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Cognitive Vulnerability to Depressive Symptoms in Adolescents in Urban and Rural Hunan, China: A Multiwave Longitudinal Study

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The current multiwave longitudinal study examined the applicability of two cognitive vulnerability-stress models of depression—Beck's (1967, 1983) cognitive theory and the hopelessness theory (Abramson, Metalsky, & Alloy, 1989)—in two independent samples of adolescents from Hunan Province, China (one rural and one urban). During an initial assessment, participants completed measures assessing dysfunctional attitudes (Beck, 1967, 1983), negative cognitive style (Abramson et al., 1989), neuroticism (Costa & McCrae, 1992), depressive symptoms, and anxiety symptoms. Once a month for the subsequent 6 months, participants completed measures assessing the occurrence of different types of negative events, depressive symptoms, and anxiety symptoms. Results provided support for cognitive vulnerability factors as predictors of increases in depressive symptoms following the occurrence of higher than average levels of negative events in Chinese adolescents. The results also supported the specificity of these two cognitive vulnerability factors as predictors of depressive versus anxiety symptoms following the occurrence of higher than average levels of negative events (i.e., symptom specificity), and the ability of cognitive vulnerability factors to predict prospective change in depressive symptoms above and beyond the effects of trait neuroticism (i.e., etiological specificity).

Keywords: depression, cognitive style, dysfunctional attitudes, adolescence, China

The results of epidemiological studies suggest that the prevalence of depression in China has risen in recent decades (Dennis, 2004). More specifically, whereas research conducted in the 1980s estimated the point-prevalence rate of depression in adults to be 0.3% (Xiang, 1986), research conducted in the 1990s estimated it to be 1.4% (Murray & Lopez, 1996). Research conducted in both rural (Zhang, Zhang, & Weng, 2001) and urban (Zhou Zhang, Jiang, & Wang, 2000) settings reported even higher 6-month prevalence rates ranging from 6.6% to 9.3%. Although no formal epidemiological studies have been conducted examining the prevalence of depression in adolescents, research suggests that it may exceed those observed in adults. For example, one study conducted with adolescents (ages 13–22) in both urban and rural Shandong Province reported that 16.9% suffered from severe depressive symptoms (Liu, Ma, Kurita, & Tang, 1999). Research conducted with adolescents (ages 13–16) in both urban and rural Zhejiang Province reported that 33% exhibited a history of severe depressive symptoms, 16% had experienced times in which they thought that life was not worth living, and 9% had attempted suicide (Hesketh, Ding, & Jenkins, 2002). Despite such alarming statistics, little research has examined models of the etiology of depression in Chinese adolescents. Furthermore, of the studies conducted, the majority are cross-sectional providing little insight into causal mechanisms.

One theoretical perspective that has proven useful in understanding the development of depression in Western youth is the cognitive vulnerability-stress perspective (Abela & Hankin, 2008). Cognitive theories of depression define vulnerability as an internal and stable feature of an individual that predisposes him/her to develop depression following the occurrence of negative events (e.g., Beck, 1967, 1983; Ingram, Miranda, & Segal, 1998). Several of the most influential cognitive models are diathesis-stress models in that they posit that depression is produced by the *interaction* between cognitive vulnerability factors (the diatheses) and certain environmental conditions (the stressors) that trigger such diatheses into operation (e.g., Ingram & Luxton, 2005). Evidence suggests that under ordinary conditions, individuals vulnerable to depression are indistinguishable from the general population. Only when confronted with certain stressors do differences between vulnera-

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ble and nonvulnerable individuals emerge (Ingram & Luxton, 2005; Ingram et al., 1998; Monroe & Simons, 1991). According to this type of theory, for individuals who possess cognitive vulnerability factors, negative events trigger a pattern of negatively biased, self-referent information processing that initiates a downward spiral into depression. Nonvulnerable individuals react to such events with an appropriate level of distress and depressive affect, but do not spiral downward into depression.

Two of the most prominent cognitive vulnerably stress models of depression are Beck's (1967, 1983) cognitive theory and the hopelessness theory (Abramson et al., 1989). Beck's cognitive theory posits that depressogenic schemas confer vulnerability to the development of depression. Beck defines schemas as stored bodies of knowledge (i.e., mental representations of the self and prior experiences) that are relatively enduring characteristics of a person's cognitive organization. When an individual is confronted with a situation, the schema most relevant to the situation is activated. Schema activation subsequently influences how the individual perceives, encodes, and retrieves information regarding the situation. Beck hypothesizes that depressogenic schemas are typically organized as sets of dysfunctional attitudes such as "I am nothing if a person I love doesn't like me" or "If I fail at my work then I am a failure as a person." Among individuals who possess depressogenic schemas, the occurrence of negative events triggers a pattern of negatively biased, self-referent information processing that leads to the onset of depressive symptoms.

The hopelessness theory posits that a negative cognitive style confers vulnerability to the development of depression (Abramson et al., 1989). A negative cognitive style is operationalized as the tendencies: (a) to attribute negative events to global and stable causes; (b) to perceive negative events as having disastrous consequences; and (c) to infer negative characteristics about the self following negative events. According to the theory, individuals who possess a negative cognitive style are more likely than other individuals to make depressogenic inferences following negative events, and in turn, exhibit elevations of depressive symptoms.

Cognitive theories of depression are postulated to be diathesis-stress models, and different formalized combinations of vulnerability and stress have been proposed (e.g., titration models, Abramson, Alloy & Hogan, 1997; Abramson et al., 1989; and interactive diathesis-stress models, Ingram & Luxton, 2005; Monroe & Simons, 1991). What these variations in diathesis-stress models (e.g., titration, interactive) share in common is the perspective that vulnerability, negative events, and depression as an outcome are all best conceptualized along a continuum. In other words, cognitive vulnerability is best conceptualized along a continuum with some individuals exhibiting higher levels than others. Similarly, negative events are best conceptualized along a continuum with some events being more negative than others. Severity of depression is hypothesized to vary as a function of (a) the severity of cognitive vulnerability factors, (b) the severity of negative events, and (c) the content (e.g., situation-specific vs. generalized) of the thought processes that ensue following stressors. Thus, these cognitive theories state that a less severe analog to clinical depression can also develop when stressors and vulnerability factors are not extreme and depressogenic thought processes are event-specific. To test such hypotheses researchers have examined such theories from multiple perspectives ranging from predicting depressive mood reactions following negative events in community and student samples (e.g., Abela & Seligman, 2000; Hankin, Abramson, Miller, & Haeffel, 2004; Metalsky et al., 1993) to predicting the development of major depressive episodes in youth (Bohon et al., 2008; Hammen, Adrian, & Hiroto, 1988) and young adults (Hankin et al., 2004).

Prospective studies using adolescent samples have provided support for the applicability of both Beck's cognitive theory (1967, 1983) and hopelessness theory (Abramson et al., 1989) to Western youth (Abela & Hankin, 2008). More specifically, several studies have found that adolescents who possess high levels of dysfunctional attitudes (e.g., Abela & Skitch, 2007; Abela & Sullivan, 2003; Hankin, Wetter, Cheely, & Oppenheimer, 2008) or a negative cognitive style (e.g., Abela & McGirr, 2007; Abela, McGirr, & Skitch, 2007; Calvete, Villardon, & Estevez, 2008; Hankin, Abramson, & Siler, 2001) are more likely than other adolescents to experience increases in depressive symptoms following the occurrence of negative events. In addition, onset of clinical depression has been predicted by negative events interacting with dysfunctional attitudes (Lewinsohn, Joiner, & Rohde, 2001; Technow, Hankin, & Abela, 2011) and negative cognitive style (Bohon et al., 2008; Technow et al., 2011).

Although far less research has examined the applicability of Beck's (1967, 1983) cognitive theory and the hopelessness theory (Abramson et al., 1989) to Chinese youth, preliminary research has yielded findings consistent with the theories' hypotheses (Leung & Poon, 2001; Li & Qian, 2002; Stewart et al., 2004). Yet these studies have mostly only examined main effects of cognitive vulnerability. However, the one study that examined the vulnerability-stress hypothesis of cognitive theories in Chinese youth did find that a more negative attributional style was associated with greater increases in depressive symptoms following negative events in youth between the ages of 9 and 13 (Yu & Seligman, 2002).

The primary objective of the current study was to examine the applicability of the cognitive vulnerability-stress component of Beck's (1967, 1983) cognitive theory and the hopelessness theory (Abramson et al., 1989) to adolescents in mainland China. The procedure involved an initial assessment during which youth completed measures assessing dysfunctional attitudes, negative cognitive style, and symptoms of depression. The procedure also involved a series of six follow-up assessments, occurring once a month for 6 months, during which symptoms of depression and the occurrence of negative events were assessed. The use of a multiwave longitudinal design allowed us to take an idiographic approach toward examining the vulnerability-stress hypothesis of both theories (Abela & Hankin, 2008). More specifically, we examined whether the slope of the relationship between negative events and symptoms of depression *within* participants varied *across* participants as a function of level of cognitive vulnerability. In line with both theories, we hypothesized that higher levels of dysfunctional attitudes and a negative cognitive style would both be associated with greater increases in depressive symptoms following the occurrence of greater than average levels of negative events.

The second objective of the current study was to examine the specificity of dysfunctional attitudes and negative cognitive style as predictors of depressive symptoms (i.e., symptom specificity). The cognitive vulnerability stress component of hopelessness theory and Beck's cognitive theory both posit that the cognitive

vulnerability factor(s) featured in their models predict the development of depressive symptoms but not symptoms of other forms of psychopathology. Some prospective studies using adult samples have provided support for the symptom specificity hypothesis of both theories. For example, both dysfunctional attitudes and negative cognitive style have been found to interact with negative events to predict increases in depressive symptoms and onset of clinical depression but not symptoms of anxiety or other disorders (Hankin et al., 2004). With respect to youth samples, a depressogenic attributional style has been found to interact with negative events to predict increases in depressive, but not anxiety, symptoms in youth psychiatric inpatients (ages 9–13; Joiner, 2000), third- through sixth-grade schoolchildren (Brozina & Abela, 2006), and early to middle adolescents (Hankin, 2008).[1] Likewise, elevated levels of dysfunctional attitudes interacted with stress over time to predict prospective elevations of depressive symptoms but not anxiety symptoms (Hankin et al., 2008). Given the limited body of research examining the specificity hypotheses of Beck's cognitive theory and the hopelessness theory to depression versus anxiety, additional research is needed. Such research is particularly important when testing these theories in non-Western cultures as cultural factors may shape the phenomenology of psychiatric symptoms. The symptoms predicted by cognitive vulnerability factors in one culture may be different than the symptoms predicted by such factors in another (Kleinman, 2004; Mezzich et al., 1999). In the current study, we assessed levels of anxiety symptoms to provide a test of the specificity hypotheses of the cognitive vulnerability-stress component of both Beck's cognitive theory and the hopelessness theory. More specifically, we examined whether dysfunctional attitudes and/or a negative cognitive style would interact with stressors to prospectively predict anxiety symptoms after controlling for their effect on depressive symptoms.

The third objective of the current study was to examine whether dysfunctional attitudes and negative cognitive style prospectively predict depressive symptoms above and beyond the effect of other established vulnerability factors to depression (i.e., etiological specificity). Several critical reviews of the literature examining theories of cognitive vulnerability to depression (e.g., Barnett & Gotlib, 1998; Coyne & Whiffen, 1995) have argued that cognitive vulnerabilities, such as those featured in Beck's (1967, 1983) cognitive theory and the hopelessness theory (Abramson et al., 1989), may be equivalent to or reducible to trait neuroticism, and thus may not confer independent risk for depression. However, research examining the degree of factorial independence of trait neuroticism, dysfunctional attitudes, and negative cognitive style has shown them to be highly overlapping but distinguishable constructs, each loading onto separate factors among young adults (Hankin, Lakdawalla, Carter, Abela, & Adams, 2007).[2] Still, additional prospective research, especially among youth, is needed to examine whether cognitive vulnerability factors and trait neuroticism represent unique risk factors for depression.

In the current study, we examined whether higher dysfunctional attitudes and/or a negative cognitive style would interact with stressors to prospectively predict depressive symptoms after controlling for both neuroticism and the interaction between neuroticism and negative events. Relatively little research has examined whether dysfunctional attitudes and negative cognitive style exhibit etiological specificity in predicting depressive symptoms and disorders (see Hankin et al., 2008; Joiner, Metalsky, Lew, & Klocek, 1999, Zinbarg et al., 2011). Furthermore, few prior studies have examined both the symptom specificity and the etiological specificity components of Beck's cognitive theory and hopelessness theory in the same study of youth (but see Hankin et al., 2004, with young adults; Lewinsohn et al., 2001, with adolescents; and an ongoing 8-year longitudinal prospective study that started with late adolescents, Zinbarg et al., 2010).

Hypotheses were tested in two independent samples of adolescents in Hunan province. The first sample was from Changsha—an industrial city of approximately 7,000,000. The second sample was from Liuyang—a rural town. Preliminary research has noted differences between urban and rural youth in China in terms of the experience and correlates of depression. For example, rural adolescents have been found to be more likely than their urban counterparts to experience severe depressive symptoms (Hesketh et al., 2002). In addition, suicide rates have been found to be two to three times higher in rural than in urban districts, with rural females between the ages of 15 and 24 being at greatest risk (Ji, Kleinman, & Becker, 2001). Researchers have hypothesized that differences between urban and rural youth in terms of psychosocial risk factors (i.e., social status, self-esteem, and satisfaction and comfort in everyday life) may account for differences in depression and suicide rates (Hesketh et al., 2002; Lee, 2000). Because our samples of adolescents from Changsha and Liuyang differ in terms of several important demographic and sociocultural variables, replication of results across these two samples would provide powerful support for the applicability of the cognitive vulnerability stress component of hopelessness theory and Beck's cognitive theory to Chinese adolescents.

Method

Participants

The participants in the current study were 558 tenth- through twelfth-grade students (310 females and 248 males) from an urban school in Changsha, and 592 adolescents (287 females and 305 males) from a rural school in Liuyang. Both sites are in Hunan province, Mainland China. Hunan ranks 23rd (10,336 RMB) out of the 34 provinces in China in terms of annual gross domestic product placing it well below the national provincial average (μ =

[1] It should be noted, however, that another ongoing longitudinal prospective study (the Youth Emotion Project) being conducted by Mineka, Zinbarg, and Craske has found negative cognitive style and dysfunctional attitudes to predict onset of anxiety disorders over a 3 year follow-up period as well as depressive disorders in late adolescents (ages 17–20; Zinbarg et al., 2011).

[2] It should be noted, however, that the investigators of the Youth Emotion Project have found cognitive vulnerability and neuroticism to be very highly overlapping (Griffith, Zinbarg, Mineka, Sutton & Craske, submitted). Specifically, the correlation between a cognitive vulnerability factor and a neuroticism factor was $r = .90$, leading the authors to suggest that cognitive factors should be included as facets in a broader definition of neuroticism. Thus, the degree to which cognitive vulnerabilities and neuroticism are associated and represent distinct etiological constructs for vulnerability to emotional disorders remains an important and ongoing area of inquiry.

29,719 RMB; *SD* = 47,462 Renminbi (RMB); National Bureau of Statistics of China, 2006). Demographic variables for both samples are presented in Table 1. Data were collected in 2005–2006.

Procedure

Consent forms were sent to the parents of all students in participating classes. Consent rates were greater than 95% in all the classes. After consent forms were collected, researchers went to each school to meet with participating students. Written consent was obtained from each adolescent at the beginning of the assessment. No student who received parental consent chose not to give personal consent for their participation. During the initial assessment, students completed a demographics form and a copy of each of the following questionnaires: (a) Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), (b) Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997), (c) Children's Dysfunctional Attitudes Scale (CDAS; Abela & Sullivan, 2003), (d) Adolescent Cognitive Style Questionnaire (ACSQ; Hankin & Abramson, 2002), and (e) NEO Five Factor Inventory–Neuroticism Subscale (NEO-FFI-N; Costa & McCrae, 1992). Once a month for the subsequent 6 months, researchers returned to the schools and met with participating students. At each of these follow-up assessments, students were asked to complete each of the following questionnaires: (a) CES-D, (b) MASC, and (c) the Adolescent Life Events Questionnaire (ALEQ; Hankin & Abramson, 2002).

Table 1
Demographic Variables

	%	
	Urban sample	Rural sample
Age, years, *M* (*SD*)	16.22 (0.89)	16.32 (0.93)
Grade		
Tenth	40.0	34.5
Eleventh	42.3	45.8
Twelfth	17.7	19.8
Gender		
Boys	44.8	52.9
Girls	55.2	47.1
Parents' marital status		
Married	87.4	95.5
Divorced	8.4	2.4
Single	4.2	2.1
Father's job		
Unemployed	12.7	0.6
Farmer	2.8	67.4
Worker	40.7	12.8
Small business owner	33.5	15.0
Professional	10.4	4.3
Mother's job		
Unemployed	27.1	4.6
Farmer	5.4	72.2
Worker	32.9	12.5
Small business	26.7	7.5
Professional	7.9	3.2
Father's education		
Some primary school	2.0	8.7
Primary school	24.0	34.8
Some high school	22.2	37.4
High school	44.9	17.5
University	6.9	1.7
Mother's education		
Some primary school	2.5	12.8
Primary school	24.0	41.6
Some high school	25.1	36.5
High school	44.7	8.9
University	3.6	0.2
Only child		
No	31.4	79.1
Yes	68.6	20.9
Monthly income		
<1,000 RMB	14.6	23.0
1,000–1,500 RMB	27.4	28.7
1,500–2,000 RMB	23.1	19.8
2,000–3,000 RMB	19.3	16.4
3,000–4,000 RMB	7.7	7.8
4,000–5,000 RMB	3.6	2.6
<5,000 RMB	4.3	1.8

Measures

The Chinese version of all measures was developed by using the back-translation method. Original English versions were translated into Chinese by a bilingual translator from the Psychology department at Second Xiangya Medical College of Central South University, Hunan. Translated Chinese versions were then back-translated into English by another bilingual translator from the Psychology department at McGill University, Quebec. Original versions were compared with the back-translation. If inconsistencies were found in the back-translation, translators worked together to make corrections to the final Chinese versions. No items from any of the measures were removed or significantly altered during the translation process.

CES-D. The CES-D (Radloff, 1977) is a 20-item self-report measure designed to assess depressive symptoms in the general population. For each item, participants are asked how often they have experienced a given symptom in the last week, with responses ranging from 1 (*rarely or none of the time*) to 4 (*most or all of the time*). Total scores range from 20–80, with higher scores indicating higher levels of depressive symptoms. When used as a screening instrument, CES-D scores of 36–46 are considered indicative of minor depression and CES-D scores of 47 or more are considered indicative of major depression (Ensel, 1986; Zich, Attkisson, & Greenfield, 1990). Consistent with prior studies conducted with adolescents in China (Hesketh et al., 2002; Liu et al., 1999), the prevalence of depressive symptoms in both our urban and rural samples was high. More specifically, at the time of the initial assessment, 22.2% of urban and 27.7% of rural youth reported CES-D scores indicative of minor depression, whereas 7.8% of urban and 7.6% of rural youth reported CES-D scores indicative of major depression. The CES-D has been shown to be reliable and valid measure of depressive symptoms in China (Yao et al., 2007). In the current study, across administrations, we obtained alphas ranging from .91 to .95 (μ = .93, *SD* = .02) in our urban sample and .88 to .94 (μ = .92, *SD* = .02) in our rural sample indicating strong internal consistency.

The Multidimensional Anxiety Scale for Children (MASC; March et al., 1997). The MASC is a 39-item self-report measure designed to measure severity of a variety of different kinds of anxiety symptoms in the past week. Each item consists of a statement (e.g., "I feel restless or on edge," "I worry about what other people think of me"), which the participant rates on a 4-point

Likert scale ranging from 0 (*never applies*) to 3 (*often applies*). Total scores range from 0 to 117, with higher scores indicating a greater severity of anxiety symptoms. A recent review of evidence-based assessment of anxiety and its disorders in youth recommended the MASC as the self-report instrument of choice for both screening for anxiety disorders in youth and discriminating among youth with anxiety disorders and youth with other disorders (Silverman & Ollendick, 2005). The MASC has been found to discriminate between both children with anxiety disorders and healthy children (Dierker et al., 2001), as well as between children with anxiety and depressive disorders (Rynn et al., 2006). MASC scores have been found to correlate with youth self-report measures of depressive symptoms to a lesser degree than other youth self-report measures of anxiety (Muris, Merckelbach, Ollendick, King, & Bogie, 2002; Rynn et al., 2006). The Chinese version of MASC has high levels of reliability and validity making it an appropriate measure to use in Chinese samples (Yao et al., 2007). In the current study, across administrations, we obtained alphas ranging from .91 to .96 ($\mu = .94$, $SD = .02$) in our urban sample and .90 to .96 ($\mu = .94$, $SD = .02$) in our rural sample indicating strong internal consistency.

CDAS. The CDAS (Abela & Sullivan, 2003) is a self-report questionnaire designed to assess dysfunctional attitudes in children and adolescents. For each item, participants are asked to rate how much each statement applies to them (i.e., never true, sometimes true, most of the time, and always true). In the current study, we utilized a short-form (14-items) of the CDAS (McWhinnie, Abela, Knauper, & Zhang, 2009). Total scores range from 0 to 42, with higher scores indicating higher levels of dysfunctional attitudes. Past research using both the original (Abela & Skitch, 2007; Abela & Sullivan, 2003) and the short form (McWhinnie et al., 2009) of the CDAS have reported high levels of internal consistency in both elementary and middle schoolchildren. In addition, total scores on both the original (Abela & Skitch, 2007; Abela & Sullivan, 2003) and the short form (McWhinnie et al., 2009) of the CDAS have been found to positively correlate with depressive symptoms and to predict increases in depressive symptoms over time. In the current study, we obtained an alpha of .63 in our urban sample and .66 in our rural sample indicating modest internal consistency.

Adolescent Cognitive Style Questionnaire (ACSQ; Hankin & Abramson, 2002). The ACSQ assesses negative cognitive style in adolescents. The ACSQ consists of 12 negative hypothetical events relevant to adolescents (e.g., "You take a test and get a bad grade"; "Boyfriend/girlfriend broke up with you but you still want to go out with them"). For each event, participants are asked to write down one cause for the event, and to rate on a 7-point scale the degree to which that cause is internal, stable, and global (negative inferences for causal attributions). Participants similarly rate the likelihood that further negative consequences will result from the negative event (negative inferences for consequences). Finally, participants likewise rate the degree to which the occurrence of the negative event signifies that they are flawed (i.e., "something is wrong with you" because the negative event happened; negative inferences for self). Past research using the ACSQ has reported high levels of reliability and validity (e.g., Calvete et al., 2008; Hankin & Abramson, 2002). In the current study, we obtained alphas of .88, .87, and .85 in our urban sample and .86, .89, and .87 in our rural sample for the causes, consequences, and self subscales, respectively. In the current study, we used an additive composite score for cognitive style obtained by summing participants' standardized scores on the causes, consequences, and self subscales of the ACSQ.

NEO-FFI-N. The NEO-FFI-N (Costa & McCrae, 1992) is a 12-item self-report measure that assesses neuroticism. An example item is "I often feel inferior to others." Items are rated on a 5-point Likert scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*), with higher scores indicating higher levels of neuroticism. The NEO-FFI-N has proven reliable across different cultural samples and item pools (Costa & McCrae, 1992). In the current study, Cronbach's alpha was .79 in both our urban and rural samples indicating moderate internal consistency.

ALEQ. The ALEQ (Hankin & Abramson, 2002) assesses a broad range of negative events that typically occur among adolescents, including school/achievement problems, friendship and romantic difficulties, and family problems. Examples of items from the ALEQ include "got a bad report card" to assess school events, "had an argument with a close friend" for friendship events, "boyfriend/girlfriend broke up with you" for romantic events, and "your parents were disappointed with you" for family events. The ALEQ consists of 70 different negative events. To minimize the impact of individual difference variables (i.e., cognitive vulnerability, depressive symptoms, anxiety symptoms, etc.) on the reporting of negative events, we scored the ALEQ in terms of the number of different events that occurred during the past month irrespective of their frequency. Thus, scores on the ALEQ ranged from 0 to 70, with higher scores indicating the occurrence of a greater number of different negative events. Past research has found the ALEQ to be a reliable and valid measure when used with Western (e.g., Calvete et al., 2008; Hankin, 2008) and Chinese adolescents (Auerbach, Abela, Zhu, & Yao, 2007; Yao et al., 2007).

Results

Descriptive Data

Means and *SD*s for Time 1 measures are presented in Table 2. Several findings warrant attention. First, Site × Gender analyses of variance (ANOVAs) on adolescents' CES-D and MASC scores indicated that our rural sample reported higher levels of both depressive, $F(1, 1084) = 8.05$, $p < .01$, and anxiety, $F(1, 1084) = 12.48$, $p < .001$, symptoms than did our urban sample. In addition, girls reported higher levels of both depressive, $F(1, 1,084) = 5.05$, $p < .05$, and anxiety, $F(1, 1084) = 89.91$, $p < .001$, symptoms than did boys. Second, a Site × Gender ANOVA on adolescents' NEO-FFI-N scores indicated that girls reported higher levels of neuroticism than did boys, $F(1, 1084) = 35.52$, $p < .001$.

Cognitive Vulnerability to Depressive Symptoms: Urban Sample

Dysfunctional attitudes. Multilevel modeling was used to test our hypothesis that higher levels of dysfunctional attitudes would be associated with greater increases in depressive symptoms following relative increases in stressors. Analyses were carried out using the SAS (version 8.1) mixed procedure and maximum likelihood estimation. Our dependent variable was follow-up CES-D scores (depression). Our primary predictors of depression were

Table 2
Means and SD*s for All Time 1 Measures*

	Urban sample		Rural sample	
	Girls	Boys	Girls	Boys
Depressive symptoms	$32.66_{a,b}$ (9.34)	31.51_{a} (8.74)	34.23_{b} (8.91)	$32.98_{a,b}$ (8.31)
Anxiety symptoms	49.04_{a} (16.13)	40.00_{b} (15.29)	52.22_{a} (15.95)	43.45_{c} (14.42)
Negative cognitive style	3.46_{a} (.77)	3.39_{a} (.77)	3.38_{a} (.81)	3.46_{a} (.75)
Dysfunctional attitudes	33.41_{a} (3.99)	33.58_{a} (4.56)	34.06_{a} (4.61)	34.00_{a} (4.48)
Neuroticism	35.64_{a} (7.26)	32.61_{b} (7.14)	34.94_{a} (8.02)	32.52_{b} (7.57)

Note. Depressive symptoms = Center for Epidemiological Studies Depression Scale; anxiety symptoms = Multidimensional Anxiety Scale for Children; negative cognitive style = Adolescent Cognitive Style Questionnaire; dysfunctional attitudes = Children's Dysfunctional Attitudes Scale; neuroticism = NEO Five Factor Inventory, Neuroticism subscale. Means with different subscripts significantly differ.

CDAS scores (Dysfunctional attitudes), follow-up ALEQ scores (stress), and the Dysfunctional attitudes × Stress interaction. Because dysfunctional attitudes is a between-subjects predictor, CDAS scores were standardized prior to analyses. Because Stress is a within-subject predictor, ALEQ scores were centered at each participant's mean prior to analyses such that stress reflects upward or downward fluctuations in an adolescent's level of stress compared with his or her mean level of stress.[3] Six additional effects were also included in the model. First, to control for prior depressive symptoms, CES-D scores at Time $n - 1$ were included. Second, in order to examine whether dysfunctional attitudes are associated with depression independent of their association with anxiety symptoms, follow-up MASC scores (anxiety) at each time point concurrent with depression were included in the model. Third, to examine whether dysfunctional attitudes represent a vulnerability factor independent of neuroticism, NEO-FFI-N scores (neuroticism) and the Neuroticism × Stress interaction were included in the model. Last, to account for possible age and gender effects, age and gender were included in the model. The inclusion of these six additional effects in our model may be said to represent an extremely stringent test of our hypotheses.

Model specification was achieved using a sequential strategy which involved first examining random effects and then examining fixed effects (see Snijders & Bosker, 1999). Models included random effects for intercept (RE_intercept) and slope (RE_slope). In all subsequent analyses RE_intercept ($p < .001$) and RE_slope ($p < .001$) were significant.

Results pertaining to the fixed-effects component of the model are presented in the left panel of Table 3. Of primary importance, the Dysfunctional attitudes × Stress interaction was a significant predictor of depression. To examine the form of this interaction, the model summarized in the left panel of Table 3 was used to calculate predicted CES-D scores for adolescents exhibiting either high or low levels of dysfunctional attitudes (+/− 1.5 *SD*) who experienced either high or low levels of stressors in comparison to their own average level of stress (plus or minus 1.5 × mean within-subject *SD*). Because both depression and stress are within-subject variables, slopes are interpreted as the increase in an adolescent's CES-D score that would be expected given that he or she scored one point higher on the ALEQ. The results of such calculations are presented in the upper left panel of Figure 1. Analyses were conducted for each dysfunctional attitudes condition examining whether the slope of the relationship between stressors and depressive symptoms significantly differed from 0. Analyses indicated that both adolescents exhibiting high, $t(2335) = 7.66$, $p < .001$ and low, $t(2335) = 2.75$, $p < .001$ levels of dysfunctional attitudes reported higher levels of depressive symptoms when experiencing higher than average levels of Stress than when experiencing lower than average levels of Stress. Planned comparisons of the slopes of the relationship between stressors and depressive symptoms revealed that the slope was significantly greater in adolescents exhibiting high levels of dysfunctional attitudes (slope = 0.22) than in adolescents exhibiting low levels, slope = 0.08; $t(2335) = 2.94$, $p < .01$.

Given that Stress and depression were assessed contemporaneously in the above analyses, we also examined an alternative model in which it was hypothesized that higher levels of dysfunctional attitudes would be associated with greater increases in Stress following increases in depression. For these analyses, our dependent variable was Stress. Our primary predictors of stress were dysfunctional attitudes, depression, and the Dysfunctional attitudes × Depression interaction. In addition, ALEQ scores at Time $n - 1$, anxiety, age, and gender were entered into the model as covariates. Of primary importance, the Dysfunctional attitudes × Depression interaction was not a significant predictor of stress ($\beta = -0.03$, $SE = 0.03$, $F(1, 2345) = 0.84$, *ns*).

Negative cognitive style. We used the same data-analytic approach to test whether more negative cognitive styles (as measured by ACSQ scores) would be associated with greater increases in depressive symptoms following higher than average levels of stress. Results are presented in the right panel of Table 3. Of primary importance, the Cognitive style × Stress interaction was a significant predictor of depression. To examine the form of this interaction, the model summarized in the right panel of Table 3 was used to calculate predicted CES-D scores for adolescents exhibiting either high or low levels of negative cognitive style (+/−1.5 *SD*) who are experiencing either high or low levels of

[3] Neither dysfunctional attitudes nor cognitive style were significantly associated with within-subject *SD*s on the ALEQ in either our urban ($r = .04$, $p = .33$ and $r = .01$, $p = .82$, respectively) or rural ($r = .03$, $p = .52$ and $r = .02$, $p = .68$, respectively) sample. Thus, the degree to which adolescents' ALEQ scores fluctuated around their mean ALEQ score (i.e., deviation scores) during the follow-up interval did not vary as a function of cognitive vulnerability.

Table 3
Urban Sample: Dysfunctional Attitudes and Negative Cognitive Style Predicting CES-D Scores During the Follow-Up Interval

	Dysfunctional attitudes				Negative cognitive style			
	b	*SE*	*F*	*df*	*b*	*SE*	*F*	*df*
Gender	2.49	0.89	0.31	1, 528	−0.41	0.42	0.97	1, 528
Age	1.06	0.43	4.37*	1, 528	0.44	0.21	4.48*	1, 528
CES-D (Time $n - 1$)	0.24	0.02	215.98***	1, 2335	0.25	0.02	230.42***	1, 2335
Anxiety symptoms	0.17	0.02	119.57***	1, 2335	0.17	0.02	122.19***	1, 2335
Stress	0.15	0.02	77.52***	1, 2335	0.15	0.02	76.86***	1, 2335
Neuroticism	3.40	0.25	179.87***	1, 528	3.25	0.26	158.87***	1, 528
Cognitive vulnerability	1.42	0.24	32.24***	1, 528	1.45	0.24	35.51***	1, 528
Neuroticism × Stress	0.04	0.02	6.16*	1, 2335	0.04	0.02	5.53*	1, 2335
Cognitive vulnerability × Stress	0.05	0.02	8.62**	1, 2355	0.04	0.02	5.17*	1, 2355

Note. CES-D = Center for Epidemiological Studies Depression Scale scores during the follow-up interval; dysfunctional attitudes = Children's Dysfunctional Attitudes Scale; negative cognitive style = Adolescent Cognitive Style Questionnaire; gender = a coded variable whereby 0 = *girl* and 1 = *boy*; anxiety symptoms = Multidimensional Anxiety Scale for Children (MASC) scores during the follow-up interval; stress = Adolescent Life Events Questionnaire (ALEQ) scores during the follow-up interval; neuroticism = NEO Five Factor Inventory, Neuroticism subscale.
* $p < .05$. ** $p < .01$. *** $p < .001$.

stress in comparison to their own average level of stress (+/− 1.5 × mean within-subject *SD*). The results of such calculations are presented in the upper right panel of Figure 1. Follow-up analyses indicated that both adolescents exhibiting high, $t(2335) = 6.76$, $p < .001$, and low levels, $t(2335) = 3.13$, $p < .01$, of negative cognitive style reported higher depressive symptoms when experiencing higher than average levels of stress than when experiencing lower than average levels of stress. The slope of the relationship between stressors and depressive symptoms was significantly greater in adolescents exhibiting high levels of negative cognitive style (slope = 0.21) than in adolescents exhibiting low levels, slope = 0.09; $t(2335) = 2.27$, $p < .05$.

We also examined the alternative model that more negative cognitive styles would be associated with greater increases in Stress following increases in Depression. The Cognitive style × Depression interaction was a significant predictor of stress, $\beta = -0.11$, $SE = 0.03$, $F(1, 2345) = 11.20$, $p < .001$. Yet, planned comparisons of the slopes of the relationship between depressive symptoms and stress revealed that the slope was significantly greater in adolescents exhibiting low levels of negative cognitive style (slope = 0.45) than in adolescents exhibiting high levels of negative cognitive style, slope = 0.12; $t(2345) = -3.35$, $p < .05$.

Unique effects of dysfunctional attitudes and negative cognitive style on depressive symptoms. Given that both the Dysfunctional attitudes × Stress and the Cognitive style × Stress interactions were significant predictors of Depression, we examined whether each of these interactions continued to be a significant predictor of depression after controlling for the other. Our model included CES-D scores at Time $n - 1$, anxiety, age, gender, stress, dysfunctional attitudes, cognitive style, Dysfunctional attitudes × Stress, and Cognitive style × Stress. Both the Dysfunctional attitudes × Stress interaction, $\beta = 0.05$, $SE = 0.02$, $F(1, 2369) = 9.93$, $p < .01$, and the Cognitive style × Stress interaction, $\beta = 0.04$, $SE = 0.02$, $F(1, 2369) = 6.86$, $p < .01$, exhibited unique effects in predicting Depression. It is worth noting that there is likely a small suppression effect occurring with the Dysfunctional attitudes × Stress interaction, as seen by the Dysfunctional attitudes × Stress effect ($F = 9.93$) being slightly larger in this model that also included Cognitive style × Stress in comparison to the effect of Dysfunctional attitudes × Stress ($F = 8.62$) as the sole predictor from the previous analyses (see Cohen & Cohen, 1983, for further discussion of statistical suppression).

Cognitive Vulnerability to Depressive Symptoms: Rural Sample

Dysfunctional attitudes. Results are presented in the left panel of Table 4. Of primary importance, the Dysfunctional attitudes × Stress interaction was a significant predictor of depression. To examine the form of this interaction, the model summarized in the left panel of Table 4 was used to calculate predicted CES-D scores (+/−1.5 *SD* for dysfunctional attitudes and stressors). The results of such calculations are presented in the lower center panel of Figure 1. Follow-up analyses indicated that adolescents exhibiting high levels of dysfunctional attitudes reported higher levels of depressive symptoms when experiencing higher than average levels of stress than when experiencing lower than average levels of stress, $t(2548) = 3.42$, $p < .001$. At the same time, depressive symptoms did not vary as a function of stressors for adolescents exhibiting low levels of dysfunctional attitudes, $t(2548) = 0.16$, *ns*. The slope of the relationship between stressors and depressive symptoms was significantly greater in adolescents exhibiting high levels of dysfunctional attitudes (slope = 0.10) than in adolescents exhibiting low levels, slope = 0.01; $t(2548) = 1.96$, $p < .05$.

We also examined the alternative hypothesis that higher levels of dysfunctional attitudes would be associated with greater increases in stress following increases in depression. The Dysfunctional attitudes × Depression interaction was not a significant predictor of Stress, $\beta = -0.02$, $SE = 0.02$, $F(1, 2554) = 0.97$, *ns*.

Negative cognitive style. Results are presented in the right panel of Table 4. The Cognitive style × Stress interaction was not a significant predictor of depression in the rural sample.

Unique effects of dysfunctional attitudes and negative cognitive style on depressive symptoms. Given that the Dysfunctional attitudes × Stress interaction was a significant predictor of depression, we examined whether it continued to be a significant predictor after controlling for the Cognitive style × Stress inter-

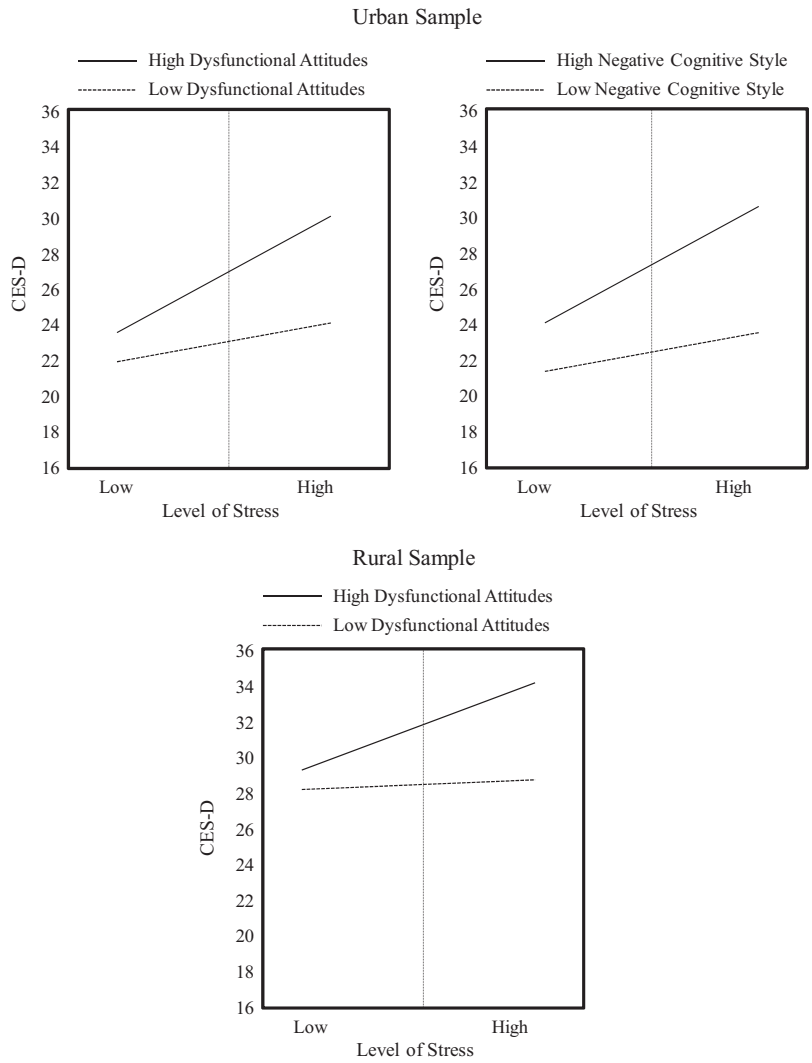

Figure 1. Predicted slope of the relationship between stress and depressive symptoms as a function of dysfunctional attitudes (upper left panel) and negative cognitive style (upper right panel) in urban adolescents and of dysfunctional attitudes in rural adolescents (lower center panel).

action. After controlling for the same variables in the model as was done for the urban sample, the Dysfunctional attitudes × Stress interaction continued to be a significant predictor of depression after controlling for the Cognitive style × Stress interaction, $\beta = 0.04$, $SE = 0.02$, $F(1, 2578) = 5.28$, $p < .05$.

Cognitive Vulnerability to Anxiety Symptoms: Urban Sample

Dysfunctional attitudes. Similar analyses were conducted to examine whether higher levels of dysfunctional attitudes would be associated with greater increases in anxiety symptoms following relative increases in stressors. Our primary predictors of anxiety were dysfunctional attitudes, stress, and the Dysfunctional attitudes × Stress interaction. In addition, MASC scores at Time $n - 1$, depression, neuroticism, Neuroticism × Stress, age, and gender were entered into the model as covariates. Results are presented in the left panel of Table 5. The Dysfunctional attitudes × Stress interaction was not a significant predictor of anxiety, although the main effect of dysfunctional attitudes was a significant predictor.

Negative cognitive style. The same data-analytic approach was used for negative cognitive style, and results are presented in the right panel of Table 5. The Cognitive style × Stress interaction was not a significant predictor of anxiety, although the main effect of cognitive style was a significant predictor.

Cognitive Vulnerability to Anxiety Symptoms: Rural Sample

Results pertaining to dysfunctional attitudes and cognitive style are presented in the left and right panels of Table 6, respectively. Neither the Dysfunctional attitudes × Stress nor the Cognitive style × Stress interaction was a significant predictor of anxiety.

Table 4
Rural Sample: Dysfunctional Attitudes and Negative Cognitive Style Predicting CES-D Scores During the Follow-Up Interval

	Dysfunctional attitudes				Negative cognitive style			
	b	*SE*	*F*	*df*	*b*	*SE*	*F*	*df*
Gender	0.07	0.42	0.03	1, 562	0.13	0.42	0.09	1, 562
Age	−0.32	0.22	2.12	1, 562	−0.21	0.22	0.88	1, 562
CES-D (Time n − 1)	0.25	0.02	246.23***	1, 2548	0.25	0.02	247.01***	1, 2549
Anxiety symptoms	0.17	0.02	106.77***	1, 2548	0.17	0.02	105.85***	1, 2549
Stress	0.05	0.02	8.07**	1, 2548	0.06	0.02	9.94**	1, 2549
Neuroticism	3.02	0.25	149.08***	1, 562	2.95	0.25	134.70***	1, 562
Cognitive vulnerability	1.09	0.24	20.81***	1, 562	1.09	0.24	20.04***	1, 562
Neuroticism × Stress	0.00	0.02	0.00	1, 2548	0.02	0.02	1.14	1, 2549
Cognitive vulnerability × Stress	0.03	0.02	3.81*	1, 2548	0.00	0.02	0.19	1, 2549

Note. CES-D = Center for Epidemiological Studies Depression Scale scores during the follow-up interval; dysfunctional attitudes = Children's Dysfunctional Attitudes Scale; negative cognitive style = Adolescent Cognitive Style Questionnaire; gender = a coded variable whereby 0 = *girl* and 1 = *boy*; anxiety symptoms = Multidimensional Anxiety Scale for Children (MASC) scores during the follow-up interval; stress = Adolescent Life Events Questionnaire (ALEQ) scores during the follow-up interval; neuroticism = NEO Five Factor Inventory, Neuroticism subscale.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

The results of the current study provide support for the cross-cultural applicability of Beck's (1967, 1983) cognitive theory and the hopelessness theory (Abramson et al., 1989) to two independent samples of adolescents in Hunan, China. More specifically and consistent with hypotheses, higher levels of dysfunctional attitudes were associated with greater increases in depressive symptoms following the occurrence of higher than average levels of negative events in both our urban and rural samples. Similarly, a more negative cognitive style was associated with greater increases in depressive symptoms following the occurrence of higher than average levels of negative events in our urban sample. At the same time, contrary to hypotheses, negative cognitive style was not associated with increases in depressive symptoms following the occurrence of higher than average levels of negative events in our rural sample.

It is unclear why negative cognitive style conferred vulnerability to depressive symptoms following negative events in our urban but not rural sample.[4] Different patterns of findings in our urban and rural samples may have been because of site differences in variability in stressors over time and the strength of the association between stressors and depressive symptoms. More specifically, urban youth reported greater within-subject variability in stressors over time than rural youth. In addition, although increases in stressors were associated with increases in depressive symptoms in both samples, the effect of stressors on depressive symptoms was three times greater in our urban sample than in our rural sample. Greater within-subject variability in stressors over time and a stronger association between stress and depressive symptoms may have resulted in a greater ability to detect significant vulnerability-stress interactions in our urban sample. Consistent with this possibility, the neuroticism × stress interaction did not predict depressive symptoms among rural adolescents, whereas the neuroticism × stress interaction was significant among urban youth.

The results of the current study also provide support for the symptom specificity hypothesis of the vulnerability-stress component of both Beck's (1967, 1983) cognitive theory and the hopelessness theory (Abramson et al., 1989). More specifically, consistent with Beck's cognitive theory, dysfunctional attitudes were not associated with prospective change in anxiety symptoms following higher than average levels of negative events in either our urban or rural sample. Similarly, consistent with the cognitive vulnerability stress component of hopelessness theory, negative cognitive style was not associated with prospective change in anxiety symptoms following higher than average levels of negative events in either our urban or rural sample. However, the same three constructs that did not interact with stress in predicting anxiety symptoms did each have main effects on anxiety symptoms. For example, consistent with a considerable corpus of prior research (e.g., McMahon, Grant, Compas, Thurm, & Ey, 2003), negative events were nonspecific predictors of change in depressive and anxiety symptoms in both samples. The same pattern of findings has been observed in prior adolescent research examining symptom specificity (depression and anxiety) in hopelessness theory

[4] Given that site differences emerged when examining the Cognitive style × Stress interaction as a predictor of depression, we examined whether site differences existed in levels of stress, variability in stress over time, and the strength of the association between stress and depression. Systematic site differences were not observed in levels of stress. Although urban youth reported higher levels at the initial assessment, $t(1131) = 2.06$, $p < .05$, rural youth reported higher levels at the 5-month, $t(1052) = -3.03$, $p < .01$, and 6-month, $t(1022) = -3.22$, $p < .01$ follow-ups. In terms of variability in stress over time, urban youth reported greater variability than rural youth, $t(1144) = 6.03$, $p < .001$. Greater variability in stress may have allowed for a more powerful test of our vulnerability-stress hypotheses in urban youth than in rural youth. In terms of site differences in strengths of associations, the effect of stress on depression was three times greater in urban youth, slope = 0.15; $t(2335) = 8.77$, $p < .001$, than in rural youth, slope = 0.05; $t(2549) = 3.15$, $p < .01$, suggesting urban youth exhibit stronger depressive reactions to stress. Such stronger reactions may have allowed for a more powerful test of our vulnerability-stress hypotheses in urban youth than in rural youth. It is interesting to note the effect of stress on anxiety was roughly similar in urban youth, slope = 0.40; $t(2328) = 15.21$, $p < .001$, and rural youth, slope = 0.48; $t(2561) = 15.96$, $p < .001$.

Table 5
Urban Sample: Dysfunctional Attitudes and Negative Cognitive Style Predicting MASC Scores During the Follow-Up Interval

	Dysfunctional attitudes				Negative cognitive style			
	b	*SE*	*F*	*df*	*b*	*SE*	*F*	*df*
Gender	5.22	0.97	28.81***	1, 523	4.70	0.97	23.31***	1, 526
Age	1.34	0.47	7.97**	1, 523	1.24	0.49	6.69*	1, 526
MASC (Time $n - 1$)	0.24	0.01	253.76***	1, 2318	0.24	0.01	258.75***	1, 2328
Depressive Symptoms	0.45	0.04	135.23***	1, 2318	0.45	0.04	134.80***	1, 2328
Stress	0.40	0.03	228.79***	1, 2318	0.40	0.03	231.39***	1, 2328
Neuroticism	4.98	0.56	79.19***	1, 523	5.62	0.54	106.27***	1, 526
Cognitive vulnerability	2.12	0.52	16.47***	1, 523	3.33	0.53	39.80***	1, 526
Neuroticism × Stress	0.00	0.03	0.00	1, 2318	0.00	0.03	0.02	1, 2328
Cognitive vulnerability × Stress	0.01	0.03	0.29	1, 2318	0.00	0.03	0.01	1, 2328

Note. MASC = Multidimensional Anxiety Scale for Children scores during the follow-up interval; dysfunctional attitudes = Children's Dysfunctional Attitudes Scale; negative cognitive style = Adolescent Cognitive Style Questionnaire; gender = a coded variable whereby 0 = *girl* and 1 = *boy*; depressive symptoms = Center for Epidemiological Studies Depression Scale scores during the follow-up interval; stress = Adolescent Life Events Questionnaire (ALEQ) scores during the follow-up interval; neuroticism = NEO Five Factor Inventory, Neuroticism subscale.
* $p < .05$. ** $p < .01$. *** $p < .001$.

(Hankin, 2008) and Beck's theory (Hankin et al., 2008). Moreover, both dysfunctional attitudes and negative cognitive style predicted changes in anxiety symptoms as a main effect among urban youth, and negative cognitive style as a main effect also predicted anxiety symptoms among rural youth. Finally neuroticism strongly predicted anxiety symptoms in both samples, consistent with a good deal of research with Western samples (e.g., Breslau, Davis, & Andreski, 1995; Clark, Watson, & Mineka, 1994; Hayward, Killen, Kraemer, & Taylor, 2000).

Future research is likely to benefit from examining the factors that moderate the association between negative events and anxiety symptoms in Chinese youth. Possible moderators of this association include anxiety sensitivity (Reiss, 1991), behavioral inhibition (Pollock, Rosenbaum, Marrs, Miller, & Biederman, 1995), and/or looming cognitive style (Riskind, 1997). It is interesting to note that although site differences did not emerge in terms of the effect of stressors on anxiety symptoms, as noted earlier, site differences did emerge in terms of the effect of stressors on depressive symptoms with negative events being more strongly associated with depressive symptoms in urban youth. This finding suggests that rural youth may react to negative events more with anxiety symptoms than with depressive symptoms. Of interest and consistent with this possibility, effects for the association between stressors and anxiety symptoms were approximately three-times larger relative to the association between stressors and depressive symptoms. Site differences in cultural factors may lead to site differences in the manifestation of psychiatric symptoms (Kleinman, 2004; Mezzich et al., 1999). Such site differences may include differences in levels of certain cultural values (i.e., collectivism and individualism; see Abela, Parkinson, Auerbach, Yao, & Zhu, 2010, for evidence of differences in cultural values in urban and rural youth in Hunan, China), stigma attached to the experience of various form of psychopathology (Lee, 1998, 1999; Phillips, 1998; Shixie, 1989), and resources available to cope with psychopathology (Rin & Huang, 1989; Young, 1989). It is interesting to note that greater dominance of anxiety symptoms over depressive symptoms in rural youth is consistent with the construct of neurasthenia—a construct hypothesized by some to represent a somatized form of depression that is still widely seen within China (Lee & Wong, 1995).

Table 6
Rural Sample: Dysfunctional Attitudes and Negative Cognitive Style Predicting MASC Scores During the Follow-Up Interval

	Dysfunctional attitudes				Negative cognitive style			
	b	*SE*	*F*	*df*	*b*	*SE*	*F*	*df*
Gender	3.71	0.78	22.55***	1, 562	3.83	0.78	23.85***	1, 562
Age	0.04	0.41	0.01	1, 562	0.19	0.41	0.88	1, 562
MASC (Time $n - 1$)	0.31	0.01	500.72***	1, 2560	0.31	0.01	492.26***	1, 2561
Depressive symptoms	0.59	0.04	262.47***	1, 2560	0.58	0.04	254.49***	1, 2561
Stress	0.48	0.03	274.03***	1, 2560	0.48	0.03	273.96***	1, 2561
Neuroticism	2.99	0.46	41.68***	1, 562	2.74	0.47	33.62***	1, 562
Cognitive vulnerability	0.66	0.44	2.24	1, 562	1.16	0.45	6.66*	1, 562
Neuroticism × Stress	−0.02	0.03	0.44	1, 2560	−0.02	0.03	0.35	1, 2561
Cognitive vulnerability × Stress	−0.03	0.03	1.05	1, 2560	−0.04	0.03	1.50	1, 2561

Note. MASC = Multidimensional Anxiety Scale for Children scores during the follow-up interval; dysfunctional attitudes = Children's Dysfunctional Attitudes Scale; negative cognitive style = Adolescent Cognitive Style Questionnaire; gender = a coded variable whereby 0 = *girl* and 1 = *boy*; depressive symptoms = Center for Epidemiological Studies Depression Scale scores during the follow-up interval; stress = Adolescent Life Events Questionnaire (ALEQ) scores during the follow-up interval; neuroticism = NEO Five Factor Inventory, Neuroticism subscale.
* $p < .05$. ** $p < .01$. *** $p < .001$.

The results of the current study provide support for the etiological specificity hypothesis of the vulnerability-stress component of both Beck's (1967, 1983) cognitive theory and the hopelessness theory (Abramson et al., 1989). More specifically, consistent with both theories, across analyses, both dysfunctional attitudes and negative cognitive style predicted prospective changes in depressive symptoms during the 6-month follow-up interval independent of the effects of both trait neuroticism and the interaction between trait neuroticism and negative events. Thus, contrary to past critical reviews of the cognitive theories of depression literature (Barnett & Gotlib, 1998; Coyne & Whiffen, 1995), the current results indicate that cognitive vulnerabilities to depression, such as dysfunctional attitudes and negative cognitive style, are not reducible to trait neuroticism but rather represent factors that confer some independent risk for depression, especially when these cognitive vulnerabilities are activated by relative increases in stressors over time. Although we found evidence that the cognitive vulnerability-stress components of both hopelessness and Beck's theory predict depressive symptoms prospectively, it is also of interest that neuroticism interacted with idiographic stressors to predict depressive symptoms in urban, but not rural, youth. Taken together, these findings suggest that both cognitive vulnerabilities (dysfunctional attitudes and negative cognitive style) and personality vulnerability (neuroticism) are important, but at least partially independent, moderators of the longitudinal association between stressors and depression.

Furthermore, dysfunctional attitudes and negative cognitive style exhibited unique effects in predicting prospective change in depressive symptoms suggesting that the cognitive vulnerability factors featured in Beck's cognitive theory and the hopelessness theory represent relatively independent vulnerability factors to depression. These findings are particularly important given that, to our knowledge, the current study is the first prospective study of youth to find etiological specificity for the vulnerability-stress component of Beck's cognitive theory and the hopelessness theory (see Hankin et al., 2004, for support with young adults; but see Lewinsohn et al., 2001, for lack of support in adolescents).

A few strengths of this research are worth noting. First, analyses controlled for neuroticism, neuroticism interacting with stressors, and anxiety to examine the etiological and symptom specificity predictions of the cognitive vulnerability-stress components predicting depressive symptoms prospectively. As such, these are very conservative tests, and the rigorous controlling of covariates could account for the fairly small effect sizes observed. Small effect sizes are to be expected in longitudinal, naturalistic, nonexperimental field research (McClelland & Judd, 1993). Second, a multiwave design with repeated measures of stressors and symptoms allowed for an idiographic analysis of vulnerability-stress hypotheses, as opposed to most prior research that has used two-time point panel designs (see Lakdawalla et al., 2007, for review). Third, as discussed above, etiological and symptom specificity of these cognitive theories were examined. Fourth, cognitive vulnerability-stress hypotheses were tested among Chinese youth. It is notable that results support the applicability of these processes to Chinese youth and suggest that cognitive vulnerability-stress processes predicting depressive symptoms may be universal, not culturally specific, at least among urban youth. Last, two independent samples of Chinese youth were examined, and results were largely consistent across both samples with some interesting differences between urban and rural youth that can be the focus of future inquiry into culturally specific processes in developmental psychopathology.

Several limitations of the current study should be noted. First, self-report measures were used to assess depressive and anxiety symptoms. Although the CES-D and MASC both possess high reliability and validity, it is not possible to draw conclusions about clinically diagnosed depression or anxiety based on self-report questionnaires. Dysfunctional attitudes and negative cognitive style have been found to confer vulnerability to both depressive symptoms (Abela & Hankin, 2008) and the onset of clinically significant depressive episodes (Bohon et al., 2008; Lewinsohn et al., 2001; Technow et al., 2011) in community samples of Western youth. At the same time, future research must replicate such a pattern of findings in both urban and rural youth in China before one can confidently conclude that dysfunctional attitudes and negative cognitive style are associated with clinically significant depression in such samples. Such research is likely to benefit from examining numerous diagnostic outcomes (i.e., major depressive episodes, mixed anxiety-depressive episodes, and neurasthenia) as cultural factors may shape the form that depressive diagnostic outcomes take in Chinese youth (Kleinman, 2004; Mezzich et al., 1999).

Second, self-report questionnaires were used to assess stressors. Although negative life event measures that require participants only to indicate whether or not an event occurred are less likely to be influenced by informant bias than those that ask participants to rate the frequency and/or subjective impact of events, more sophisticated methods of analysis, such as interview procedures that assess contextual threat, would provide a more powerful assessments of stressors (e.g., Monroe, 2008). Third, the time frames of the ALEQ (i.e., past month) and the CES-D (i.e., past week) overlapped for the last-week of each follow-up interval. As a result, temporal precedence (i.e., stress precedes depression) could not be firmly established. However, it is important to note that support was not obtained for our alternative model in which it was hypothesized that higher levels of cognitive vulnerability would be associated with greater increases in stressors following increases in depressive symptoms.

Fourth, cognitive theorists posit that cognitive vulnerability factors are typically latent and must be activated by negative mood states and/or negative events in order to be accurately assessed (Scher, Ingram, & Segal, 2005). Because the present study did not use priming procedures, cognitive vulnerability factors may have been activated only in adolescents who were experiencing stressors or depressive/anxiety symptoms at the time of the initial assessment. However, this would have resulted in a decreased likelihood of obtaining significant cognitive vulnerability-stress interactions when predicting depressive symptoms.

A fifth limitation is that dysfunctional attitudes and negative cognitive style were only assessed at the outset of the study. Thus, we were unable to examine whether dysfunctional attitudes and negative cognitive style represent relatively stable, trait-like vulnerability factors to depression rather than state-like cognitive factors that covary with stress and depressive symptoms. At the same time, it is important to note that recent research with adolescents (Abela & Hankin, 2008) suggests that both dysfunctional attitudes and negative cognitive style are organized in a trait-like manner, at least in Western cultures.

Finally, the current study only examined depression and anxiety as symptom outcomes as they are observed in Western cultures. Future research conducted within China should examine a wider array of symptom outcomes, such as somatization and physical complaints (e.g., Ryder et al., 2008), in order to provide a more thorough and culturally sensitive test of the symptom specificity hypotheses of these models.

In conclusion, the current study broadly examined the applicability of the hopelessness theory and Beck's cognitive theory to Chinese adolescents. Future research should examine the constructs and processes posited by both models in greater detail in order to develop a deeper understanding of how they may be molded by sociocultural factors. Such research should also examine the specific types of stressors experienced by Chinese youth as they may vary from those experienced by Western youth as a result of sociocultural factors.

References

Abela, J. R. Z., & Hankin, B. L. (2008). Cognitive vulnerability to depression in children and adolescents: A developmental psychopathology perspective. In J. R. Z. Abela & B. L. Hankin (Eds.), *Handbook of child and adolescent depression* (pp. 35–78). New York, NY: Guilford.

Abela, J. R. Z., & McGirr, A. (2007). Operationalizing cognitive vulnerability and stress from the perspective of the hopelessness theory: A multi-wave longitudinal study of children of affectively ill parents. *British Journal of Clinical Psychology, 46,* 377–395. doi:10.1348/014466507X192023

Abela, J. R. Z., McGirr, A., & Skitch, S. A. (2007). Depressogenic inferential styles, negative events, and depressive symptoms in youth: An attempt to reconcile past inconsistent findings. *Behaviour Research and Therapy, 45,* 2397–2406. doi:10.1016/j.brat.2007.03.012

Abela, J. R. Z., Parkinson, C., Auerbach, R. P., Yao, S., & Zhu, X. (2010). *Factorial categorization of depression related constructs in adolescents in urban and rural Hunan, China.* Manuscript submitted for publication.

Abela, J. R. Z., & Seligman, M. E. P. (2000). The hopelessness theory of depression: A test of the diathesis-stress component in the interpersonal and achievement domains. *Cognitive Therapy and Research, 24,* 361–378. doi:10.1023/A:1005571518032

Abela, J. R. Z., & Skitch, S. A. (2007). Dysfunctional attitudes, self-esteem, and hassles: Cognitive vulnerability to depression in children of affectively ill parents. *Behaviour Research and Therapy, 45,* 1127–1140. doi:10.1016/j.brat.2006.09.011

Abela, J. R. Z., & Sullivan, C. (2003). A test of Beck's cognitive diathesis-stress theory of depression in early adolescents. *Journal of Early Adolescence, 23,* 384–404. doi:10.1177/0272431603258345

Abramson, L. Y., Alloy, L. B., & Hogan, M. E. (1997). Cognitive/personality subtypes of depression: Theories in search of disorders. *Cognitive Therapy and Research, 21,* 247–265. doi:10.1023/A:1021870315058

Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review, 96,* 358–372. doi:10.1037/0033-295X.96.2.358

Auerbach, R. P., Abela, J. R. Z., Zhu, X., & Yao, S. (2007). A diathesis-stress model of engagement in risky behaviors in Chinese adolescents. *Behaviour Research and Therapy, 45,* 2850–2860. doi:10.1016/j.brat.2007.05.005

Barnett, P. A., & Gotlib, I. H. (1988). Psychosocial functioning and depression: Distinguishing among antecedents, concomitants, and consequences. *Psychological Bulletin, 104,* 97–126. doi:10.1037/0033-2909.104.1.97

Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects.* New York, NY: Harper & Row.

Beck, A. T. (1983). Cognitive therapy of depression: New perspectives. In P. J. Clayton & J. E. Barrett (Eds.), *Treatment of depression: Old controversies and new approaches*. New York, NY: Raven Press.

Bohon, C., Stice, E., Burton, E., Fudell, M., & Nolen-Hoeksema, S. (2008). A prospective test of cognitive vulnerability models of depression with adolescent girls. *Behavior Therapy, 39,* 79–90. doi:10.1016/j.beth.2007.05.003

Breslau, N., Davis, G. C., & Andreski, P. (1995). Risk factors for PTSD-related traumatic events: A prospective analysis. *American Journal of Psychiatry, 152,* 529–535.

Brozina, K., & Abela, J. R. Z. (2006). Symptoms of hopelessness depression and anxiety in children: Specificity of the hopelessness theory. *Journal of Clinical Child and Adolescent Psychology, 35,* 515–527. doi:10.1207/s15374424jccp3504_3

Calvete, E., Villardon, L., & Estevez, A. (2008). Attributional style and depressive symptoms in adolescents: An examination of the role of various cognitive vulnerabilities. *Behaviour Research and Therapy, 46,* 944–953. doi:10.1016/j.brat.2008.04.010

Clark, L. A., Watson, D., & Mineka, S. (1994). Temperament, personality and the mood and anxiety disorders. *Journal of Abnormal Psychology, 10,* 103–116.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R: Professional manual. Revised NEO personality inventory NEO PR-R and NEO five-factor inventory NEO-RRI.* Odessa, FL: Psychological Assessment Resources.

Coyne, J. C., & Whiffen, V. E. (1995). Issues in personality as diathesis for depression: The case of sociotropy-dependency and autonomy-self-criticism. *Psychological Bulletin, 118,* 358–378. doi:10.1037/0033-2909.118.3.358

Dennis, C. (2004). Asia's tigers get the blues. *Nature, 429,* 696–698. doi:10.1038/429696a

Dierker, L. C., Albano, A. M., Clark, G. N., Clarke, G. N., Heimberg, R. G., Kendall, P. C., . . . Kupfer, D. J. (2001). Screening for anxiety and depression in early adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry, 40,* 929–936. doi:10.1097/00004583-200108000-00015

Ensel, W. (1986). Measuring depression: The CES-D scale. In N. Lin, A. Dean, & W. Ensel (Eds.), *Social support, life events, and depression* (pp. 51–70). New York, NY: Academic Press.

Griffith, J., Zinbarg, R. E., Mineka, S., Sutton, S., & Craske, M. (2011). Risk factors for depression: The association between neuroticism and cognitive vulnerability. Manuscript submitted for publication.

Hammen, C., Adrian, C., & Hiroto, D. (1988). A longitudinal test of the attributional vulnerability model in children at risk for depression. *British Journal of Social and Clinical Psychology, 27,* 37–46. doi:10.1111/j.2044-8260.1988.tb00751.x

Hankin, B. L. (2008). Cognitive vulnerability-stress model of depression during adolescence: Investigating symptom specificity in a multi-wave prospective study. *Journal of Abnormal Child Psychology, 36,* 999–1014. doi:10.1007/s10802-008-9228-6

Hankin, B. L., & Abramson, L. Y. (2002). Measuring cognitive vulnerability to depression in adolescence: Reliability, validity, and gender differences. *Journal of Child and Adolescent Clinical Psychology, 31,* 491–504.

Hankin, B. L., Abramson, L. Y., Miller, N., & Haeffel, G. (2004). Cognitive vulnerability-stress theories of depression: Examining affective specificity in the prediction of depression versus anxiety in three prospective studies. *Cognitive Therapy and Research, 28,* 309–345. doi:10.1023/B:COTR.0000031805.60529.0d

Hankin, B. L., Abramson, L. Y., & Siler, M. (2001). A prospective test of the hopelessness theory of depression in adolescence. *Cognitive Therapy and Research, 25,* 607–632. doi:10.1023/A:1005561616506

Hankin, B. L., Lakdawalla, Z., Carter, I. L., Abela, J. R. Z., & Adams, P.

(2007). Are neuroticism, cognitive vulnerabilities and self-esteem overlapping or distinct risks for depression? Evidence from confirmatory factor analyses. *Journal of Social & Clinical Psychology, 26,* 29–63. doi:10.1521/jscp.2007.26.1.29

Hankin, B. L., Wetter, E., Cheely, C., & Oppenheimer, C. (2008). Beck's cognitive theory of depression in adolescence: Specific prediction of depressive symptoms and transactional influences in a multi-wave prospective study. *International Journal of Cognitive Therapy, 1,* 313–332. doi:10.1521/ijct.2008.1.4.313

Hayward, C., Killen, J. D., Kraemer, H. C., & Taylor, C. B. (2000). Predictors of panic attacks in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 207–214. doi:10.1097/00004583-200002000-00021

Hesketh, T., Ding, Q. J., & Jenkins, R. (2002). Suicide ideation in Chinese adolescents. *Social Psychiatry and Psychiatric Epidemiology, 37,* 230–235. doi:10.1007/s00127-002-0536-9

Ingram, R. E., & Luxton, D. D. (2005). Vulnerability-stress models. In B. L. Hankin & J. R. Z. Abela (Eds.), *Development of psychopathology: A vulnerability-stress perspective* (pp. 32–46). Thousand Oaks, CA: Sage.

Ingram, R. E., Miranda, J., & Segal, Z. V. (1998). *Cognitive vulnerability to depression.* New York, NY: Guilford.

Ji, J., Kleinman, A., & Becker, A. E. (2001). Suicide in contemporary China: A review of China's distinctive suicide demographics in their sociocultural context. *Harvard Review of Psychiatry, 9,* 1–12.

Joiner, T. E. (2000). A test of the hopelessness theory of depression in youth psychiatric inpatients. *Journal of Child Clinical Psychology, 29,* 167–176. doi:10.1207/S15374424jccp2902_3

Joiner, T. E., Jr., Metalsky, G. I., Lew, A., & Klocek, J. (1999). Testing the causal mediation component of Beck's theory of depression: Evidence for specific mediation. *Cognitive Therapy and Research, 23,* 401–412. doi:10.1023/A:1018755917954

Kleinman, A. (2004). Culture and depression. *New England Journal of Medicine, 351,* 951–953. doi:10.1056/NEJMp048078

Lakdawalla, Z., Hankin, B. L., & Mermelstein, R. (2007). Cognitive theories of depression in children and adolescents: A conceptual and quantitative review. *Child Clinical and Family Psychology Review, 10,* 1–24. doi:10.1007/s10567-006-0013-1

Lee, S. (1998). Estranged bodies, simulated harmony, and misplaced cultures: Neurasthenia in contemporary Chinese society. *Psychosomatic Medicine, 60,* 448–457.

Lee, S. (1999). Diagnosis postponed: Shenjing shuairo and the transformation of psychiatry in post-Mao China. *Culture, Medicine and Psychiatry, 23,* 349–380. doi:10.1023/A:1005586301895

Lee, S. (2000). In China suicide in young women is a problem too. *British Medical Journal, 321,* 636–637.

Lee, S., & Wong, K. C. (1995). Rethinking neurasthenia: The illness concepts of Shenjing Shuairuo among Chinese undergraduates in Hong Kong. *Culture, Medicine, and Psychiatry, 19,* 91–111. doi:10.1007/BF01388250

Leung, P., & Poon, M. (2001). Dysfunctional schemas and cognitive distortions in psychopathology: A test of the specificity hypothesis. *Journal of Child Psychology and Psychiatry, 42,* 755–765. doi:10.1111/1469-7610.00772

Lewinsohn, P. M., Joiner, T. E., & Rohde, P. (2001). Evaluation of cognitive diathesis-stress models in predicting major depressive disorder in adolescents. *Journal of Abnormal Psychology, 110,* 203–215. doi:10.1037/0021-843X.110.2.203

Li, X., & Qian, M. (2002). The mediation effect of adolescents' attributional style between their depression and parents' parenting. *Chinese Mental Health Journal, 16,* 327–330.

Liu, X. C., Ma, D. D., Kurita, H., & Tang, M. Q. (1999). Self-reported depressive symptoms among Chinese adolescents. *Social Psychiatry and Psychiatric Epidemiology, 34,* 44–47. doi:10.1007/s001270050110

March, J. S., Parker, J. D. A., Sullivan, K., Stallings, P. K., & Conners, C. K. (1997). The Multidimensional Anxiety Scale for Children (MASC): Factor structure, reliability and validity. *Journal of the American Academy of Child and Adolescent Psychiatry, 63,* 554–565. doi:10.1097/00004583-199704000-00019

McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin, 114,* 376–390. doi:10.1037/0033-2909.114.2.376

McMahon, S. D., Grant, K. E., Compas, B. E., Thurm, A. E., & Ey, S. (2003). Stress and psychopathology in children and adolescents: Is there evidence of specificity? *Journal of Child Psychology and Psychiatry, 44,* 107–133. doi:10.1111/1469-7610.00105

McWhinnie, C., Abela, J. R. Z., Knauper, B., & Zhang, C. (2009). Development and validation of the revised Children's Dysfunctional Attitudes Scale–Revised. *British Journal of Clinical Psychology, 48,* 287–308. doi:10.1348/014466508X398952

Metalsky, G. I., Joiner, T. E., Jr., Hardin, T. S., & Abramson, L. Y. (1993). Depressive reactions to failure in a naturalistic setting: A test of the hopelessness and self-esteem theories of depression. *Journal of Abnormal Psychology, 102,* 101–109. doi:10.1037/0021-843X.102.1.101

Mezzich, J. E., Kirmayer, L. J., Kleinman, A., Fabrega, H., Jr., Parron, D. L., Good, B. J., . . . Manson, S. M. (1999). The place of culture in *DSM–IV. Journal of Nervous and Mental Disease, 187,* 457–464. doi:10.1097/00005053-199908000-00001

Monroe, S. M., & Simons, A. D. (1991). Diathesis–stress theories in the context of life stress research: Implications for the depressive disorders. *Psychological Bulletin, 110,* 406–425. doi:10.1037/0033-2909.110.3.406

Monroe, S. M. (2008*) Modern approaches to conceptualizing and measuring human life stress. Annual Review of Clinical Psychology, 4,* 33–52. doi:10.1146/annurev.clinpsy.4.022007.141207

Muris, P., Merckelbach, H., Ollendick, T., King, N., & Bogie, N. (2002). Three traditional and three new childhood anxiety questionnaires: Their reliability and validity in a normal adolescent sample. *Behaviour Research and Therapy, 40,* 753–772. doi:10.1016/S0005-7967(01)00056-0

Murray, C. J. L., & Lopez, A. D. (1996). *The global burden of disease.* Cambridge, MA: Harvard University Press.

National Bureau of Statistics of China. (2006). *The China 2005 statistical yearbook.* Beijing, P. R. China: China Statistics Press.

Phillips, M. R. (1998). The transformation of China's mental health services. *The China Journal, 39,* 1–36. doi:10.2307/2667691

Pollock, R. A., Rosenbaum, J. F., Marrs, A., Miller, B. S., & Biederman, J. (1995). Anxiety disorders of childhood: Implications for adult psychopathology. *Psychiatric Clinics of North America, 18,* 745–766.

Radloff, L. S. (1977). The CES–D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 385–401. doi:10.1177/014662167700100306

Reiss, S. (1991). Expectancy model of fear, anxiety, and panic. *Clinical Psychology Review, 11,* 141–153. doi:10.1016/0272-7358(91)90092-9

Rin, H., & Huang, M. G. (1989). Neurasthenia as nosological dilemma. *Culture, Medicine and Psychiatry, 13,* 215–226. doi:10.1007/BF02220663

Riskind, J. H. (1997). Looming vulnerability to threat: A cognitive paradigm for anxiety. *Behaviour Research and Therapy, 35, 5,* 386–404.

Ryder, A. G., Yang, J., Zhu, X., Yao, S., Yi, J., Heine, S. J., & Bagby, R. M. (2008). The cultural shaping of depression: Somatic symptoms in China, psychological symptoms in North America? *Journal of Abnormal Psychology, 117,* 300–313. doi:10.1037/0021-843X.117.2.300

Rynn, M. A., Barber, J. P., Khalid-Kahn, S., Siqueland, L., Dembiski, M., McCarthy, K. S., & Gallop, R. (2006). The psychometric properties of the MASC in a pediatric psychiatric sample. *Journal of Anxiety Disorders, 20,* 139–157. doi:10.1016/j.janxdis.2005.01.004

Scher, C. D., Ingram, R. E., & Segal, Z. V. (2005). Cognitive reactivity and vulnerability: Empirical evaluation of construct activation and cognitive

diatheses in unipolar depression. *Clinical Psychology Review, 25,* 487–510. doi:10.1016/j.cpr.2005.01.005

Shixie, L. (1989)**.**Neurasthenia in China: Modern and traditional criteria for its diagnosis. **C***ulture, Medicine and Psychiatry, 13,* 163–186. doi:10.1007/BF02220660

Silverman, W. K., & Ollendick, T. H. (2005). Evidence-based assessment of anxiety and its disorders in children and adolescents. *Journal of Clinical Child and Adolescent Psychology, 34,* 380–411. doi:10.1207/s15374424jccp3403_2

Snijders, T. A. B., & Bosker, R. J. (1999). *Multilevel analysis.* London, England: Sage.

Stewart, S. M., Kennard, B. D., Lee, P. W. H., Hughes, C. W., Mayes, T. L., Emslie, G. J., & Lewinsohn, P. M. (2004). A cross-cultural investigation of cognitions and depressive symptoms in adolescents. *Journal of Abnormal Psychology, 113,* 248–257. doi:10.1037/0021-843X.113.2.248

Technow, J., Hankin, B. L., & Abela, J. R. Z. (2011). *Cognitive vulnerability to new onsets of depressive episodes during the transition from early to middle adolescence: A multi-wave longitudinal study.* Manuscript in preparation.

Xiang, M. Z. (1986). Epidemiological study of neuroses in 12 regions (districts) of China. *Chinese Journal of Neurology and Psychiatry, 19,* 87–91.

Yao, S., Zou, T., Zhu, X., Abela, J. R. Z., Auerbach, R. P., & Tong, X. (2007). Reliability and validity of the Chinese version of the multidimensional anxiety scale for children among Chinese secondary school students. *Child Psychiatry and Human Development, 38,* 1–16. doi:10.1007/s10578-006-0039-0

Young, D. (1989). Neurasthenia and related problems. *Culture, Medicine and Psychiatry, 13,* 131–138. doi:10.1007/BF02220657.

Yu, D. L., & Seligman, M. E. P. (2002). Preventing depressive symptoms in Chinese children. *Prevention & Treatment.* Article 9. Retrieved from http://journals.apa.org/prevention/volume5/pre0050009a.html

Zhang, G., Zhang, J., & Weng, Z. (2001). Depressive symptoms and related risk factors in people living in the rural area of Shangdong Province. *Chinese Mental Health Journal, 15,* 342–343.

Zhou, T., Zhang, S., Jiang, Y., & Wang, J. (2000). Epidemiology of neuroses in a Shanghai community. *Chinese Mental Health Journal, 14,* 332–334.

Zich, J. M., Attkisson, C. C., & Greenfield, T. K. (1990). Screening for depression in primary care clinics: The CES-D and the BDI. *International Journal of Psychiatry in Medicine, 20,* 259–277. doi:10.2190/LYKR-7VHP-YJEM-MKM2

Zinbarg, R. E., Mineka, S., Craske, M. G., et al. (2011). Prospective associations of personality traits and cognitive vulnerabilities with diagnoses of internalizing disorders over three years in late adolescents. Manuscript in preparation.

Zinbarg, R. E., Mineka, S., Craske, M. G., Griffith, J. W., Sutton, J., Rose, R. D., . . . Waters, A. M. (2010). The Northwestern-UCLA Youth Emotion Project: Associations of cognitive vulnerabilities, neuroticism and gender with past diagnoses of emotional disorders in adolescents. *Behaviour Research and Therapy, 48,* 347–358. doi:10.1016/j.brat.2009.12.008

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