAS were used to classify subjects as primarily sociotropic or autonomous. The highest possible score for the Sociotropy subscale was 116, and 120 for the Autonomy subscale. In order to make scores on the two scales comparable they were converted to percentages (obtained score/total possible score). Subjects were classified as sociotropic or autonomous, depending on which of their two scores was the greater.

Many subjects had quite similar scores on both subscales, and there was a concern that this may be a confounding variable. To overcome this, it was decided to further subdivide subjects according to relative strength. Subjects who had greater or equal to a ten percent difference between their subscale scores (i.e. approximately 12 points on the scale), were classified as strongly sociotropic/autonomous. Those whose differences were less than ten percent were classified as weakly sociotropic/autonomous. This resulted in four groups; sociotropic high, sociotropic low, autonomous high, and autonomous low. Subjects were then randomly assigned to either congruent or incongruent mood inductions, in order to have approximately equal numbers of 'low' and 'high'

scorers in each group, making this a randomized blocks design. By doing this, it would be possible to conduct post-hoc analyses to see whether it was the strength of sociotropy/autonomy which contributed to the results. Another related benefit in this method of assigning subjects, is that it reduces the within-groups variance by "restricting the variation due to a particular subject characteristic that otherwise would be left unchecked" (Keppel, 1982, p.248).

Once the initial screen had been completed, subjects eligible to complete the mood induction were contacted by telephone to arrange a time for them to participate in the mood induction, which was run the following week. The inductions were run in small groups of between two and twelve, with the modal number being four per group.

Mood Induction

All subjects completed the MAACL and the DAS before and after the induction. Each subject read twenty autonomous or sociotropic mood induction statements, (see Appendix E) which were congruent or incongruent with their personality mode. Subjects in the congruent condition who were classified as sociotropic from scores on the revised SAS, read the 20 sociotropic mood induction statements. Those classified as autonomous read the 20 autonomous items.

Subjects in the incongruent condition who were classified as sociotropic, read the autonomous items, and those classified as autonomous read the sociotropic items. Subjects were instructed to "read these statements slowly, and try to concentrate on your feelings". Once these statements had been read, they again completed the MAACL and the DAS. Following this all subjects read ten positive statements, designed to counter any effects from the twenty negative statements. All subjects were unaware of whether they received a congruent or incongruent induction, making this a single-blind study.

RESULTS

The present study utilized a 2x2 mixed design, where the between-subjects factor was the type of mood (congruent or incongruent), and the within-subjects factor was the time of measurement (pre-induction or post-induction).

Hypothesis 1: It was predicted that following the negative mood induction, those receiving a congruent mood induction would experience greater increases in negative mood and dysfunctional thinking, than those receiving an incongruent mood induction.

To test this hypothesis, a 2x2 MANOVA was performed, first on MAACL scores, and again separately on DAS scores. The between-subjects factor was the type of induction (congruent/incongruent), and the within-subjects factor was the time of measurement (pre-induction/post-induction).

The 2x2 MANOVA performed on MAACL scores revealed a significant interaction effect between type of mood induction and time of measurement ($F(1,94) = 64.46, p < 0.005$).

The second 2x2 MANOVA was carried out using the DAS scores as the dependent variable. This also revealed a significant interaction between type of induction and time of measurement ($F(1,94) = 34.96, p < 0.005$).

Both of the interaction effects (for MAACL scores and DAS scores), were in the expected direction, indicating that although there was a significant main effect for pre-post changes in mood and dysfunctional thinking, ($F(1,94) = 137.85; F(1,94) = 63.72$ respectively), the effects of the mood induction depended on the type of stressor. Table 1 provides pre-postinduction means and standard deviations for both types of induction on both the MAACL and DAS.

Table 1

Pre-postinduction mean scores and standard deviations for the Multiple Affect Adjective Checklist (MAACL) and Dysfunctional Attitude Scale (DAS)

	CONGRUENT		INCONGRUENT	
	PRE	POST	PRE	POST
MAACL MEAN	2.58	9.64	3.00	4.33
STD DEV	2.54	4.67	3.08	4.53
DAS MEAN	111.24	135.62	107.69	111.33
STD DEV	26.06	29.27	25.45	28.96

The interaction effects between type of induction and pre-post changes are best illustrated by graphs. Figure 1 shows pre-post mean scores for the Multiple Affect Adjective Checklist. Figure 2 shows pre-post mean scores for the Dysfunctional Attitude Scale. In both cases, the interaction effect can be seen by the differing rates of change for congruent and incongruent inductions.

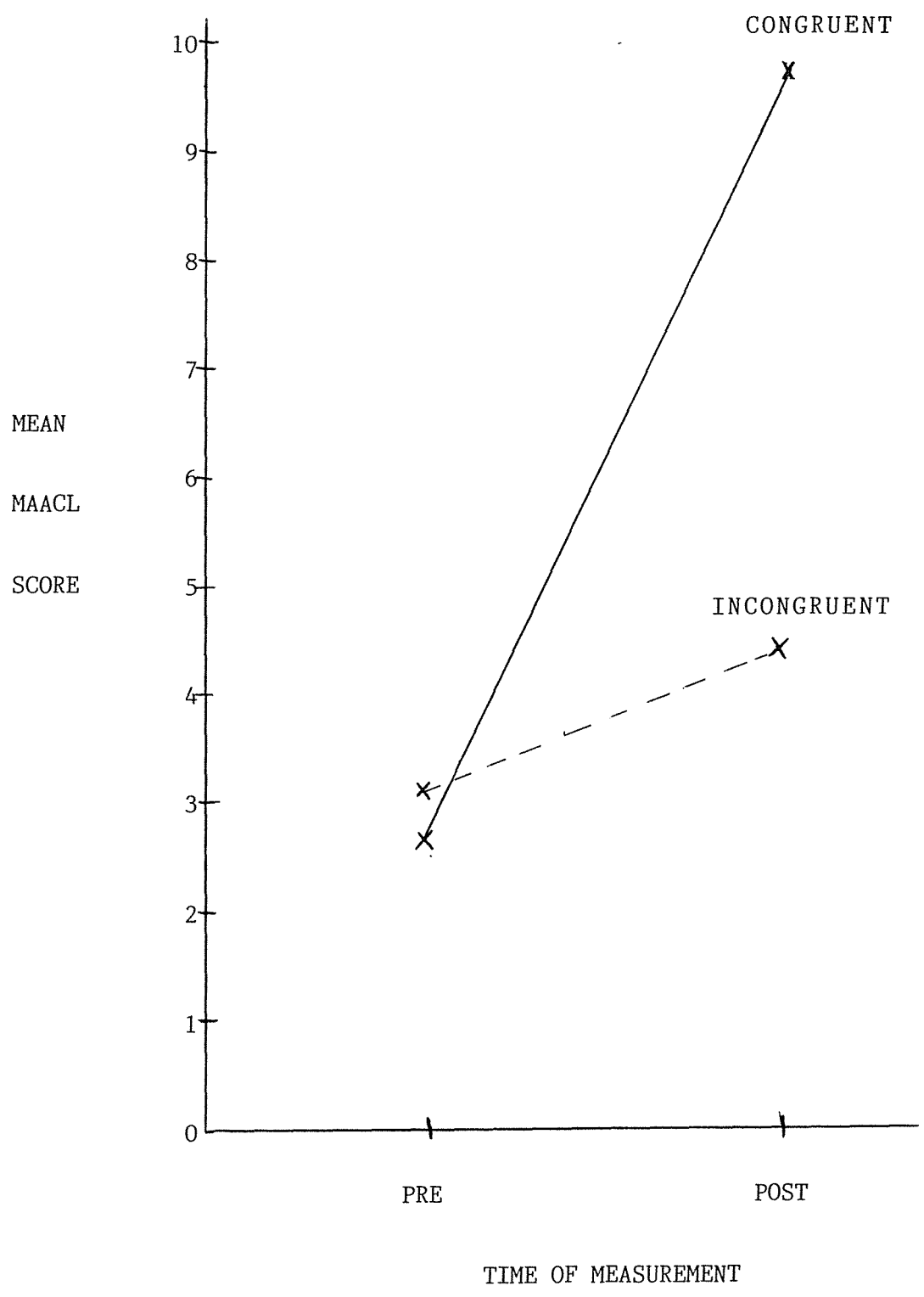


Figure 1. Pre-post mean scores on the Multiple Affect Adjective Checklist for both congruent and incongruent inductions.

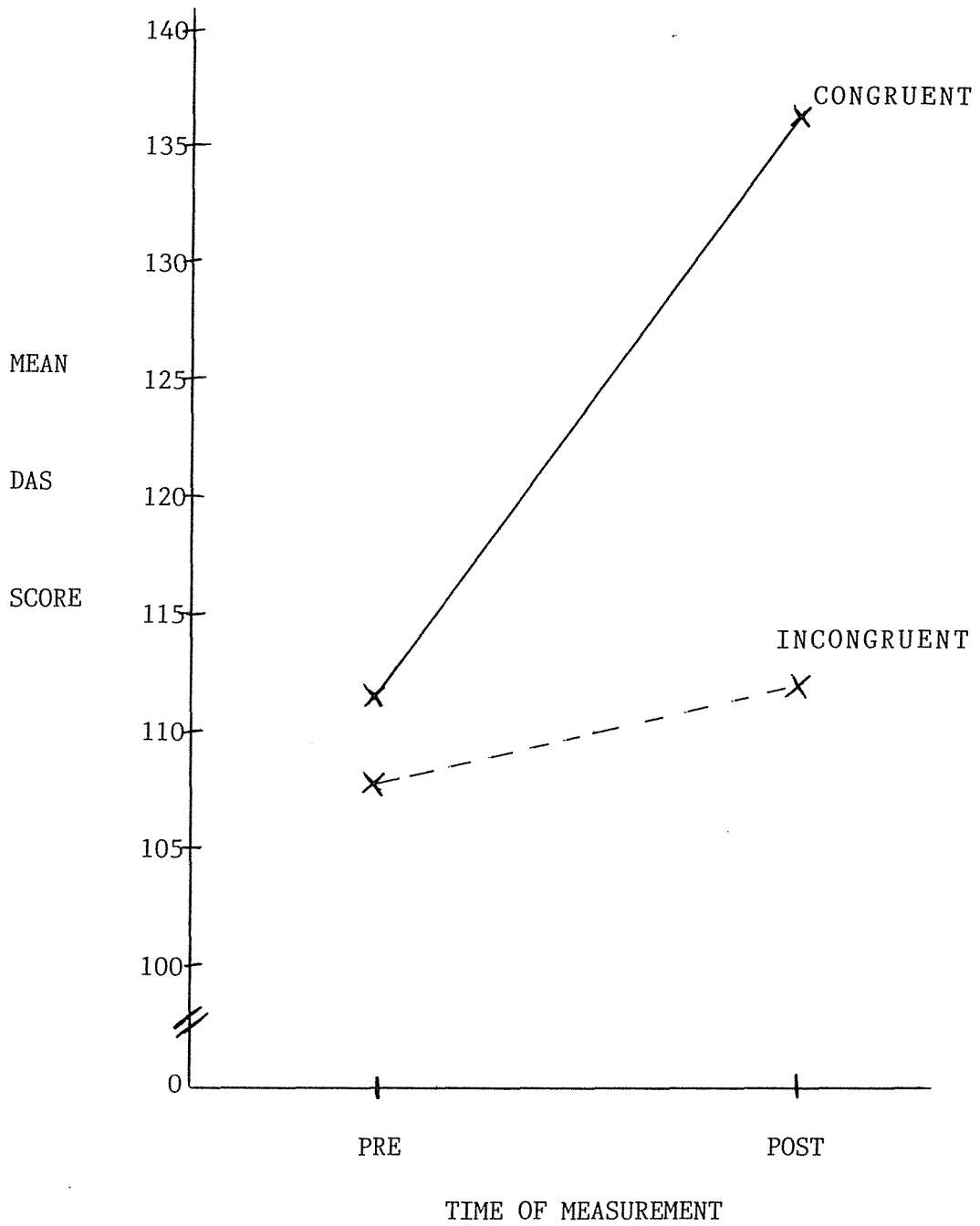


Figure 2. Pre-post mean scores on the Dysfunctional Attitude Scale for both congruent and incongruent inductions.

Hypothesis Two: It was predicted that, increases in negative affect would be connected to increases in dysfunctional thinking.

In order to test for mediation, three regression equations must be performed.

- 1) the mediator must be regressed on the independent variable.
- 2) the dependent variable must be regressed on the independent variable.
- 3) the dependent variable must be regressed on both the independent variable and the mediator.

For the present study, the independent variable was the mood induction, the dependent variable was negative affect, and the mediator was dysfunctional thinking.

To establish mediation, the following conditions must hold (Baron & Kenny, 1986).

- 1) the induction must affect dysfunctional thinking in the first equation.
- 2) the induction must affect negative affect in the second equation.
- 3) dysfunctional thinking must affect negative affect in the third equation.

1) When dysfunctional thinking was regressed on the mood induction, the induction accounted for 27% of the variance in dysfunctional thinking. ($F(1,94) = 34.96, p < 0.005$).

2) When negative affect was regressed on the mood induction, the induction accounted for 40% of the variance in negative affect. ($F(1,94) = 64.46, p < 0.005$).

- 3) When negative affect was regressed on both the mood induction and dysfunctional thinking, dysfunctional thinking accounted for 55% of the variance in negative affect. ($F(2,93) = 58.16, p < 0.005$).

For mediation to be established, the effect of the independent variable (the mood induction) on the dependent variable (negative affect) must be less in the third equation than in the second (Baron & Kenny, 1986). In other words, when the effects of the mediator (dysfunctional thinking) are controlled, the power of the independent variable should be reduced. Perfect mediation occurs when controlling the mediator results in the independent variable having no effect on the dependent variable of interest.

In the second equation, the effect of the mood induction on negative affect (as indicated by the beta value) was 0.6378. For the third equation, the effect of the mood induction on negative affect, when the effects of dysfunctional thinking were controlled, was 0.4025.

This result suggests that dysfunctional thinking does indeed function as a mediating variable between the mood induction and negative affect. Although it is not a perfect mediating relationship (i.e. the beta value in the third equation was not zero), it does show that the lowering of affect following a negative mood induction is at least partly caused by an increase in dysfunctional thinking.

DISCUSSION

The present study was designed to test the hypothesis generated by Beck (1987), regarding causal elements involved in the onset of depressive episodes. This onset hypothesis proposes that episodes of nonendogenous unipolar depression can be predicted by the interaction of personality modes (sociotropy and autonomy), dysfunctional beliefs, event valuations, and vulnerability-congruent negative events (Beck, 1987).

Consequently, it was predicted that subjects who received a mood induction congruent with their cognitive vulnerability, would show a higher negative mood and more dysfunctional thinking than those who received an incongruent induction.

A 2x2 MANOVA revealed a significant interaction effect for type of induction and time of measurement on mood, as measured by the MAACL. The amount of negative mood change depended on whether subjects received a congruent or incongruent mood induction. While both congruent and incongruent inductions led to significant increases in negative mood, as measured by the MAACL, those in the congruent condition experienced greater negative mood change than those in the incongruent condition.

A similar 2x2 MANOVA performed on DAS scores, also produced a significant interaction effect between type of induction and time of measurement. Similarly, it was found that the effects of the mood induction procedure depended on the type of stressor (congruent/ incongruent), with the greater effects being observed for the congruent group.

In order to test whether dysfunctional thinking mediated between the induction and mood change, a multiple regression analysis was performed, following the procedure of Baron and Kenny (1986). Both the type of induction and DAS

scores contributed to the MAACL scores. In a perfect mediating relationship, removing the effects of the mediating variable should result in the relationship between the IV (induction) and the DV (mood) disappearing. However, this was not the case for the DAS scores, indicating there were other factors operating which contributed to the effects of the negative mood induction on affect.

A consideration of the experimental design and the nature of the sample lead to a number of possible explanations which could account for both congruent and incongruent groups showing an increase in both the Multiple Affect Adjective Checklist and Dysfunctional Attitude Scale scores. First, subjects were drawn from a university population. This might suggest that achievement is important to them (Zuroff & Mongrain, 1987). Therefore, even the most sociotropic of subjects would be expected to be vulnerable to achievement-oriented stressor such as academic failure, a theme present in many of the twenty autonomous statements used in the mood induction.

It is also possible that sociotropic persons may interpret negative autonomous events in terms of rejection. For example, if such an individual is confronted with a failure, he or she may think in terms of how others will see them, given that they have failed at something. Similarly an autonomous person may interpret interpersonal rejection as failure.

Another issue, which can account for both personality types responding to incongruent events, is the observation that a large proportion of subjects scored similarly on both sociotropy and autonomy. Indeed, approximately half of the subjects had scores within ten percentage points of each other. This closeness in scores indicates that these individuals would be almost equally vulnerable to sociotropic and autonomous negative events.

Indeed, this classification of individuals as sociotropic or autonomous when the difference is so marginal, is a problem that may explain negative results in

several past studies. For example, Hammen, Ellicott and Gitlin (1989), found a relationship between sociotropy and sociotropic events, but not for autonomy (Hammen, Ellicott, & Gitlin, 1989). The criterion for classification was merely that the subject scored above the mean score for one scale, and below the mean score on the other. This could include subjects with mean differences of only one or two points. Other studies have used a median-split between the two scores, while others require a larger than three-point difference between them (Hammen, Ellicott, Gitlin, & Jamison, 1989). The use of such borderline cut-off points may well lead to unreliable or invalid classification of subjects as sociotropic or autonomous. This invalid classification would certainly help account for unexpected results.

Furthermore, the contrast between congruence and incongruence suggests a dichotomous approach to activation of depressive schemata. It implies that dysfunctional attitudes are either activated by a stressor, or they are not. Zuroff and Mongrain (1987), suggest a less dichotomous conceptualization of the activation process may be better. They propose, it may be that the degree of activation of a cognitive schema is a "continuous function of the congruence of a given situation and the content of the structure" (Zuroff & Mongrain, 1987, p.20). In other words, the degree to which a stressor resembles the underlying vulnerability may determine the level of activation. So the occurrence of a seemingly incongruent event may be sufficient to activate underlying dysfunctional attitudes, not to the extent a congruent event would, but enough to produce an observable downward shift in mood.

Zuroff and Mongrain (1987) also propose that the function can be viewed as a gradient that "describes how sharply activation drops off with increasing dissimilarity between a situation and the structure's content" (Zuroff & Mongrain, 1987, p.20). It may be that this gradient is different for different individuals. For a person whose gradient is steep, only congruent events would be expected to activate the depressive schemata. This would be the case for an individual whose

scores on the autonomy and sociotropy subscales were vastly different.

If, on the other hand, the gradient is flat, it would be likely that a wider variety of stressors would have the potential to activate the dysfunctional beliefs. This would apply to individuals who score similarly on both subscales, and would account for these persons responding negatively to seemingly incongruent events.

Indeed, this gradient need not necessarily even be linear. It may be that for some individuals, the gradient involves some kind of threshold effect. This would be the case for an individual who tolerates a certain amount of stress, but then a sort of "last-straw" phenomenon occurs, where any more stress, whether it be congruent or incongruent, becomes too much for that individual to cope with, and depression results.

Another factor which could explain mood change in the incongruent condition is past experience. Subjects who have actually experienced the events depicted in the statements would naturally be better able to imagine the mood associated with it. In fact, this point was raised by one subject, who said the description of an event he had experienced greatly affected his mood. The presence of similar events in each subject's experience was not assessed, so it is possible that this may be an extraneous factor.

A potential weakness of the present study may have been that there was insufficient time between pre and post measures. It is possible that subjects were able to recall their responses from the pre-induction measure, and that this, rather than their true feelings, may have driven their responses on the post-induction measure. In fact, one subject reported that she had remembered her original responses. However, although this would affect main effects, it would not have any effect on the interaction effect.

There are a number of limitations of the present study that must be acknowledged. The nature of the causal path between stress and depression cannot be determined on the basis of this research. However, the present study does support aspects of Beck's (1987) onset hypothesis, and is consistent with dysfunctional thoughts having a concurrent role in mood change.

These results should be replicated with a clinical sample in order to look at the role of dysfunctional attitudes and personality modes in more extreme affective states. There is also a need to look at the presence of prior life events in subjects' experience. It would be expected that those subjects who have actually experienced similar events to those depicted in the statements would better be able to comprehend the associated feelings. Moreover, if such an event had occurred, and the person had experienced depressed affect, the statement may cause some of those feelings to resurface.

Vulnerability to depressive affect is likely to be highly complex. It probably involves other factors such as coping skills, social support, and biological predispositions, not merely the presence or absence of depressive schemata. These other contributing factors were not included in the present study, and it would be useful for future studies to incorporate them, or at least some of them, into the research.

Another recommendation for future research, is to give subjects both congruent and incongruent inductions, or possibly varying levels of congruence to test the gradient hypothesis. It would be expected that the more congruent the induction, the greater the increase in negative affect. Naturally, this would depend on the differences in vulnerability. A highly autonomous person, for example, would be expected to show a larger mood change in response to an autonomous event than a sociotropic event. Whereas an individual who is marginally autonomous may well respond similarly to both types of negative events.

In summary, the results obtained in the present study do support the onset hypothesis, but this clearly remains an area requiring more attention. Although the individual-difference factors of sociotropy and autonomy may indicate the type of event or stressor most likely to precipitate depression in a vulnerable individual, this does not imply that an individual is immune to being adversely affected by other types of stress.

Perhaps, as is the case with all psychological concepts, the most important test will be to determine the utility of sociotropy and autonomy in the therapeutic arena. It may be that sociotropic individuals will respond best to therapy emphasizing interpersonal relationships, while autonomous individuals are better suited to task-oriented interventions. Should this be the case, sociotropy and autonomy could be used to obtain optimal matching of patients to different forms of therapy for depression. Beck's personality modes appear important psychological concepts in understanding the onset and maintenance of depression. Their potential for informing emphasis in treatment has yet to be demonstrated.

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Appendix A

LIFE EVENTS AND MOOD STUDY INFORMATION SHEET

Who are the researchers? The researcher for this study is Emma Jensen, who is completing her MSc in Psychology. She is being supervised by Dr Frank Deane.

Where can they be contacted? Emma can be contacted by phoning Dr Deane's office in the Psychology Clinic at Massey. His extension is 8231. (The Massey number is 3569099).

What is the study about? The aim of the study is to see how negative events affect whether or not depression results. In other words, why do people become depressed in response to certain events, but not others?

What will the participants have to do? If you take part, you will complete a questionnaire which measures how you are feeling, and what things are important to you. If you also take part in the second part of the study, you may be involved in a mood induction which involves reading statements from cards which are designed to briefly change your mood. You will also complete a questionnaire before and after the induction. Those of you who do not take part in the induction will complete a questionnaire to see what types of life events have occurred in your life recently.

How much time will be involved? The first part will take about 10-15 minutes. The second part will run for no more than 30 minutes, and will take place about 1-2 weeks after the first part.

What can the participants expect from the researcher? All participants will receive full information about the study, and can ask questions at any time. You will have access to a summary of results on completion of the study. This will be posted on the undergraduate notice board in the Psychology Department.

What are my rights? If you take part, you have the right to:

- * withdraw from the study at any time
- * ask any further questions you may have
- * provide information on the understanding that it is completely confidential to the researchers
- * receive access to the results when the study is concluded.

Now that you have read the information sheet, please decide whether or not you are interested in participating. If you would also like to take part in the second part of the study, please complete the attached consent form, and indicate a convenient time for me to call you.

Emma Jensen

Appendix B**LIFE EVENTS AND MOOD STUDY
CONSENT FORM**

I have read the Information Sheet for this study and have had the details of the study explained to me. My questions about the study have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I also understand that I am free to withdraw from the study at any time, or to decline to answer any particular questions in the study. I agree to provide information to the researcher on the understanding that it is completely confidential.

If you do not wish to participate in the second part of the study (which will take about 30 minutes), LEAVE THIS FORM BLANK.

I wish to participate in the second part of the study under the conditions set out on the Information Sheet.

Signed: _____

Name: _____

Phone: _____

Time to call: _____

Appendix C

INITIAL SCREENING QUESTIONNAIRE

Age: _____ Sex: Male/Female (Delete one)

After reading each group of statements carefully circle the number (0,1,2, or 3) next to the statement which best describes the way you have been feeling the past week, including today. Read all the statements in each group before making your choice.

- 1) 0 I do not feel sad.
 1 I feel sad.
 2 I am sad all the time and can't snap out of it.
 3 I am so sad or unhappy that I can't stand it.

- 2) 0 I am not particularly discouraged about the future.
 1 I feel discouraged about the future.
 2 I feel I have nothing to look forward to.
 3 I feel that the future is hopeless and that things cannot improve.

- 3) 0 I do not feel like a failure.
 1 I feel I have failed more than the average person.
 2 As I look back on my life, all I can see are a lot of failures.
 3 I feel I am a complete failure as a person.

- 4) 0 I get as much satisfaction out of things as I used to.
 1 I don't enjoy things the way I used to.
 2 I don't get real satisfaction out of anything anymore.
 3 I am dissatisfied or bored with everything.

- 5) 0 I don't feel particularly guilty.
 1 I feel guilty a good part of the time.
 2 I feel quite guilty most of the time.
 3 I feel guilty all the time.

- 6) 0 I don't feel I am being punished.
 1 I feel I may be punished.
 2 I expect to be punished.
 3 I feel I am being punished.

- 7) 0 I don't feel disappointed in myself.
 1 I am disappointed in myself.
 2 I am disgusted with myself.
 3 I hate myself.

- 8) 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.
- 9) 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.
- 10) 0 I don't cry any more than usual.
1 I cry now more than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.
- 11) 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to.
2 I feel irritated all the time now.
3 I don't get irritated at all by the things I used to.
- 12) 0 I have not lost interest in other people.
1 I am less interested in others than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.
- 13) 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have more difficulty making decisions than before.
3 I can't make decisions at all anymore.
- 14) 0 I don't feel that I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.
- 15) 0 I can work about as well as before.
1 I takes an extra effort to get started doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.
- 16) 0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier and it's hard to get back to sleep.
3 I wake up several hours earlier and can't get back to sleep.
- 17) 0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

- 18) 0 My appetite is no worse than usual.
 1 My appetite is not as good as it used to be.
 2 My appetite is much worse now.
 3 I have no appetite at all anymore.
- 19) 0 I haven't lost much weight, if any, lately.
 1 I have lost more than 5 pounds.
 2 I have lost more than 10 pounds.
 3 I have lost more than 15 pounds.
 (I am purposely trying to lose weight by eating less.
 Yes/No (circle one.))
- 20) 0 I am no more worried about my health than usual.
 1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
 2 I'm worried about physical problems and it's hard to think of much else.
 3 I am so worried that I cannot think of anything else.
- 21) 0 I have not noticed any change in my interest in sex.
 1 I am less interested in sex than I used to be.
 2 I am much less interested in sex now.
 3 I have lost interest in sex completely.

Please indicate what percentage of the time each of the statements below applies to you, by using the scale to the left of the items. Choose the percentage that comes closest to how often the item describes you, and circle in the appropriate column.

PERCENT DESCRIBES YOU

0% 25% 50% 75% 100%

A B C D E 1) I would be uncomfortable dining in a restaurant by myself.

A B C D E 2) I get uncomfortable when I am not sure how to behave in the presence of others.

A B C D E 3) I focus almost exclusively on the positive outcomes of my decisions.

A B C D E 4) It's important to be liked and approved of by others.

A B C D E 5) I feel more comfortable giving than receiving help.

A B C D E 6) I am very uncomfortable when a friend or relative decides to "pour their heart out" to me.

PERCENT DESCRIBES YOU

0% 25% 50% 75% 100%

- A B C D E 7) I'm reluctant to ask for help when working on a difficult task.
- A B C D E 8) When with others, I look for signs whether or not they like me.
- A B C D E 9) When visiting people, I get fidgety sitting around, and would rather be doing something.
- A B C D E 10) I'm more concerned that people like me than about making important achievements.
- A B C D E 11) I'm afraid of hurting people's feelings.
- A B C D E 12) People rarely come to me with their personal problems.
- A B C D E 13) I sometimes unintentionally hurt those I love most by what I say.
- A B C D E 14) I feel bad if I do not have some social plans for the weekend.
- A B C D E 15) I tend to be direct with people and say what I think.
- A B C D E 16) People tend to dwell too much on their personal problems.
- A B C D E 17) Once I've made a decision I rarely change my mind.
- A B C D E 18) Being able to share experiences with others makes them more enjoyable.
- A B C D E 19) I do things that aren't in my best interest in order to please others.
- A B C D E 20) I prefer to work out my personal problems by myself.
- A B C D E 21) When I have a problem, I like to go off on my own and think it through rather than be influenced by others.

PERCENT DESCRIBES YOU

0% 25% 50% 75% 100%

- A B C D E 22) I find it hard to pay attention to a long conversation, even with friends.
- A B C D E 23) I get lonely when I am home by myself at night.
- A B C D E 24) The worst part about growing old is being left alone.
- A B C D E 25) Having close bonds with others makes me feel secure.
- A B C D E 26) My close friends and family are too sensitive to what others say.
- A B C D E 27) I'm concerned that if people knew my faults/weaknesses, they wouldn't like me.
- A B C D E 28) I set my own standards and goals rather than accepting those of other people.
- A B C D E 29) I worry that someone I love will die.
- A B C D E 30) If a goal is important to me I will pursue it even if it makes others uncomfortable.
- A B C D E 31) I find it difficult to say no to people.
- A B C D E 32) I censor what I say in case the other person disapproves or disagrees.
- A B C D E 33) I'm usually the last person to hear that I've hurt someone by my actions.
- A B C D E 34) I often find myself thinking about friends and family.
- A B C D E 35) I'd rather take responsibility for getting a job done than rely on others.
- A B C D E 36) I spend a lot of time thinking over decisions.
- A B C D E 37) It's important to me to be free and independent.
- A B C D E 38) If a friend has not called for a while I get worried that he or she has forgotten me.

PERCENT DESCRIBES YOU

0% 25% 50% 75% 100%

- A B C D E 39) People I work with often spend too long weighing out the pros and cons before taking action.
- A B C D E 40) When I am having difficulty solving a problem, I would rather work it out myself than have someone show me the solution.
- A B C D E 41) Often I fail to consider the possible negative consequences of my actions.
- A B C D E 42) When I achieve a goal I get more satisfaction from reaching the goal than from any praise I may get.
- A B C D E 43) If I think I'm right about something I feel comfortable expressing myself even if others don't like it.
- A B C D E 44) I am uneasy when I can't tell if someone I've met likes me or not.
- A B C D E 45) If somebody criticizes my appearance I feel I'm not attractive to others.
- A B C D E 46) I get uncomfortable around a person who clearly doesn't like me.
- A B C D E 47) It's more important to be active and doing things than having close relations with others.
- A B C D E 48) Sometimes I hurt family and friends without knowing I've done anything wrong.
- A B C D E 49) I tend to fret and worry over my personal problems.
- A B C D E 50) I am more apologetic to others than I need to be.
- A B C D E 51) The possibility of being rejected by others for standing up for my rights would not stop me.
- A B C D E 52) I need to be engaged in a challenging task to feel satisfied with my life.
- A B C D E 53) I don't enjoy what I'm doing when I don't feel somebody in my life really cares about me.

PERCENT DESCRIBES YOU

0% 25% 50% 75% 100%

- A B C D E 54) It would not be much fun for me to travel to a new place all alone.
- A B C D E 55) I like to be certain there is someone close I can contact in case something unpleasant happens to me.
- A B C D E 56) I prize being a unique individual more than being a member of a group.
- A B C D E 57) If I think somebody may be upset at me, I want to apologize.
- A B C D E 58) I become particularly annoyed when a task is not completed.
- A B C D E 59) I find it difficult to be separated from people I love.

Thank you for taking the time to complete this questionnaire. If you are willing to take part in the second part of this study, please indicate your interest on the Consent Form, and write your telephone number, and time to call, in the space provided.

Thank you again.

Emma Jensen.

APPENDIX D

MOOD INDUCTION QUESTIONNAIRE

Listed below are different attitudes or beliefs which people sometimes hold. Read each statement carefully and decide how much you agree or disagree with the statement right now.

For each of the attitudes, show your answer by placing a tick in the column that best describes how you think right now. Choose only one answer for each statement. Please remember that there is no right or wrong answer to these statements.

ATTITUDES	TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
REMEMBER, ANSWER EACH STATEMENT ACCORDING TO THE WAY YOU THINK							
1. It is difficult to be happy unless one is good looking, intelligent, rich and creative.							
2. Happiness is more a matter of my attitude towards myself than the way other people feel about me.							
3. People will probably think less of me if I make a mistake.							
4. If I do not do well all the time, people will not respect me.							
5. Taking even a small risk is foolish because the loss is likely to be a disaster.							
6. It is possible to gain another person's respect without being especially talented at anything.							
7. I cannot be happy unless most people I know admire me.							
8. If a person asks for help, it is a sign of weakness.							

ATTITUDES	TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
9. If I do not do as well as other people, it means I am an inferior human being.							
10. If I fail at my work, then I am a failure as a person.							
11. If you cannot do something well, there is little point in doing it at all.							
12. Making mistakes is fine because I can learn from them.							
13. If someone disagrees with me, it probably indicates he does not like me.							
14. If I fail partly, it is as bad as being a complete failure.							
15. If other people know what you are really like, they will think less of you.							
16. I am nothing if a person I love doesn't love me.							
17. One can get pleasure from an activity regardless of the end result.							
18. People should have a reasonable likelihood of success before undertaking anything.							

ATTITUDES	TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
19. My value as a person depends greatly on what others think of me.							
20. If I don't set the highest standards for myself, I am likely to end up a second-rate person.							
21. If I am to be a worthwhile person, I must be truly outstanding in at least one major respect.							
22. People who have good ideas are more worthy than those who do not.							
23. I should be upset if I make a mistake.							
24. My own opinions of myself are more important than other's opinions of me.							
25. To be a good, moral, worthwhile person, I must help everyone who needs it.							
26. If I ask a question, it makes me look inferior.							
27. It is awful to be disapproved of by people important to you.							
28. If you don't have other people to lean on, you are bound to be sad.							

ATTITUDES	TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
29. I can reach important goals without slave driving myself.							
30. It is possible for a person to be scolded and not get upset.							
31. I cannot trust other people because they might be cruel to me.							
32. If others dislike you, you cannot be happy.							
33. It is best to give up your own interests in order to please other people.							
34. My happiness depends more on other people than it does on me.							
35. I do not need the approval of other people in order to be happy.							
36. If a person avoids problems, the problems tend to go away.							
37. I can be happy even if I miss out on many of the good things in life.							
38. What other people think about me is very important.							
39. Being isolated from others is bound to lead to unhappiness.							
40. I can find happiness without being loved by another person.							

Appendix E

MOOD INDUCTION ITEMS

Autonomy

You have failed an important exam.

You missed out on a job you had expected to get.

You have been demoted at work.

You were not accepted into a postgraduate course.

You get a reduction in wages/salary.

You miss getting your degree by one paper.

Others are taking credit for your work.

You are forced to accept menial work.

Your career path is blocked.

You are forced to leave university due to financial trouble.

You have studied the wrong material for an exam.

You are eliminated in the first round of a competition in a sport in which you normally excel.

You are passed over for a promotion.

You receive a poor grade on an assignment.

You unexpectedly lose your job.

You fail a paper at university that you need for your major.

You are unable to find employment.

You are humiliated in front of your employer.

You lose all your year's notes just prior to exams.

You suffer a permanent disability which prevents you from pursuing your choice of career.

Sociotropy

Your partner breaks off your relationship.

A close friend is raped/attacked.

You lose touch with your friends back home.

You cannot join in social plans due to financial trouble.

You are the victim of cruel gossip.

Your pet dies suddenly.

Your parents announce they are separating.

A close friend/family member attempts suicide.

You are unable to return home for the holidays as you had intended.

Major social plans fall through at the last minute.

Friends are killed in a car accident.

Your partner has a serious injury.

One of your parents becomes seriously ill.

You move towns and are unable to make new friends.

A parent embarrasses you in front of your friends.

You have a big argument with your parents.

You plan a big get-together with friends, but no-one turns up.

Your flatmates tell you they would like you to move out.

You are not included in social plans with your friends.

You discover your partner has been cheating on you.

Positive statements

I feel really good today.

Life is great for me.

Right now, everything is going my way.

I haven't got any problems at all in my life.

I consider myself to be a very lucky person.

I am a highly successful person.

My life is filled with many people who really care about me.

I am happy to be who I am.

My life is exactly the way I want it to be.

I am a very happy and positive person.

Appendix F

Jensen, E. J. & Deane, F. P. (1994). *Effects of stressor congruence with sociotropy-autonomy using a mood induction procedure*. Manuscript submitted for publication.

Effects of stressor congruence with sociotropy-autonomy using a mood induction procedure

Emma J. Jensen and Frank P. Deane
Massey University
Palmerston North
New Zealand

Abstract

Beck's (1967) cognitive diathesis-stress model of depression suggests that depression is the result of the activation of underlying dysfunctional attitudes by a congruent stressor. To test this hypothesis ninety-six university students were classified with either sociotropic or autonomous personality modes based on their scores on the Sociotropy-Autonomy Scale. Using a modified Velten Mood Induction procedure, subjects were randomly assigned to a mood induction which was either congruent or incongruent with their personality mode. Pre-postinduction changes in mood and dysfunctional thinking were measured. As predicted type of induction interacted with changes in both mood and dysfunctional thinking. Those receiving the congruent induction experienced greater negative mood change and increases in dysfunctional thinking than those receiving the incongruent induction. Consistent with cognitive theory changes in dysfunctional thinking mediated the effects of the induction on mood change.

Introduction

Cognitive theories of depression propose that certain negative cognitions exist, which are representative of depression, and which are functionally related to depressive schemata (Beck, 1967). These schemata, or beliefs, are thought to be activated in response to appropriate stressors, resulting in depression. It is theorised that these dysfunctional beliefs act as diatheses for depression, and are stable personality traits that are "latent" in vulnerable persons. Prior to being activated, they are not thought to directly influence mood or cognition, and may not even necessarily be available to awareness. However, when vulnerable individuals experience a stressful life event, their underlying dysfunctional belief system is activated, and depressive symptoms result (Beck, Rush, Shaw, & Emery, 1979).

The onset hypothesis is one of the causal hypotheses which is derived from Beck's (1987) theory of depression. This states that "...episodes of nonendogenous unipolar depression can be predicted by the interaction of dysfunctional beliefs, event valuations, and vulnerability-congruent negative events" (Haaga, Dyck, & Ernst, 1991, p.217).

In addition Beck's (1987) stability hypothesis suggests that the dysfunctional beliefs held by vulnerable individuals, should be stable before, during, and after a depressive episode. However, it is also recognized that the degree of accessibility may vary. This raises potential measurement problems,

such that, for the beliefs to be considered causal, they must precede the depression, but if they are not always equally accessible, this makes them difficult to measure. Consequently, these measurement problems make it difficult to verify dysfunctional beliefs as causal factors in the onset of depression (Persons & Miranda, 1992).

Despite the fact that many studies have yielded equivocal evidence for the stability hypothesis, it is premature to abandon it altogether. The hypothesis acknowledges that these beliefs may vary in the degree of accessibility over time. It is possible that for those studies where dysfunctional beliefs were not implicated in the development of depression, they had not been sufficiently activated and were thus not accessible. If this was the case, it raises questions about the validity of these studies as a test of the stability hypothesis (e.g., Dobson & Shaw, 1987; Eaves & Rush, 1984; Hollon, Kendall, & Lumry, 1986; Lewinsohn, Steinmetz, Larson, & Franklin, 1981).

Miranda, Persons, and Byers (1990) have proposed a mood-state hypothesis that is consistent with the stability hypothesis, and which can account for much of the negative evidence that has accumulated. They suggest that dysfunctional beliefs are indeed stable, but that the ability of a person to access and report them, depends on one's current mood state. The more negative the mood, the more likely it is that a vulnerable person will be able to report negative cognitions. Cognitive theory describes activation of underlying dysfunctional beliefs as resulting from appropriate life event stressors (Beck, 1987). The mood-state hypothesis proposes that any negative mood state may serve this activating role, raising the beliefs to a level where they are more readily accessible. The fact that previous studies may have tested for these beliefs during a time when they were not readily accessible, may well account for equivocal findings regarding the stability hypothesis. Therefore, any attempt to assess cognitive vulnerability factors in non-depressed or asymptomatic persons, must involve some procedure to activate the underlying dysfunctional beliefs. Unless such a procedure is used, any failure to demonstrate the presence of these beliefs may be due to the failure to activate them, rather than an implication of their nonexistence (Persons & Miranda, 1992).

One method used for changing mood is the Velten mood induction procedure (Velten, 1968). The procedure involves subjects reading self-referent negative statements, which are designed to induce a negative mood. Surprisingly few studies have attempted to use the technique, perhaps in part due to criticisms that the method only induces a negative mood in sixty percent of subjects (Slyker & McNally, 1991). Failure to come up with a more successful mood induction procedure poses major problems for the testing of the mood-state hypothesis. Clearly, a procedure needs to be developed which can create a negative mood change more consistently in subjects.

One possible explanation for the inconsistent performance of the Velten technique may be the lack of congruent stressors, suggested as necessary by the onset hypothesis which requires "vulnerability-congruent negative events" (Haaga et al., 1991, p.271). A vulnerability factor suggested by Beck (1983) are the personality modes of sociotropy and autonomy. These two personality modes may specify the types of stressors most likely to activate the underlying dysfunctional beliefs in a vulnerable individual.

Sociotropy refers to a person's investment in "positive interchange with other people. The individual is dependent on acceptance, intimacy, support, and admiration for gratification and direction" (Beck, 1983, p.272). Autonomy, on

the other hand, is defined as the relatively greater valuing of "independent functioning, mobility, choice, achievement, and integrity of one's domain", (Beck, 1983, p.272). In theory, stressors congruent with one's personality would be much more likely to activate the underlying belief system, than an incongruent stressor. For example, an autonomous person would be expected to react more negatively to a failure episode, than to a relationship difficulty. By matching an individual's cognitive vulnerability to the activation procedure the probability of a successful mood induction may be increased. The inclusion of this concept in the Velten technique - having sociotropic individuals read negative self-statements depicting rejection episodes, and autonomous persons read ones based on the theme of failure - could mean that the beliefs are more likely to be activated, thus providing a more valid test of the mood-state hypothesis. The present study aimed to use the personality modes of sociotropy and autonomy in an attempt to improve the success rate of a modified Velten mood induction procedure. It was hypothesised that subjects receiving a mood induction congruent with their personality mode would experience higher negative mood change than those receiving an incongruent mood induction. It was also hypothesised that a similar pattern of change in dysfunctional thinking would occur. Finally, it was predicted that changes in dysfunctional beliefs would mediate the effects of type of induction on mood change.

Method

Subjects

Subjects were volunteers from undergraduate courses in Psychology and Statistics at Massey University. Inclusion criteria required a score of less than 13 on the Beck Depression Inventory (Beck, Rush Shaw & Emery, 1979), (see procedure for more detail of initial screen). One hundred and twelve subjects took part in the initial screen, and of these, fourteen subjects were ineligible for the mood induction due to elevated scores on the BDI. Two subjects who were eligible chose not to complete the mood induction part of the study, leaving ninety-six subjects for the induction. Thirty-five males and sixty-one females took part in the mood induction. The average age for all subjects was 21.21 years (SD= 5.32).

Instruments

The Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979), is a 21-item self-report questionnaire designed to tap cognitive, affective, motivational, and physiological symptoms of depression. There is considerable psychometric evidence to support the concurrent and discriminant validity of the BDI as a measure of depression, and it is generally considered to be an excellent instrument with which to assess the intensity of depressed mood (Beck, Steer, & Garbin, 1988). In the present study, the BDI was used in the initial screen to assess potential subjects' level of mood.

The Sociotropy-Autonomy Scale (SAS) was the revised form developed by Clark and Beck (1991). It is a 59-item self-report questionnaire designed to assess the personality modes of sociotropy and autonomy. It consists of two subscales, the Autonomy subscale, containing 30 items, and the Sociotropy subscale, containing 29 items. Respondents rate each item along a five-point Likert scale, from 0% of the time, to 100% of the time. Originally developed in 1983 (Beck, Epstein, Harrison, & Emery, 1983), the scale was revised in

response to the weakness of the Autonomy subscale in earlier versions. The SAS and BDI were administered together as the initial eligibility screen.

The Dysfunctional Attitude Scale, Form A (DAS-A; Weissman & Beck, 1978), is a 40-item measure designed to tap beliefs which are thought to constitute predispositions to depression. Subjects indicate their level of agreement with statements regarding self-worth contingencies (e.g., "If others dislike you, you cannot be happy"), along a seven-point scale. Possible scores range from 40 to 280, with higher scores indicating a more dysfunctional pattern of thinking. Acceptable reliability and validity have been reported for the DAS (Oliver & Baumgart, 1983).

The revised Multiple Affect Adjective Checklist (MAACL-R; Zuckerman & Lubin, 1985) was used to measure mood change. It is one of the most frequently used mood change measures in mood induction studies (Larsen & Sinnett, 1991). The present study used the 37-item Dysphoria subscale. Subjects were instructed to "circle those words which describe how you are feeling right at this moment". Internal reliabilities for the Dysphoria scale range from 0.80 to 0.96 (Zuckerman & Lubin, 1985).

Procedure

Subjects were initially approached during class time. After reading the information sheet and completing the consent form, participants completed the first questionnaire, consisting of the Beck Depression Inventory and the Sociotropy-Autonomy Scale. Subjects who scored above 12 on the BDI were excluded from taking part in the mood induction for ethical reasons. This cutoff score was chosen as various studies have resulted in a false positive rate and significant instability when the more standard BDI cutoff score of 10 has been used (Kendall, Hollon, Beck, Hammen, & Ingram, 1987).

The scores on the SAS were used to classify subjects as primarily sociotropic or autonomous. The highest possible score for the Sociotropy subscale was 116, and 120 for the Autonomy subscale. In order to make scores on the two scales comparable they were converted to percentages (obtained score/total possible score). Subjects were classified as sociotropic or autonomous, depending on which of their two percentages was the greater. The smallest percentage difference between the subscales was 2 percentage points. Subjects were then randomly assigned from each personality mode to either a congruent or incongruent mood induction.

Eligible participants completed the mood induction the following week. The inductions were run in small groups of between two and twelve, with the modal number being four per group.

All subjects completed the MAACL and the DAS before and after the induction. Each subject read twenty autonomous or sociotropic mood induction statements which had been generated from descriptions of sociotropic and autonomous characteristics provided by Beck (1983), (see Appendix 1 for statements). Those in the congruent condition read the statements consistent with their personality mode, while those in the incongruent condition read those of the other personality mode (e.g. those classified as autonomous from SAS read the sociotropic statements).

Subjects were instructed to "read these statements slowly, and try to concentrate on your feelings". Once these statements had been read, subjects again completed the MAACL and the DAS. Finally, all participants read ten positive statements, designed to counter any effects from the twenty negative

statements. All subjects were blind to whether they were in the congruent or incongruent condition.

Results

The present study utilized a single blind 2x2 mixed design, where the between-subjects factor was the type of mood induction (congruent or incongruent), and the within-subjects factor was the time of measurement (pre-postinduction).

A repeated measures multivariate analysis of variance (MANOVA) with type of mood induction as a between subjects factor was performed, first with MAACL scores, and again separately with DAS scores. Results of evaluation of assumptions for MANOVA were satisfactory.

The MANOVA performed on MAACL scores revealed a significant interaction between type of induction and pre-post mood change on the MAACL, $F(1,94) = 64.46, p < .005$. The amount of negative mood change depended on the type of mood induction. Those receiving the congruent mood induction experienced significantly greater mood change in a negative direction, than those in the incongruent condition. Table 1 provides pre-postinduction means and standard deviations for both types of induction on both the MAACL and DAS.

Table 1
Pre-postinduction mean scores and standard deviations for the Multiple Adjective Checklist (MAACL) and Dysfunctional Attitudes Scale (DAS)

Measures	Mood induction			
	Congruent ($n=47$)		Incongruent ($n=49$)	
	Pre	Post	Pre	Post
MAACL				
<u>M</u>	2.58	9.64	3.00	4.33
<u>SD</u>	2.54	4.67	3.08	4.53
DAS				
<u>M</u>	111.24	135.62	107.69	111.33
<u>SD</u>	26.06	29.27	25.45	28.96

The second MANOVA using DAS scores as the dependent variable also produced a significant interaction between type of induction and pre-post changes in dysfunctional beliefs, $F(1,94) = 34.96$, $p < .005$. Those receiving the congruent mood induction reported a significantly greater increase in dysfunctional beliefs than those in the incongruent condition (see Table 1).

Both of the interaction effects (for MAACL scores and DAS scores), were in the hypothesised direction, indicating that although there was a significant main effect for pre-post changes in mood and dysfunctional thinking, ($F(1,94) = 137.85$; $F(1,94) = 63.72$ respectively), the effects of the mood induction depended on the type of stressor.

The analysis outlined by Baron & Kenny (1986) was used in order to determine whether changes in dysfunctional beliefs mediated the effects of type of induction on mood change. This requires three standard regression equations be estimated: "first, regressing the mediator (belief change) on the independent variable (type of induction); second, regressing the dependent variable (mood change) on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator", (Baron & Kenny, 1986, p.1177). For the mediation hypothesis to be confirmed the following conditions must hold: (a) type of induction must be shown to affect change in dysfunctional beliefs; (b) type of induction must be shown to affect mood change, (both (a) and (b) established with MANOVA analysis above); (c) belief change must effect mood change when the effects of type of induction are controlled and; (d) the effect of type of induction in the third equation (c) must be less than in the second (b). Perfect mediation would hold if type of induction had no effect when change in beliefs was controlled (Baron & Kenny, 1986).

Pre-post difference scores on the DAS were used as the measure of change in dysfunctional beliefs and pre-post difference scores on the MAACL were used as the measure of mood change.

The first regression produced a significant equation, $\beta = .52$, $F(1,94) = 34.96$, $p < .0001$, with type of induction accounting for 27% of the variance in belief change. The second regression produced a significant equation, $\beta = .64$, $F(1,94) = 64.46$, $p < .0001$, with type of induction accounting for 41% of the variance in mood change. The third regression produced a significant equation, $F(2,93) = 58.16$, $p < .0001$, with type of induction ($\beta = .40$) and belief change ($\beta = .45$) both significantly contributing to the equation and accounting for a total 56% of the variability in mood change. The effect of type of induction in the third equation was less than in the second, confirming that belief change mediated the effects of type of induction on mood change. However, because type of induction still had an effect when belief change was controlled, this suggests only partial mediation.

Discussion

The present study was designed to test the hypothesis generated by Beck (1987), regarding causal elements involved in the onset of depressive episodes. The onset hypothesis proposes that episodes of nonendogenous unipolar depression can be predicted by the interaction of personality modes (sociotropy and autonomy), dysfunctional beliefs, event valuations, and vulnerability-congruent negative events (Beck, 1987).

Consequently, it was predicted that subjects who received a mood induction congruent with their cognitive vulnerability, would experience greater

negative mood change and dysfunctional thinking than those who received an incongruent induction. The results were consistent with this hypothesis. While both congruent and incongruent inductions led to significant increases in negative mood the interaction effect showed that those receiving a congruent induction experienced greater negative mood change than those receiving the incongruent induction. The same findings were confirmed for dysfunctional beliefs.

The results also suggested that changes in dysfunctional beliefs mediated the effects of type of induction on changes in mood. However, changes in dysfunctional beliefs only partially mediated this relationship. Partial versus perfect mediation can be explained by a number of factors already outlined in Beck's cognitive theory of depression and, limitations of the present study.

Cognitive theory suggests that individuals who have actually experienced congruent stressful events may be more vulnerable to reactivation of dysfunctional beliefs (Haaga et al., 1991). The present study did not attempt to differentiate subjects by their prior experiences of stressful life events. Consequently, prior experience could be one potential variable which may also have operated as a partial mediator between type of induction and mood change.

The characteristics of the sample could also account for the finding that both congruent and incongruent inductions resulted in an increase in negative mood and dysfunctional beliefs. In university samples achievement is typically an important goal (Zuroff & Mongrain, 1987), consequently even the most sociotropic of subjects would be expected to have some vulnerability to achievement-oriented stressors such as academic failure. Academic failure was a theme present in many of the twenty autonomous statements used for the mood induction.

Similarly, it is possible that sociotropic persons may interpret negative autonomous events in terms of rejection. For example, if such an individual is confronted with a failure, he or she may think in terms of how others will see them, given that they have failed at something.

These concerns are supported by the observation that a large proportion of subjects scored similarly on both sociotropy and autonomy subscales of the SAS. Approximately half of the subjects had scores on the subscales within ten percentage points of each other. The classification of individuals as sociotropic or autonomous when the difference is numerically close, is a problem that may explain negative results in several previous studies. For example, Hammen, Ellicott and Gitlin (1989), found a relationship between sociotropy and sociotropic events, but no similar relationship for autonomy. The criterion for classification was merely that the subject scored above the mean score for one scale, and below the mean score on the other. This could include subjects with mean differences of only one or two points. Other studies have used a median-split or greater than three-point difference between subscale scores. The use of such borderline cut-off points may well lead to indiscrete classification of subjects as sociotropic or autonomous and contribute to negative findings.

Furthermore, the contrast between congruence and incongruence suggests a dichotomous approach to activation of depressive schemata. It implies that dysfunctional attitudes are either activated by a stressor, or they are not. Zuroff and Mongrain (1987), suggest a less dichotomous conceptualization of the activation process may be better. They propose, it may be that the degree of activation of a cognitive schema is a "continuous function of the congruence of a given situation and the content of the structure" (Zuroff & Mongrain, 1987,

p.20). In other words, the degree to which a stressor resembles the underlying vulnerability may determine the level of activation. The occurrence of a seemingly incongruent event may be sufficient to activate underlying dysfunctional attitudes, not to the extent a congruent event would, but enough to produce an observable downward shift in mood.

Zuroff and Mongrain (1987) also propose that the function can be viewed as a gradient that describes how sharply activation drops off with increasing dissimilarity between a situation and the structure's content. It may be that this gradient is different for different individuals. For a person whose gradient is steep, only congruent events would be expected to activate the depressive schemata. This would be the case for an individual whose scores on the autonomy and sociotropy subscales were vastly different.

If, on the other hand, the gradient is flat, it would be likely that a wider variety of stressors would have the potential to activate the dysfunctional beliefs. This would apply to individuals who score similarly on both subscales, and would account for these persons responding negatively to seemingly incongruent events.

As noted in relation to partial mediators, prior experience of stressful life events may explain mood change in the incongruent condition. Future research may be able to further clarify the developmental path of depression by including measures of past experience of stressful life events or other factors thought to contribute to the onset of depression. Ethical concerns may make replication of the present study in clinical samples difficult. However, prospective studies which assess the personality modes of sociotropy and autonomy and naturally occurring stressful events in clinical samples may provide partial replication of the findings.

In summary, although the results obtained in the present study do support the onset hypothesis, it clearly remains an area requiring more attention. The individual-difference factors of sociotropy and autonomy may predict the type of event or stressor most likely to precipitate depression in a vulnerable individual, but this by no means implies that that individual is immune to being adversely affected by other form of stress. While the full nature of the causal path between stressors and depression cannot be determined on the basis of this research, the present study does support aspects of Beck's (1987) onset hypothesis, and is consistent with dysfunctional beliefs having a mediating role in mood change.

The utility of the sociotropy and autonomy distinction in the therapeutic arena is still a long way off. However, if these theoretical relationships are confirmed in clinical samples there may be implications for treatment whereby therapy may emphasize ways of coping most consistent with the appropriate personality mode of an individual client.

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Appendix 1

Sociotropic mood induction statements:

- Your partner breaks off your relationship.
- A close friend is raped/attacked.
- You lose touch with your friends back home.
- You cannot join in social plans due to financial troubles.
- You are the victim of cruel gossip.
- Your pet dies suddenly.
- Your parents announce they are separating.
- A close friend/family member attempts suicide.
- You are unable to return home for the holidays as you had intended.
- Major social plans fall through at the last minutes.
- Friends are killed in a car accident.
- Your partner has a serious injury.
- One of your parents becomes seriously ill.
- You move towns and are unable to make new friends.
- A parent embarrasses you in front of your friends.
- You have a big argument with your parents.
- You plan a big get-together with friends but no-one turns up.
- Your flatmates tell you they would like you to move out.
- You are not included in social plans with your friends.
- You discover your partner has been cheating on you.

Autonomous mood induction items:

- You have failed an important exam.
- You missed out on a job you had expected to get.
- You have been demoted at work.
- You were not accepted into a postgraduate course.
- You get a reduction in wages/salary.
- You miss getting your degree by one paper.
- Others are taking credit for you work.
- You are forced to accept menial work.
- Your career path is blocked.
- You are forced to leave university due to financial trouble.

You have studied the wrong material for an exam.
You are eliminated in the first round of a competition in a sport in which you normally excel.
You are passed over for a promotion.
You received a poor grade on an assignment.
You unexpectedly lose your job.
You fail a paper at university that you need for your major.
You are unable to find employment.
You are humiliated in front of your employer.
You lose all your year's notes just prior to exams.
You suffer a permanent disability which prevents you from pursuing your choice of career.