



The effect of mood on responses to the Young Schema Questionnaire: Short form

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The schema concept has had an important role in both early and more recent accounts of psychopathology. Schemas are underlying cognitive structures that are thought to create vulnerability to disorders, because they act as templates for the perception, encoding, storage, and retrieval of information. Recent approaches to the understanding and treatment of personality disorders give schemas particular prominence, and the concept of early maladaptive schemas forms the cornerstone of Young's (1999) schema-focused cognitive therapy. The aim of this paper is to examine the effect of mood on responses to the Young Schema Questionnaire – short form (YSQ-S; Young, 1998). A sample of 50 non-clinical participants completed the YSQ-S on three different occasions: in neutral mood, and following happy and depressed mood inductions. The results of 30 participants with full data sets showed that emotional deprivation and defectiveness scores increased after the depressed mood induction, whereas entitlement scores increased after the happy mood induction. The results are discussed in relation to cognitive theories of vulnerability to psychopathology, and future directions for research are suggested.

The aim of this paper is to examine the effect of mood on the measurement of schemas on non-clinical participants. The paper begins with a brief definition of the concept of schema, looks at one formal measure of schemas (Young & Brown, 1994), identifies the key theoretical questions that will be addressed, and then outlines the specific aims of the study.

The concept of schema has played a role in cognitive theories of psychopathology from the beginning. In Beck's cognitive theory of depression (Beck, Rush, Shaw, & Emery, 1979), a schema was defined as a stable cognitive pattern that guides how an individual conceptualizes any specific set of stimuli. Wells (1997) describes Beck's

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theory of anxiety (Beck, Emery, & Greenberg, 1985) as a schema theory, because the distortions in cognitive products, for example, negative automatic thoughts and cognitive processes (e.g. attention) reflect the operation of underlying cognitive structures, namely schemas. Schemas, according to this theory, comprise both core beliefs which are unconditional, for example, 'I am vulnerable', and dysfunctional assumptions or conditional beliefs, for example, 'if I draw attention to myself, people will dislike me'.

The concept of schema plays a prominent role in recent developments in the understanding and treatment of personality disorders. These developments have arisen out of a recognition that patients with personality disorders, and other types of complex cases, do not always respond well to standard short-term cognitive therapy. One explanation for this failure is that patients with personality disorders have developed schemas which are dysfunctional, rigid, and highly resistant to change (Freeman & Jackson, 1998). In this conceptualization, schemas develop in childhood, but fail to adapt and evolve in response to changing circumstances, and the beliefs that were appropriate for a small child can interfere with a person's ability to function and form healthy adult relationships. Cognitive treatment of personality disorders requires an explicit focus on the identification and modification of dysfunctional schemas.

Schema-focused therapy (Young, 1999) comes from the same roots. Young has developed a treatment for personality disorder, which uses schemas as the central organizing or unifying concept. Young and Behary (1998) describe schema-focused therapy as an integrative therapy, which incorporates therapeutic techniques from a variety of sources, including cognitive, behavioural, and experiential. However, despite the importance of the concept of schema in both the original cognitive models of emotional disorders, and in the newer treatments for personality disorders, there has been little empirical exploration of the schema construct, or of its measurement. While there is good experimental evidence for cognitive products such as negative automatic thoughts, for cognitive processes such as attention and memory, and for some of the underlying cognitive structures such as dysfunctional assumptions, the evidence for the existence of schemas remains largely at the level of clinical report.

Young has developed a questionnaire to measure schemas which he describes as early maladaptive schemas. The Young Schema Questionnaire (YSQ) was first developed by Young and Brown in 1990 (Young, 1999), and revised in 1994 (YSQ: 2nd edition; Young & Brown, 1994). There are two versions: a long version which has 205 items and measures 16 hypothesized schemas, and a short 75-item version (YSQ-S; Young, 1998) which measures 15 schemas. Early maladaptive schemas are described as 'extremely stable themes that develop during childhood, are elaborated throughout an individual's lifetime, and are dysfunctional to a significant degree' (Young, 1999, p. 9). The long version of the YSQ included the following schemas: emotional deprivation, abandonment, mistrust and abuse, social isolation/alienation, defectiveness social undesirability, failure, dependence/incompetence, vulnerability to harm or illness, enmeshment, subjugation, self-sacrifice, emotional inhibition, unrelenting standards,

entitlement, and insufficient self-control/self-discipline. Some preliminary validation studies show that the YSQ has good convergent and discriminant validity (Schmidt, Joiner, Young, & Telch, 1995), that the factor structure broadly accords with Young's description (Lee, Taylor, & Dunn, 1999; Schmidt *et al.*, 1995), and that the YSQ discriminates well between patients with Axis I and Axis II disorders (Mihaescu *et al.*, 1997). There is also evidence which suggests that the short and long forms of the YSQ produce equivalent results (Waller, Meyer, & Ohanian, 2001; Stopa, Thorne, Waters, & Preston, 2001).

While there is evidence which demonstrates that the YSQ has sound psychometric properties, these data do not address the question of what is being measured by the questionnaire. Does the YSQ measure a set of stable underlying constructs, or does it simply measure a related set of negative thoughts which are produced by elevations in dysphoric mood? The theories of personality disorder described above are based on the premise that schemas are stable underlying cognitive structures, which play a major role in perpetuating an individual's difficulties. As such, they constitute a continuing vulnerability which can result either in chronic problems, or in episodic recurrences of Axis I disorders, for example, elevated depression and anxiety.

The cognitive vulnerability hypothesis has been most extensively studied in relation to depression. Here, the basic theory states that individuals who become depressed have dysfunctional attitudes, which are activated by stressful life events, and this activation can lead to an episode of depression (Beck *et al.*, 1979). Teasdale and Barnard (1993) point out that if vulnerability to depression depends on stable and enduring cognitive characteristics, then patients who have been depressed should show higher scores on measures of dysfunctional attitudes, even when they have recovered from an episode of depression. However, at the time of review, most studies demonstrated that while dysfunctional attitudes are elevated during depression, there is no difference between previously depressed individuals and non-depressed individuals, once the episode has remitted (e.g. Lewinsohn, Steinmetz, Larson, & Franklin, 1981).

This evidence poses problems for the cognitive vulnerability hypothesis. However, there is another possible explanation, which has been termed the 'mood-state dependent hypothesis'. This states that cognitive vulnerability, in the form of stable underlying cognitive structures, remains latent until it is activated by changes in mood (Miranda & Persons, 1988; Persons & Miranda, 1992). According to this hypothesis, depressed patients would only report increased levels of dysfunctional attitudes, or other underlying cognitive structures such as schemas, if dysphoric mood is elevated. There is some evidence to support this hypothesis. For example, Miranda, Gross, Persons, and Hahn (1998) showed that women with a history of depression reported higher levels of dysfunctional attitudes following a mood induction, than before the induction. Interestingly, in this study, women with no history of depression reported decreased levels of dysfunctional attitudes following mood induction. A study by Segal, Gemar, and Williams (1999) compared recovered depressed patients who had been treated with cognitive therapy, with a group of patients who had been treated with

selective serotonin re-uptake inhibitors. Segal *et al.* examined responses on the dysfunctional attitudes scale (Weissman, 1979) before and after a negative mood induction. In response to similar levels of mood change, the patients treated pharmacologically showed a significant increase in dysfunctional attitudes following the mood induction, compared with the cognitive therapy group.

These more recent studies suggest that there may be a complex relationship between mood and cognitive vulnerability. One model of cognition that attempts to define the relationship between mood and cognition is Teasdale and Barnard's (1993) interacting cognitive subsystems model (ICS). In this model, Teasdale and Barnard suggest that cognitive vulnerability depends on the nature of the schematic models which are synthesized in depressed mood. They argue that vulnerable individuals are more likely to synthesize 'globally negative models' (p. 220), and that it is the implications of these negative models which determine an individual's response, and hence their vulnerability to developing an episode of depression. So far, studies of cognitive vulnerability have concentrated almost exclusively on dysfunctional attitudes. However, dysfunctional attitudes represent only one aspect of cognitive structure; Young's conceptualization of early maladaptive schemas may represent a more inclusive conceptualization.

The aim of this paper is to investigate whether responses to the YSQ are influenced by mood in a non-clinical sample. This approach is based on the assumption that even though there are likely to be substantial quantitative differences in dysphoric mood states between clinical and non-clinical groups, there are no fundamental qualitative differences. A subsidiary aim was to look at whether trait anxiety, or social anxiety, influenced the effect of mood on responding to the YSQ. The study reported here uses a mood-induction paradigm in a within-subject repeated measures design, to investigate whether depressed or happy mood produces a different pattern of responding to the YSQ, compared to neutral mood. We used a musical mood induction to manipulate depressed and happy moods, and tested participants on three separate occasions. On the basis that depressed mood may activate latent schemas, we predicted that depressed mood would produce higher scores on the individual subscales, but that there would be no difference in responding when participants were in either the neutral or the happy mood state.

Method

Participants

A group of 50 participants, who were students and non-academic staff at the University of Southampton, UK, were recruited to take part in this experiment. Participants were paid for taking part in the experiment. Although 50 participants completed the study, due to missing data on the YSQ-S, a subset of 30 participants with complete data on the YSQ-S on all three occasions were used in the following analyses (13 men and 17 women). The mean age of the men was 24.4 years ($SD = 4.3$), and the mean age of the women was 24.1 years ($SD = 10.8$). There was no significant difference between the ages of the men and women whose data were used in the analyses ($z = 0.8, p < .43$).

Design

The design was a repeated measures design. The independent variable was mood, and the dependent variables were scores on the YSQ-S (Young, 1998). Participants completed the YSQ under three conditions: neutral mood, induced happy mood, and induced depressed mood. Testing took part at intervals of between 2 and 4 weeks. The order of the moods was counterbalanced across subjects.

Materials and measures

Self-report measures

Participants completed the following questionnaires: the YSQ-S, the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988), the Fear of Negative Evaluation Scale (FNES; Watson & Friend, 1969), and the State and Trait Anxiety Inventory - Trait (STAI-T; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983).

Musical mood induction

This study used a musical mood induction that has been well validated in previous experiments (Clark, 1983). The positive mood induction used a section from *Coppélia* by Delibes, and the negative mood induction used a piece of music from the film of Alexander Nevsky, composed by Prokofiev, called '*Russia under the Mongolian Yoke*'. In the neutral condition, the experimenter offered the participant a drink, and made an excuse to leave the room for a period of time that was equivalent to the mood inductions (7 minutes).

Procedure

Participants were tested on three occasions separated by a minimum interval of 2 weeks. At the first session, participants completed the Fear of Negative Evaluation Scale, the State and Trait Anxiety Inventory, the Beck Depression Inventory and the Beck Anxiety Inventory. At the subsequent two sessions, participants completed the Beck Anxiety Inventory, and the Beck Depression Inventory. After completing the questionnaires, participants were given the positive or negative musical mood inductions, or the neutral condition. Following the mood induction, participants filled in the YSQ-S. Participants rated the four moods: anxiety, happiness, despondency, anger, on a 0-100 rating scale, where zero was labelled 'I do not feel at all (mood)', and 100 was labelled 'I feel extremely (mood)'. Participants rated these four moods at the beginning of the experiment, immediately before, and immediately after the mood induction, and after they had completed the YSQ. Participants received a full debriefing at the end of the third testing session.

Results

Standardized questionnaires

Table 1 shows the results of the standardized questionnaires for the whole group, and for men and women separately. Men and women did not differ significantly on their FNES scores ($t = 0.8, p < .43$), or on STAI-T scores ($t = 0.32, p < .43$). The FNES and the STAI-T scores are both within the normal range (Stopa & Clark, 2001). Table 1 also shows the results for the BDI and BAI scores on each test occasion. In order to check that there were no significant differences in participants' general level of mood at the beginning of each session, the BDI or BAI scores from each of the three testing sessions were compared. There were no significant differences between BDI, $F(2, 44) = 0.41, p = .67$, and BAI, $F(2, 58) = 2.11, p = .13$, scores at each time of testing.

Table 1. Mean scores for the standardized questionnaires for the whole sample and for men and women separately

Questionnaires	Whole group	Men	Women
FNES	14.59 (7.29)	13.39 (7.22)	15.56 (7.43)
STAI-T	35.00 (9.81)	40.23 (9.56)	39.00 (10.36)
Mood condition	Happy	Despondent	Neutral
BDI	6.59 (7.94)	7.39 (6.57)	7.56 (8.89)
BAI	7.83 (6.17)	9.67 (8.19)	10.53 (11.69)

The effectiveness of the mood inductions and the impact of completing the YSQ-S on mood state

Table 2 shows the mean ratings for happiness, despondency, anxiety, and anger before and after the mood induction, and immediately after completing the YSQ-S. In order to investigate whether the mood inductions had been effective, we compared participants' ratings of all four moods before and after the induction in each condition, using the Wilcoxon signed-ranks test. In the happy condition all moods changed in the expected direction. Participants became more happy ($z = -3.55, p < .001$), and less despondent ($z = -3.45, p < .001$), anxious ($z = -3.60, p < .001$), and angry ($z = -2.89, p < .005$). In the depressed mood condition, participants became more despondent ($z = -2.25, p < .05$), and less happy ($z = -3.55, p < .001$), but there were no differences between anxiety and anger, pre- and post-induction. In the neutral condition, there were no differences between mood ratings taken at times that corresponded to pre- and post-induction in any of the four rated moods. We also compared scores after the mood induction and immediately after completing the YSQ-S to see whether completing the questionnaire had any impact on mood state. In the happy mood induction condition, participants' happiness ratings were lower after they had completed the YSQ-S than immediately post-induction ($z = -2.09, p < .05$). There were no other changes in mood

Table 2. Mean mood ratings before and after the inductions (at comparable times in the neutral condition) and after completing the YSQ-S

Induction mood	Time					
	Before induction		After induction		After YSQ-S	
	M	SD	M	SD	M	SD
Happy induction						
Happiness	60.69	19.26	68.97	18.96	63.97	18.96
Despondency	20.69	25.20	14.83	22.30	15.17	21.48
Anxiety	23.97	26.30	16.21	23.97	16.21	24.12
Anger	14.14	21.30	11.38	19.77	12.07	21.28
Depressed induction						
Happiness	65.00	22.09	55.17	24.58	57.17	22.88
Despondency	24.67	25.70	32.67	26.77	30.33	24.14
Anxiety	26.67	21.23	26.17	25.65	23.33	23.24
Anger	15.00	20.13	16.17	20.41	17.33	20.67
Neutral condition						
Happiness	61.92	20.74	64.04	22.36	64.42	19.30
Despondency	27.12	26.31	24.04	25.61	23.85	25.78
Anxiety	26.73	24.04	26.35	26.14	25.19	24.19
Anger	18.85	18.18	19.23	21.90	17.89	20.80

in the happy condition. There were no differences in any of the self-reported moods in the depressed or neutral conditions.

The effects of mood induction on scores on the Young Schema Questionnaire

Table 3 shows the mean scores of the YSQ scales in each of the three mood conditions. The scores on each scale were compared using the non-parametric Friedman's test. Three of the scales were significantly different when completed in different mood states: emotional deprivation, defectiveness, and entitlement. When participants were in a depressed mood, they scored higher on the emotional deprivation scale than when they were in a neutral mood. Scores on the emotional deprivation scale did not differ when participants were in a happy or depressed mood; however, the difference between the depressed and happy moods on the emotional deprivation scale just failed to reach significance ($p = .058$). On the defectiveness scale, participants obtained higher scores when they were depressed, than when they were either happy or in a neutral mood. However, on the entitlement scale, subjects obtained higher scores when they were in a happy mood, compared to either a depressed or neutral mood. On the other 12 scales, participants did not score differently according to the mood state they were in at the time of testing.

Table 3. Mean scores for the YSQ-S in different mood conditions

YSQ scales	Mood			Friedman's	Wilcoxon
	Neutral	Happy	Despondent		
Emotional deprivation	2.11 (1.32)	2.17 (1.44)	2.43 (1.61)	5.22*	D > N D = H N = H
Abandonment	1.82 (0.82)	1.91 (0.98)	2.07 (1.05)	0.70	
Enmeshment	1.43 (0.77)	1.43 (0.61)	1.42 (0.59)	0.10	
Mistrust/abuse	1.82 (0.73)	1.97 (0.84)	2.05 (0.82)	1.83	
Subjugation	1.92 (0.89)	1.96 (0.83)	1.91 (0.86)	0.64	
Social isolation	1.77 (0.99)	1.81 (0.98)	2.03 (1.13)	2.05	
Self-sacrifice	2.66 (0.98)	2.63 (0.96)	2.69 (1.14)	0.47	
Defectiveness	1.47 (0.65)	1.38 (0.54)	1.65 (0.83)	6.21*	D > H D > N H = N
Emotional inhibition	1.95 (1.01)	1.96 (1.02)	2.09 (1.05)	2.66	
Unrelenting standards	3.35 (1.34)	3.48 (1.31)	3.35 (1.39)	1.52	
Failure to achieve	1.93 (1.22)	1.81 (1.09)	1.84 (1.05)	2.75	
Entitlement	2.11 (0.84)	2.40 (0.99)	2.18 (0.80)	5.14*	H > D H > N D = N
Dependence/incompetence	1.63 (0.74)	1.62 (0.71)	1.61 (0.54)	0.17	
Insufficient self-control/ self-discipline	2.76 (1.25)	2.70 (1.27)	2.64 (1.28)	2.44	
Vulnerability to harm	1.72 (0.85)	1.82 (0.90)	1.70 (0.89)	1.51	

* $p < .05$, one-tailed test.

The analysis of the effectiveness of the mood induction indicated that participants' moods had changed in the expected direction as a result of the mood induction. However, as it was an analysis by group, it did not exclude individuals whose moods had not shifted on one or other occasion. As a more stringent test of the hypothesis, YSQ-S scores were compared using Friedman's test on participants whose moods had changed in the expected direction on both occasions. This produced a subgroup of 10 participants. Analysis of YSQ-S scores showed that, in this subgroup, scores on the following scales were significantly different from one another: emotional deprivation, social isolation, defectiveness, and entitlement. Scores on mistrust and abuse (Friedman = 4.27, $p = .059$), and on self-sacrifice (Friedman = 4.34, $p = .057$) just failed to reach significance. All tests reported used one-tailed tests. Table 4 shows the mean scores for the four YSQ scales which differed significantly in the three mood conditions.

Table 4. Mean scores for the YSQ-S in different mood conditions for a subgroup of 10 participants

YSQ scales	Mood			Friedman's	Wilcoxon
	Neutral	Happy	Despondent		
Emotional deprivation	2.14 (1.15)	2.34 (1.50)	2.96 (1.74)	10.75*	D > H D > N H = N
Social isolation	1.82 (1.04)	1.9 (1.50)	2.48 (1.20)	6.44*	D > H D > N H = N
Defectiveness	1.62 (0.80)	1.34 (0.47)	2.00 (0.95)	8.60*	D > H D > N H = N
Entitlement	1.92 (0.81)	2.58 (1.21)	2.28 (0.64)	5.90*	H > D H > N D > N

* $p < .05$, one-tailed test.

Associations between trait anxiety, fear of negative evaluation, and the effect of mood on scores on the YSQ-S

The association between trait anxiety and the effect of mood on scores on the YSQ-S was investigated using Spearman's ρ . Two scores were computed which measured the difference between the neutral score, and the happy and depressed scores, respectively, for the three YSQ-S scales which were significantly different in the three mood conditions: emotional deprivation, defectiveness, and entitlement. These difference scores were correlated with the STAI-T scores. None of the correlations was significant. The association between fear of negative evaluation and YSQ-S scale scores was investigated in the same way. None of these correlations was significant.

Discussion

The aim of this paper was to investigate whether mood influenced responses on the YSQ. The results indicated that three schemas are influenced by mood (emotional deprivation, defectiveness, and entitlement), whereas the other 12 schemas were not affected by changes in self-reported mood. The results also demonstrated that the influence of mood is not always in the same direction. Scores on the emotional deprivation and defectiveness schemas both increased in the depressed mood condition, whereas entitlement scores increased in the happiness mood condition. There was no association between trait anxiety or social anxiety and the influence of mood on responding to the YSQ. Analysis of a subgroup which only included participants whose moods had changed in the expected direction on both mood

inductions, indicated that social isolation was also affected by mood changes, and that two other schemas – mistrust and abuse and self-sacrifice – may also be susceptible to the influence of mood. However, these results must be interpreted cautiously, as the study used an analogue population, the sample was relatively small, the changes in mood were modest, the study assumed that mood differences between analogue and clinical populations are quantitative rather than qualitative, and that the YSQ-S has the same meaning for the two populations. Furthermore, the results of the study could have been influenced by demand characteristics.

Young (1999) proposed that schemas can be grouped into domains, which represent the hypothesized developmental origins of the schemas. He described five domains: disconnection and rejection, impaired autonomy and performance, impaired limits, other-directedness, and over-vigilance and inhibition. Each domain represents a grouping of developmental needs. There is no evidence at this stage to indicate whether the developmental stage at which the schema emerged influences when and how that schema is retrieved, but it is interesting to note that both of the schemas which were raised in the depressed mood condition belong to the earliest domain, that is, disconnection and rejection. On the other hand, entitlement, which is raised in the happy condition, belongs to the later developmental domain of impaired limits.

A question was raised in the introduction about what exactly the YSQ-S is measuring – stable, underlying constructs or mood-activated negative cognitions. The results obtained from this study are equivocal: they suggest that across some schemas the YSQ-S is measuring stable constructs, but that other schemas are susceptible to influence by both negative and positive mood states. The study shows that even very modest shifts in mood can influence the way in which participants respond to some questions on the YSQ. Changes in mood may alter a person's view of self in a negative direction. It is not clear whether this occurs through the activation of a latent schema, or whether mood simply activates more negative automatic thoughts, and that the results on the YSQ-S are the result of mood-congruent responding to specific items. The current design could not distinguish between these two hypotheses. The finding that entitlement increases is interesting, because the entitlement schema operates rather differently from the other 14 schemas measured by the questionnaire. In these other schemas, higher scores on the YSQ-S represent more dysfunctional schemas. However, with entitlement, the authors have found that this schema can be problematic for clinical patients, both when it is high and also when it is low. For example, people with very low entitlement scores may be unable to appropriately assert themselves, may feel that their needs are unimportant, and may tolerate unacceptable behaviour from others. It is possible that moderate levels of entitlement are both healthy and have a protective function for the individual. Again, these points must be interpreted with caution, as we do not have data on the 'healthy' range of entitlement scores.

This study represents the first stage in a series of investigations that are needed to establish whether schemas are stable underlying constructs that influence cognition and affect in the way that Young's theory suggests. The aim of this study was to establish

whether mood influenced responding to questions on the YSQ. The results indicated that mood affected responses to some schemas, but not to others. The present design did not allow us to examine why some schemas should be affected whereas others were not. One of the main weaknesses of this study was that the magnitude of mood change was small. While it might be possible to induce larger shifts of mood in an analogue population using different procedures, there are practical and ethical limits on how large a mood shift is possible.

What implications do the results of this study have for the cognitive vulnerability hypothesis? The study suggests that in analogue participants there is a considerable degree of stability in the majority of the schemas measured by the YSQ. However, the study also suggests that some of the schemas are influenced by mood, but that the direction of the influence depends on the combination of type of mood change, and the type of schema. Both of these points indicate that further research is required on clinical patients. We need to answer a number of questions. First, are the majority of the schemas stable on the YSQ when mood changes naturally, and in particular, when these mood changes are much larger than the changes recorded in this study? Second, do clinical patients have higher levels of dysfunctional schemas than non-clinical controls when they are not experiencing an episode of depression or anxiety? Third, do schemas change substantially as a result of treatment, and if so, does the treatment need to specifically address the schema? Fourth, are schemas more reliable markers of cognitive vulnerability than dysfunctional attitudes, or do we need to look at both types of underlying cognitive structures to understand vulnerability? A prospective study that measured schemas and dysfunctional attitudes, and investigated whether either of these predicted episodes of Axis I disorders, would go some way to providing an answer. Likewise, a study that compared levels of dysfunctional schemas during and after episodes of depression and anxiety, and following different types of treatment, would help us to understand the role that schemas play in creating vulnerability to, or maintaining, an episode of illness. Given the critical role of schemas in recent cognitive accounts of personality disorders, all these areas need to be examined using patients with and without Axis II disorders. The issues described above give some indication of the range of research questions that need to be answered before we can be confident that the concept of schema is both theoretically useful, and empirically valid, and before we can establish the core constituents of cognitive vulnerability, and how it might be influenced by mood.

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