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Measuring cognitive vulnerability to depression: Development and validation of the cognitive style questionnaire

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Abstract

The Cognitive Style Questionnaire (CSQ) measures the cognitive vulnerability factor featured in the hopelessness theory of depression. The CSQ has been used in over 30 published studies since its inception, yet detailed information about the psychometric and validity properties of this instrument has yet to be published. In this article, we describe the development of the CSQ and review reliability and validity evidence. Findings to date using college samples, indicate that the CSQ is a reliable measure of cognitive vulnerability with a high degree of construct validity.

Contents

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According to the hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989), some individuals have a *cognitive vulnerability* that interacts with negative life events to increase the likelihood of depression. Hopelessness theory defines cognitive vulnerability as the tendency of an individual to make particular kinds of inferences about the cause, consequences, and self-worth implications of negative life events. Specifically, when faced with a negative life event, an individual who has a cognitive vulnerability is likely to: (a) attribute the event to stable and global causes; (b) view the event as likely to lead to other negative consequences; and (c) construe the event as implying that he or she is unworthy or deficient. Individuals who generate these negative inferences are hypothesized to be at risk for hopelessness, which is viewed as a proximal and sufficient cause of depression.

The cognitive vulnerability construct is a critical component of the etiological chain featured in hopelessness theory, as it accounts for individual differences in depressive reactions to negative life events. The reliable and valid measurement of cognitive vulnerability is therefore essential to testing theory in this domain. To this end, Abramson and Metalsky (1989) created the Cognitive Style Questionnaire (CSQ). The CSQ is a self-report questionnaire that measures the three components that compose the cognitive vulnerability factor featured in the hopelessness theory of depression (causal attributions, consequences, and self-worth characteristics). The CSQ has already been used in over 30 published studies since its inception. Despite its widespread use, however, detailed information about its psychometric and validity properties has yet to be published. In this article, we describe the development of the CSQ, and report evidence for its reliability and validity as a measure of cognitive vulnerability to depression.

1. Development of the CSQ

The CSQ is a modified and expanded version of the Attributional Style Questionnaire (ASQ; Peterson et al., 1982). The ASQ is a well-established instrument (Peterson, 1991) that assesses people's causal attributions for six positive and six negative hypothetical events on dimensions of internality (i.e., the degree to which the cause is internal to the person versus external to the environment), stability (i.e., the degree to which the cause will persist over time), and globality (i.e., the degree to which the cause will affect many areas of one's life). It was designed to measure the cognitive vulnerability factor featured in the theoretical predecessor to the hopelessness theory – the reformulated *helplessness* theory of depression (Abramson, Seligman, & Teasdale, 1978). Similarly to the hopelessness theory, the reformulated helplessness theory underscored the importance of causal attributions as vulnerability for depression. However, it defined cognitive vulnerability as the tendency to attribute negative life events to stable, global, and *internal* causes. The vulnerability factor featured in the hopelessness theory does not view attributions of internality as being central in the development of depression itself, but as an element that may decrease self-esteem among already-depressed individuals. In addition, the reformulated helplessness theory did not include the other two vulnerability components currently featured in the hopelessness theory – negative consequences and negative self-worth implications. Consequently, two primary modifications to the ASQ were made to create the CSQ. First, ratings of the probable consequences and self-worth implications were added for each hypothetical event. Thus, the CSQ assesses all three components of the cognitive vulnerability factor featured in the theory (i.e., causal attributions, consequences, and self-worth characteristics). Second, to increase reliability, the number of hypothetical events was increased to 12 positive and 12 negative events. The hypothetical events used in the CSQ were developed for use with college populations and cover both achievement and interpersonal domains (e.g., college coursework, romantic relationships, etc).

For each hypothetical event, participants are first instructed to vividly imagine themselves in that situation, as if the situation were happening in real time (example event: *You take an exam and receive a low grade on it*). Next, they are instructed to write down what they believe to be the one major cause of the event. Participants then use a 7-point Likert-type scale to rate the cause that they have specified on dimensions of internality, stability, and globality. Finally, participants are asked to think about what the occurrence of the hypothetical situation would mean to them, and to use a 7-point Likert-type scale to rate the consequences and self-worth implications of the hypothetical event. An

individual's CSQ score is their average rating across the scales relevant to the vulnerability factor featured in the hopelessness theory (stability, globality, consequences, and self-worth characteristics) for the 12 hypothetical negative life events. This composite score (total score divided by the number of items) can range from 1 to 7, with higher scores reflecting greater levels of cognitive vulnerability to depression.

Although participants' ratings for positive events are not used in calculating their cognitive vulnerability score, these events are important to include in the CSQ for at least two reasons. First, the inclusion of positive events creates a more balanced measure. It decreases the transparency of the CSQ as well as reduces the chances of a response set bias. Second, the inclusion of positive events allows the researcher to assess the degree to which an individual exhibits an "enhancing inferential style." According to Needles and Abramson's (1990) recovery model of depression, the occurrence of positive life events interacts with enhancing inferential style to promote the development (or restoration) of hopefulness, which may then lead to a reduction in depressive symptomatology. An enhancing inferential style is defined as the tendency to make stable, global attributions and infer positive consequences and self-worth characteristics for positive (rather than negative) life events. The recovery model has received preliminary support in both adults (Needles & Abramson, 1990) and adolescents (e.g., Voelz, Haeffel, & Joiner, 2003), and represents a promising avenue of research in its own right within both a positive psychology and a prevention of depression approach.

The format of the CSQ has a number of noteworthy strengths. First, the CSQ provides participants with hypothetical situations that serve as references from which questions are to be answered. Some researchers hypothesize that priming is required for adequate measurement of cognitive vulnerability (Persons & Miranda, 1992; see Just, Abramson, & Alloy, 2001 for further discussion). The CSQ is unique in that it provides a "built-in" event priming mechanism (Hollon, 1992). For each hypothetical situation, participants are asked to vividly imagine the situation happening to them (i.e., prime themselves) before making inferences about the events' cause, consequences, and self-worth implications. An additional strength of the CSQ is the use of an open-ended format that allows for objective quantification (Peterson et al., 1982). Participants are able to generate their own unique causal attribution for each event. However, this open-ended format is then quantified by having the participant rate the cause on 7-point scales. Finally, participants do not need to possess a high level of self-awareness to complete the CSQ accurately. The CSQ simply asks questions about the cause, consequence, and self-worth implications of specific events and does not directly inquire whether or not the participant "thinks" he or she has a negative cognitive style. Participants are not required to have insights into the cognitive processes that lead to their inferences or have insights into their own self-concepts; they simply mark down their real-time cognitive reaction (cognitive product) to the hypothetical event. In essence, participants provide a "cognitive sample" on the CSQ that is thought to reveal their general cognitive style. This approach of measuring cognitive products rather than cognitive processes is consistent with work by Ericsson and Simon (1980) showing that participants are capable of providing valid responses to specific questions that do not require insight about cognitive processes (see also Nisbett & Wilson, 1977).

In the sections to follow, we review empirical evidence for the reliability and validity of the CSQ. PsycINFO was used to conduct a literature search for all peer-reviewed articles that used the CSQ (see Table 1). In addition to articles identified with PsycINFO, in press articles (accepted for publication in peer-reviewed journals) generated by the current authors' research labs were also included. Unpublished data, articles under review, and articles using modified versions of the CSQ were excluded.

2. Descriptive statistics and reliability

Means, standard deviations, and internal consistency coefficients obtained in previous studies with the CSQ are listed in Table 1. As can be seen in the table, the average composite score for the CSQ in an unselected sample of participants ranges from 3.49 to 4.10 (out of 7) with standard deviations ranging from .70 to 1.02. CSQ scores tend to be normally distributed (Haeffel et al., 2007), and a taxometric analysis performed by Gibb and colleagues (2004), found that cognitive vulnerability, as measured by the CSQ, is a dimensional construct, present to a greater or lesser degree in all individuals.

The internal consistency for the CSQ composite score is excellent with alpha coefficients ranging from .88 to .96 across all studies (see Table 1). Internal consistencies for the three individual vulnerability components, although somewhat lower than the composite score, are also strong (ranging from .83 to .91). Concerning test–retest reliability, Alloy and colleagues (2000) reported a correlation of .80 for the CSQ scores over a one-year period. To date, only one study (Hankin, Lakdawalla, Carter, Abela, Adams, 2007) has examined the factor structure of the CSQ. Results showed that the three individual vulnerability components load onto one factor, suggesting that they

Table 1
Results of studies using the CSQ

Publication	α	*M*	SD	*N*	Findings
Abela (2002)					CSQ scores for cause, consequence, and self interacted with low self-esteem to predict depressive mood reactions 4 days after a negative achievement outcome.
Cause	–	3.46	1.02	136	
Consequence	–	3.07	1.20		
Self	–	3.02	1.24		
Abela, Aydin, & Auerbach (2006)				102	CSQ "weakest link" scores interacted with self-reported hassles to predict increases in depressive symptoms during a 1-year prospective interval in a sample of currently and formerly depressed adults.
Cause	.88	4.60	.93		
Consequence	.89	4.15	1.37		
Self	.91	4.15	1.52		
Abela and Seligman (2000)					In two prospective studies, each CSQ component (cause, consequence, and self-worth) predicted increases in depressed mood immediately following a naturally occurring stressor, but not three days later.
Study 1				149	
Cause	–	3.72	.76		
Consequence	–	3.27	1.05		
Self	–	3.15	1.12		
Study 2				77	
Cause	–	3.91	.74		
Consequence	–	3.40	.98		
Self	–	3.06	1.14		
Benas & Gibb (in press)					Using SEM, results showed that the CSQ dimensions and depressive symptoms form distinct constructs. CSQ was more strongly related to depressive symptoms than eating disorder symptoms.
Cause	.91	3.77	1.01	203	
Consequence	.89	3.34	1.15		
Self	.90	3.36	1.29		
Dobkin et al., (2004)	.93	–	–	150	CSQ scores and dysphoria decrease following the receipt of adaptive inferential feedback in a laboratory study.
Gibb et al. (2003)	.94	3.49	1.02	153	CSQ correlated with levels of hopelessness and symptoms of hopelessness depression.
Gibb et al. (2004)				5002	Taxometric analyses supported the dimensional nature of cognitive vulnerability as measured by the CSQ.
Cause	.85	4.16	.82		
Consequence	.83	3.87	.97		
Self	.87	3.51	1.14		
Gibb et al. (2006)	.95	3.52	1.02	162	CSQ moderated the link between weekly hassles and weekly changes in depressive symptoms.
Haeffel et al. (2003)	.93	3.64	.76	887	CSQ associated with lifetime history of clinically significant depression and the hopelessness depression subtype.
Haeffel et al. (2005)	.93	3.62	.76	853	Remitted depressives have higher CSQ scores than never depressed participants.
Haeffel et al. (2007)					CSQ interacted with self-reported life stress to predict depressive symptoms over a 5-week interval even after controlling for an implicit measure of cognitive vulnerability.
Study 1	.92	4.04	.71	237	
Study 2	.91	4.09	.73	251	
Haeffe et al. (in press)	–	4.10	.73	248	CSQ interacted with self-reported stress to predict decreases in goal-directed behavior over a 5-week interval. The relationship between the cognitive vulnerability-stress interaction and goal-directed behavior was mediated by hopelessness.
Hankin et al. (2004)					CSQ interacted with self-reported stress to predict depressive symptoms (5-week interval) and depressive disorder (2-year interval). The CSQ did not interact with stress to predict anxious symptoms or disorders.
Study 1	.92	3.90	.71	216	
Study 2	–	3.83	.71	233	
Study 3	–	3.66	.87	110	
					CSQ interacted with midterm grade to predict depressive symptoms 5 days later.
Hankin et al. (2005)	.92	3.90	.71	210	CSQ predicted daily inferences and daily depressive symptoms over a 35-day prospective interval.
Hankin (2005)					CSQ partially mediated the relationship between emotional abuse and depressive symptoms.
Study 1	.91	3.80	.73	652	
Study 2	.92	4.03	.71	75	
Hankin et al. (2007)					Factor analysis confirmed that the CSQ measures a distinct cognitive vulnerability factor. Results also revealed that the cause, consequence, and self components of the CSQ load onto one vulnerability factor.
Study 1				950	
Cause	–	3.84	.79		
Consequences	–	3.20	1.20		
Self	–	3.48	1.63		
Study 2				431	
Cause	–	3.14	.99		
Consequences	–	2.61	1.27		
Self	–	2.27	.99		

(continued on next page)

Table 1 (*continued*)

Publication	α	*M*	SD	*N*	Findings
Hong et al. (2006)	.90	4.07	.70	242	CSQ predicted event-specific inferences, which in turn predicted hopelessness, which in turn predicted the symptoms of hopelessness depression.
Metalsky & Joiner (1992)				152	Each vulnerability component of the CSQ (cause, consequences, and self, respectively) interacted with life stress to predict increases in depressive symptoms during a 5-week interval. The CSQ components did not interact with stress to predict symptoms of anxiety.
Cause	.87	3.65	.84		
Consequences	.89	3.23	1.13		
Self	.91	3.20	1.24		
Oliver et al. (2007)	96				Results from a cross-sectional study showed that variance in BDI scores was partially mediated by CSQ score. However, results using the DAS were somewhat more robust than those for the CSQ.
High Risk Group		4.95	.40	41	
Low Risk Group		2.72	.42	30	
The CVD Project[a]	.88			5,387	See below.
High Risk Group		5.10	.43	172	
Low Risk Group		2.75	.40	175	

CSQ predicted lifetime history of major depression and hopelessness depression. CSQ also associated with more severe depression, longer duration, and earlier onset.

CSQ predicted the prospective onset of major, minor, and hopelessness depression over the 2.5-year prospective interval. The CSQ also predicted depressive recurrences and anxiety disorders comorbid with depression.

CSQ associated with information processing biases (preferential processing of negative depression-relevant adjectives.

The CSQ interacted with stress-reactive rumination to predict the onset, duration, and number of major depressive and hopelessness depressive episodes.

CSQ predicted inferences made for specific life events prospectively.

Rumination mediated the relationship between the CSQ and onset of major depression.

CSQ associated with suicidality as measured by both diagnostic interview and self-report.

CSQ interacted with life events and adaptive inferential feedback to predict prospective hopelessness and depressive episodes.

Participants with high CSQ scores had higher levels of childhood emotional, but not physical or sexual, maltreatment than participants with low CSQ scores.

CSQ score fully mediated the link between reports of childhood emotional maltreatment and diagnoses of major depression over the follow-up.

Mothers and fathers of participants with high CSQ scores provided more negative attributional and consequence feedback for negative events than mothers and fathers of participants with low CSQ scores (according to both participant and parent report).

CSQ partially mediated the relationship between mothers' inferential feedback and child's risk for depression during the follow-up.

Note. [a]Publications from the CVD Project include: Abramson et al., 1998; Abramson et al., 1999; Abramson et al, 1997; Alloy et al., 1997a; 1997b; Alloy et al., 2000; Alloy et al., 2001; Alloy et al., 2004; Alloy et al., 2006; Crossfield et al., 2002; Gibb et al., 2001; Gibb et al., 2002; Gibb et al., 2004; Gibb et al., 2006; Iacoviello et al., 2006; Just & Alloy, 1997; Panzarella et al., 2006; Robinson & Alloy, 2003; Safford et al., 2007; Smith et al., 2006a; Smith et al., 2006b; Spasojevic & Alloy, 2001; Steinberg et al., 2003.

tap a common core vulnerability factor. The correlations among the three vulnerability components typically range from .45 to .75.

3. Validity

To evaluate the validity of the CSQ, we used a construct validation approach (Cronbach & Meehl, 1955). Construct validity is concerned with the relationship among constructs within what Cronbach and Meehl called the "nomological net." The nomological net is the system of hypothesized relationships that constitute a theory. A measure is said to have construct validity if it "behaves" as one would expect the construct it measures to behave according to the theory. Thus, the construct validity of the CSQ is determined by whether it behaves as cognitive vulnerability is theorized to behave according to the hopelessness theory of depression.

The hopelessness theory posits a specific etiological chain that delineates how cognitive vulnerability should behave. As can be seen in Fig. 1, cognitive vulnerability should interact with negative life events to produce specific negative inferences about the cause, consequences, and self-worth implications of the events. These event-specific negative inferences are hypothesized to contribute to the development of hopelessness, which, in turn, is viewed as a sufficient cause of depression.[2] The theory also identifies potential antecedents of the cognitive vulnerability factor. Specifically,

[2] The hopelessness theory states that the combination of cognitive vulnerability and negative life events culminate in the development of the "hopelessness subtype" of depression, which might cut across currently diagnosed categories of clinical depression (e.g., major depression, minor depression, dysthymia), and may include anxiety comorbid with depression.

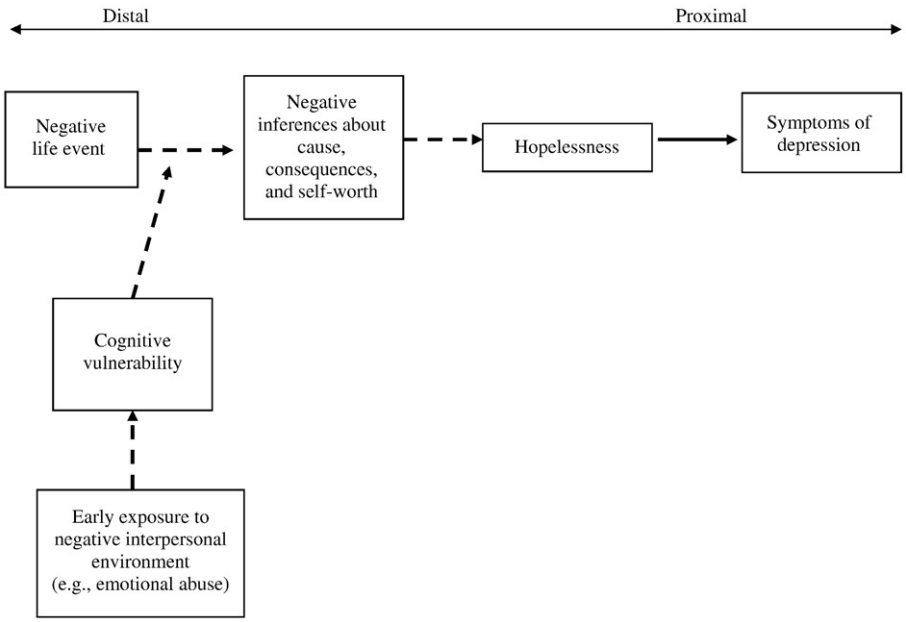

Fig. 1. The hopelessness theory of depression.

the hopelessness theory suggests that early exposure to negative interpersonal events, particularly emotional abuse, may be an important predictor of cognitive vulnerability (Rose & Abramson, 1992).

The specificity of hopelessness theory's etiological chain greatly facilitates our ability to evaluate the construct validity of the CSQ. If the CSQ is a valid measure of the cognitive vulnerability factor featured in the hopelessness theory, then it should exhibit a specific pattern of relationships with other measured constructs in the theory. We evaluated whether the CSQ conforms to these hypothesized relationships and report the results in the sections to follow. First, we examined the most significant relationship posited by the hopelessness theory of depression, which is the vulnerability–stress interaction. The CSQ should interact with measures of negative life events to predict depression. Then, we examined whether the measure behaves as predicted by the rest of hopelessness theory's full etiological chain. Specifically, the CSQ should interact with negative life events to predict event-specific negative inferences as well as hopelessness. Moreover, the CSQ should be related to a history of maltreatment, which is a hypothesized antecedent of cognitive vulnerability to depression.

3.1. The vulnerability–stress interaction

The central prediction of the hopelessness theory of depression is that cognitive vulnerability interacts with stress (i.e., negative life events) to predict depression. Consistent with this hypothesis, prospective studies have consistently found that the CSQ interacts with measures of negative life events to predict the development of depressive symptoms (even after statistically controlling for participants' baseline level of depressive symptoms). Tests of the vulnerability–stress interaction have shown that the CSQ predicts changes in depressive symptoms on a daily level (e.g., Hankin, Fraley, Abela, 2005), as well as over intervals of 5days (e.g., Hankin, Abramson, Miller, Haeffel, 2004), one week (Gibb, Beevers, Andover, & Holleran, 2006), 5 weeks (e.g., Haeffel et al., 2007; Metalsky & Joiner, 1992), and 2 years (e.g., Hankin et al., 2004). The CSQ behaves as expected regardless of how negative life events and depressive symptoms are measured. For example, the CSQ has interacted with the following measures of negative life events: self-report questionnaires (e.g., Gibb et al., 2006; Haeffel et al., 2007), life event interviews (Alloy, Abramson, Walshaw, & Neeren, 2006), naturalistic objective events (e.g., Hankin et al., 2004), and daily diary reports (Hankin et al., 2005). It has predicted depressive symptoms as measured by the following instruments: the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), Mood and Anxiety Symptom Questionnaire (MASQ; Watson et al., 1995), and the Center for Epidemiological Studies Depression Scale (CESD; Radloff, 1977).

Effect sizes for the cognitive vulnerability–stress interaction when predicting depressive symptoms typically range from small to medium (Hankin et al., 2004). However, it is important to note that these effect sizes may be underestimates of the true effect sizes in nature because of the conservative strategy used to test the cognitive vulnerability hypothesis. Most studies control for initial level of depressive symptoms; and thus, any variance in initial depressive symptoms and cognitive vulnerability is allocated to initial symptoms, even though the hopelessness theory predicts that such variance should exist. Moreover, interaction effects tend to be difficult to detect. According to McClelland and Judd (1993), moderator effects "explaining as little as 1% of the total variance should be considered important." This suggests that the effect sizes (typically explaining 2–10% of the depression variance) found for the vulnerability–stress interaction are still noteworthy.

Research to date provides strong support for the CSQ as a measure of cognitive vulnerability to depressive symptoms and depressed mood. However, a limitation of the above evidence is that it does not include whether the CSQ predicts clinically significant depression. According to the hopelessness theory, cognitive vulnerability is a risk factor not only for depressive symptoms, but also for depressive disorders.

Recent research has consistently demonstrated that the CSQ is associated with the onset of clinically significant depression as measured by structured diagnostic interview. Perhaps the most conclusive results to date come from the Temple-Wisconsin Cognitive Vulnerability to Depression (CVD) Project (Abramson et al., 1999; Alloy & Abramson, 1999; Alloy et al., 2000; 2006). The CVD Project was a collaborative 2-site study (Temple University and the University of Wisconsin) that used both a retrospective and prospective behavioral high-risk design to test the cognitive vulnerability hypothesis. Participants (college freshmen) were divided into high-risk (HR) and low-risk (LR) groups. Participants in the HR group were required to score in the upper quartile on the CSQ and the Dysfunctional Attitudes Scale (DAS; Weisman & Beck, 1978), while participants in the LR group were required to score in the lowest quartile on both measures.

With the retrospective aspect of the design, Alloy et al., (2000) found, consistent with the cognitive vulnerability hypothesis, that high-risk participants showed greater lifetime prevalence of DSM-III-R and RDC major depressive disorder, RDC minor depressive disorder, and hopelessness depression (HD) than did low-risk participants. The prospective results (Alloy et al., 2006) also were consistent with the cognitive vulnerability hypothesis. High-risk participants were approximately 7 times more likely than low-risk participants to experience an episode of major depressive disorder and HD during the initial 2.5-year prospective follow-up. High-risk participants were also more likely than low-risk participants to exhibit elevations in suicidal ideation during the prospective follow-up (Abramson et al., 1999). These findings were among the first to demonstrate that cognitive vulnerability confers risk for first onsets of clinically significant depressive disorders and suicidality.

It should be noted, however, that the CVD Project tested the cognitive vulnerability hypothesis by "pooling" two hypothesized vulnerability factors to depression. Inclusion criteria for the project required the high-risk participants to score "high" on both the CSQ and the DAS, which is the measure used to assess the cognitive vulnerability factor featured in Beck's theory (1967). Thus, it is unclear what the unique contribution of each measure is to the CVD Project results. However, results by Haeffel et al. (2003) suggest that the CSQ was the more potent constituent of the cognitive vulnerability effect observed in the CVD Project findings. Haeffel and colleagues collected data from a sample of unselected undergraduates and found that the CSQ was more strongly and consistently associated with clinically significant depression than the DAS.

It also is important to note that the available publications to date from the CVD Project have only examined the main effect of the CSQ. Analyses that address the stress component of the vulnerability–stress model (i.e., test the CSQ by negative life event interaction) are still in preparation. However, preliminary analyses (Alloy, Abramson, Walshaw, & Neeren, 2006) based on the first year of the follow-up period support the vulnerability–stress hypothesis. Life events were measured in the CVD Project every 6 weeks with a combination of self-report and structured interview assessment. Preliminary analyses indicate that high-risk participants who had high levels of negative events were more likely to experience an onset of clinically significant depression than high-risk participants who experienced low levels of negative events. They also were more likely to experience depression than low-risk participants who had high or low levels of stress. Consistent with these findings, Hankin et al. (2004) found that the CSQ interacted with self-reported negative life events to predict clinically significant depression over a 2-year interval.

Taken together, the studies testing the vulnerability–stress interaction provide strong support for the construct validity of the CSQ. The CSQ interacts with measures of stress (i.e., negative life events) to predict depressive symptoms and depressive disorders. Given these findings, an important question concerns whether the CSQ also conforms to the more specific relations delineated by the hopelessness theory's etiological chain.

3.2. Evaluating the CSQ within hopelessness theory's etiological chain

Although the central prediction of the hopelessness theory is that cognitive vulnerability should interact with negative life events to create risk for depression, the theory also specifies factors that mediate this relationship (see Fig. 1). According to hopelessness theory's etiological chain, cognitive vulnerability and negative life events interact to produce negative inferences about the cause, consequences, and self-worth implications of the specific event experienced. These negative inferences contribute to the development of hopelessness, which in turn, is hypothesized to be a sufficient cause of depression. If the CSQ is a valid measure of the cognitive vulnerability factor featured in the hopelessness theory, then it should exhibit the specific pattern of relationships delineated by hopelessness theory's etiological chain. This means that the CSQ should predict event-specific negative inferences and increases in hopelessness. Moreover, hopelessness should mediate the relationship between the CSQ and depression.

Research using the CSQ has largely supported the etiological chain featured in the hopelessness theory. The CSQ interacts with negative life events to predict event-specific negative inferences (e.g., Hankin et al., 2005; Hong, Gwee, & Karia, 2006; Panzarella, Alloy, & Whitehouse, 2006). The CSQ is also significantly associated with hopelessness (e.g., Gibb et al., 2001; Gibb, Alloy, Abramson, & Marx, 2003; Haeffel et al., in press; Hong et al., 2006; Panzarella et al., 2006), which has been shown to mediate the relationship between the CSQ and depression (e.g., Gibb et al., 2001; Hong et al., 2006; Metalsky & Joiner, 1992; Panzarella et al., 2006). These findings, again, provide solid support for the construct validity of the CSQ as a measure of the cognitive vulnerability factor featured in the hopelessness theory.

In addition to specifying factors that mediate the relationship between cognitive vulnerability, negative life events, and depression, the hopelessness theory also identifies potential antecedents of cognitive vulnerability. Specifically, the theory suggests that early exposure to negative interpersonal events, particularly childhood emotional abuse, may contribute to the development of cognitive vulnerability (Rose & Abramson, 1992). Thus, the CSQ also should be related to a history of maltreatment, which is a hypothesized antecedent of cognitive vulnerability to depression.

Research examining the antecedents of cognitive vulnerability also provides support for construct validity of the CSQ. Consistent with the etiological chain featured in the hopelessness theory, there are a growing number of studies that demonstrate a relationship between the CSQ and reports of childhood emotional abuse. Specifically, studies have supported the link between reports of childhood emotional abuse and scores on the CSQ (e.g., Gibb et al., 2001; Gibb et al., 2003; Hankin, 2005). In addition, studies have found that CSQ scores, either alone or in combination with scores on the DAS (as was the case in the CVD project) mediate the link between reports of childhood emotional abuse and both symptoms and diagnoses of depression in adulthood (e.g., Gibb et al., 2001; Gibb et al., 2003; Hankin, 2005). Finally, consistent with the hopelessness theory, CSQ scores are more strongly related to reports of childhood emotional abuse than reports of childhood physical or sexual abuse (e.g., Gibb et al., 2001; Gibb et al., 2003; Hankin, 2005).

4. Comparing the CSQ to other vulnerability measures

The hopelessness theory is one of several prominent cognitive theories of depression. Other empirically supported cognitive theories include Beck's theory (1967; Clark, Beck, & Alford, 1999) and Nolen-Hoeksema's (1991) Response Style Theory of depression. Although these cognitive theories all share the same basic premise, the cognitive vulnerability factors featured in these theories are not identical. In Beck's theory, cognitive vulnerability consists of negative schemata containing dysfunctional attitudes. Dysfunctional attitudes often involve themes regarding performance, perfectionistic standards, and self-worth. Many aspects of dysfunctional attitudes (e.g., perfectionistic attitudes) have no apparent counterpart in hopelessness theory, and thus, it appears that Beck's dysfunctional attitudes vulnerability factor represents a conceptually broader construct than the vulnerability factor featured in hopelessness theory (see Abramson et al., 2002). The response style theory proposes that individual differences in reactions to depressed mood determine the severity and duration of depressive responses. Specifically, people who tend to focus their attention on their symptoms and the implication of those symptoms (i.e., ruminate) are at heightened risk for more severe depressive responses. Thus, in contrast to hopelessness theory, response style theory focuses on the style of thinking rather than the content. Given the conceptual differences among these cognitive theories, it is important to examine the relationship of the CSQ with other vulnerability measures. In other words, do the conceptual distinctions hold empirically?

The CSQ has been compared most often to the DAS, which is the measure used to assess the vulnerability factor in Beck's theory. The CSQ and DAS tend to be moderately correlated (correlations tend to range from .4 to .5) suggesting that the vulnerability factors they measure are overlapping (Haeffel et al., 2003). However, a growing body of empirical evidence indicates that these two cognitive vulnerability measures represent distinct constructs. For example, Hankin and colleagues (2007) investigated the factor structures of the CSQ and DAS and found that they load on distinct factors. Opposite patterns of gender differences also have been found for the CSQ and DAS (e.g., Haeffel et al., 2003). Specifically, high school and college females exhibit higher scores on the CSQ than their male counterparts. In contrast, college males exhibit higher scores on the DAS than their female counterparts. Further, preliminary research indicates that the CSQ, compared to the DAS, may be a more consistent predictor of depressive disorders (e.g., Haeffel et al., 2003), depressive and hypomanic symptoms (e.g., Alloy et al., 1999; see Hankin et al., 2004 for exception), and level of daily negative cognitions (Hankin et al., 2005). A number of studies have demonstrated incremental validity for the CSQ, as it is significantly associated with depressive symptoms and depressive disorders even after statistically controlling for the DAS (e.g., Haeffel et al., 2003; Haeffel et al., 2005). It should be noted, however, that a recent study by Oliver, Murphy, Ferland, & Ross, (2007) found that the DAS was associated more strongly with depressive symptoms than the CSQ. However, this study differed from previous research comparing the CSQ and DAS because it was cross-sectional and examined depressive symptoms rather than depressive disorders. Nonetheless, further research may be needed to make any definitive conclusions about whether the CSQ is a more potent predictor of depression than the DAS. As a whole, these studies indicate that the vulnerability factors measured by the CSQ and DAS are different in important ways.

Relatively few studies have compared the CSQ and the Response Style Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991), which is the measure used to assess the vulnerability factor featured in the Response Styles Theory. However, the few studies to examine these measures have found that they tap distinct constructs. For example, a factor analysis of the two measures demonstrates that they load onto different factors (Hankin et al., 2007). The CSQ and RSQ also exhibit different relations with daily depressive symptoms and levels of negative cognitions (Hankin et al., 2005). Interestingly, recent studies suggest that cognitive vulnerability and rumination may work together to culminate in depression. For example, Spasojevic and Alloy (2001) found that the RSQ mediates the relation between the CSQ and major depressive disorder. The RSQ also has been shown to mediate the relationship between CSQ and suicidal ideation (Smith, Alloy, & Abramson, 2006).

In the comparisons described above, all of the cognitive vulnerability measures were self-report questionnaires (CSQ, DAS, and RSQ). Although these measures have demonstrated good reliability and validity, there remains debate about their usefulness as measures of cognitive vulnerability. In general, researchers appear to be divided into two camps on the issue of measuring cognitive vulnerability to depression. One camp tends to focus on cognitive products (e.g., explicit cognitions) whereas the other camp focuses on cognitive processes (e.g., implicit cognitions/information-processing). Researchers in the "products camp" investigate the particular types of negative cognitions that compose vulnerability to depression (as in the case of the hopelessness theory). In contrast, researchers in the "processes camp" argue that cognitive vulnerability consists of negative schemas – cognitive frameworks that are latent, outside of awareness, and activated by stress (see Scher, Ingram, & Segal, 2005 for review). Because these implicit schemas are outside of awareness, the self-report questionnaires (e.g., the CSQ) used by researchers in the product camp may not be capable of detecting cognitive vulnerability. To overcome the limitations of self-report questionnaires, these researchers have modified cognitive paradigms such as the Stroop task, self-referent encoding tasks, dichotic listening tasks, deployment of attention tasks, negative priming tasks, and memory recall tasks (see Gotlib & Neubauer, 2000 for a review).

To date, few studies have directly compared the predictive validity of self-report (explicit) and schema-based (implicit) measures of cognitive vulnerability to depression. Recently, Haeffel and colleagues (2007) conducted two studies comparing an explicit and implicit measure of cognitive vulnerability. The CSQ was used as the explicit measure of cognitive vulnerability and a Self-Other Implicit Association Test (IAT) was used as the implicit measure. The results of the first study showed that IAT, but not CSQ, predicted immediate affective reactions to a lab stressor. The results of a second study showed that both the IAT and CSQ interacted with self-reported life stress to predict prospective changes in depressive symptoms, respectively. However, when both IAT and CSQ were entered into a regression equation simultaneously, only the CSQ interacted with stress to remain a unique predictor of depressive symptoms over the five-week prospective interval. These results provide preliminary support for the CSQ as a unique measure of cognitive vulnerability as well as demonstrate the incremental validity, as the CSQ accounts for individual differences in depressive responses above and beyond an implicit measure of cognitive vulnerability.

5. Limitations and future directions

Research to date indicates that the CSQ has good reliability and construct validity. However, like any measure, there are limitations to the CSQ as well as areas that need further research. On a general level, the CSQ is a self-report questionnaire, and thus, it is susceptible to demand characteristics and social desirability concerns. Also, because the CSQ measures an individual's final cognitive product, it is not possible to determine the underlying cognitive processes that give rise to the vulnerability it measures. Thus, additional measures are needed to uncover the cognitive processes related to vulnerability for depression (e.g., Haeffel et al., 2007). A limitation more specific to the CSQ is its length. The CSQ has 24 scenarios and often takes participants greater than 30 min to complete. This reduces the potential clinical utility of the measure. Future research is needed to determine whether a brief version of the CSQ can be created that maintains the reliability and validity of the full scale.

There are a number of directions for future research using the CSQ. Given the strong predictive power of the CSQ, further studies are needed to determine whether the measure generalizes to other populations and more diverse samples (e.g., ethnic minorities). The CSQ was designed for use with a college sample, and consequently a majority of research using it has focused on American college populations. Thus, it will be critical to determine whether the CSQ findings (and the hopelessness theory more generally) apply to community and clinical samples, and can be translated into other languages. To this end, O'Connor, Connery, and Cheyne, (2000) modified the scenarios on the CSQ to make them applicable to parasuide patients in a hospital setting. Results showed that the modified CSQ was a significant predictor of hopelessness in this hospitalized sample. With regard to translating the CSQ into other languages, Swendsen and Blatier (1998) have developed a French version of the CSQ. Consistent with the current findings, Swendsen and Blatier reported that the French version exhibited good psychometric properties and was significantly correlated with depressive symptoms. These results are promising and suggest that the CSQ may also have utility in diverse samples.

Further research is also needed on the factor structure of the CSQ. Currently, there is only one factor analytic study (Hankin et al., 2007) of the CSQ. Results of this study indicate that the three components of the CSQ all load onto the same factor (which is a distinct factor from rumination, dysfunctional attitudes, self-esteem, neuroticism, and depressive symptoms). Similarly, few studies (Metalsky & Joiner, 1992; Abela & Seligman, 2000) have examined the unique predictive validity of the three individual CSQ components. The results of these studies tend to show that each vulnerability component interacts with life stress to predict depressive symptoms; however, no individual vulnerability component seems to predict variance in depressive symptoms above and beyond the other two components. These studies provide initial support for the composite scoring system used for the CSQ. However, given the paucity of research on this issue, it would be premature to make any strong conclusions about the factor structure of the CSQ. If the one-factor structure of the CSQ holds in future research, this would not decrease the importance of measuring all three components. It is necessary to measure all three components in order to maintain the construct validity of the scale. According to Clark and Watson (1995), construct validity is compromised if a scale's content becomes narrower than the target construct. Thus, measuring all three components of hopelessness theory's cognitive vulnerability construct enhances theoretical fidelity and ensures the construct validity of the CSQ.

A majority of the research using the CSQ has focused on predicting depressive symptoms and not clinically significant depression. Thus, further research is necessary to confirm that the CSQ is a valid measure of vulnerability for major depressive disorder. Results of recent studies (Abramson et al., 1999; Alloy et al., 2000; 2006; Haeffel et al., 2003; Hankin et al., 2004) are promising and indicate that the CSQ may be a potent predictor of clinically significant depression. However, further replication would be desirable.

Additional research is also needed to determine the specificity of the CSQ as a measure of vulnerability for depression. The hopelessness theory posits a specific cognitive vulnerability to depression. This means that the CSQ should exhibit a high degree of specificity. It should be associated with depression, but not other Axis I disorders. Results from studies investigating the specificity hypothesis have been mixed. Studies examining whether the CSQ predicts Axis I disorders such as substance abuse disorders and eating disorders have consistently supported the specificity of the CSQ as a measure of vulnerability to depression (e.g., Haeffel et al., 2003; Benas & Gibb, in press). However, the results of studies examining the relationship between the CSQ and anxiety disorders have been less clear. Some studies have found the CSQ to more specifically predict depressive symptoms and disorder compared to anxious symptoms and disorders (e.g., Alloy et al., 2000; Hankin et al., 2004), whereas others have not (e.g., Haeffel et al., 2003). Results from the prospective component of the CVD Project (Alloy et al., 2006) indicate that the CSQ is associated with anxiety disorders comorbid with depression, but not anxiety disorders that are not comorbid with

depression. Further research is needed to explain the inconsistencies among studies examining the specificity of the CSQ for predicting depression versus anxiety.

Finally, it will be important for independent labs to replicate and extend the findings discussed in this article. The creators of the CSQ and their students have conducted the vast majority of research on this measure. We hope that our review of the CSQ's reliability and validity will increase the visibility of this measure and inspire future studies by independent researchers.

6. Conclusion

Data indicate that the CSQ is a reliable and valid measure of the cognitive vulnerability factor featured in the hopelessness theory of depression. The CSQ has strong internal consistency and test–retest reliability. The measure also has an impressive level of construct validity. The CSQ behaves as cognitive vulnerability is theorized to behave in the hopelessness theory's nomological net. The CSQ: (a) interacts with measures of negative life events to predict depressive symptoms and disorders, (b) is associated with hopelessness, which mediates the CSQ's relationship with depression, (c) is associated with event-specific negative inferences, and (d) is associated with hypothesized antecedents such as a history of emotional abuse. The CSQ is also distinct from other cognitive vulnerability measures. It loads onto its own factor and demonstrates incremental validity over similar measures such as the DAS, SRP, and IAT. Taken together, these findings support the continued use of the CSQ as a measure of cognitive vulnerability to depression in samples of young adults.

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