Cogn Ther Res (2006) 30:763–772
DOI 10.1007/s10608-006-9082-1

ORIGINAL ARTICLE

The Hopelessness Theory of Depression: A Prospective Multi-Wave Test of the Vulnerability-Stress Hypothesis

Brandon E. Gibb · Christopher G. Beevers · Margaret S. Andover · Kyle Holleran

Published online: 19 October 2006

Abstract The hopelessness theory of depression's (Abramson et al. (1989). *Psychological Review*, *96*, 358–372) cognitive vulnerability-stress hypothesis was tested using data from a 6-week longitudinal study of university undergraduates. Participants completed measures of negative inferential style, negative events, and depressive symptoms at the initial assessment and measures of negative events and depressive symptoms each week for the next 6 weeks. Supporting the vulnerability-stress hypothesis, results of hierarchical linear modeling indicated that inferential styles moderated the relation between weekly negative events and weekly variations in depressive symptom levels. Specifically, participants with negative inferential styles who also experienced high levels of negative events in a given week reported the greatest increases in depressive symptoms during that week. Although we also found that depressive symptoms prospectively predicted changes in negative events from week to week, inferential styles did not moderate this relation.

Keywords Cognitive vulnerability-stress · Depression · Attributional style · Inferential style · Stress-generation

Introduction

The hopelessness theory (Abramson, Metalsky, & Alloy, 1989) presents a cognitive vulnerability-stress model for understanding the development of depression. According to the theory, individuals who have a tendency to attribute negative events to stable and

An earlier version of this paper was presented at the annual meeting of the Association for Advancement of Behavior Therapy, New Orleans, 2004.

B. E. Gibb (✉) · M. S. Andover · K. Holleran
Department of Psychology, Binghamton University, Binghamton, NY 13902-6000, USA
e-mail: bgibb@binghamton.edu

C. G. Beevers
Department of Psychology, University of Texas at Austin, Austin, TX, USA

global causes, and infer both negative consequences and negative self-characteristics following the occurrence of these events, should be vulnerable to developing symptoms and diagnoses of depression in the presence, but not absence, of negative life events. There is growing evidence to support the hopelessness theory's vulnerability-stress hypothesis in prospectively predicting the development of both symptoms and diagnoses of depression (e.g., Abela, Brozina, & Seligman, 2004; Hankin & Abramson, 2002; Hankin, Abramson, Miller, & Haeffel, 2004; Hankin, Fraley, & Abela, 2005).

Despite the strengths of each of these studies, there are some common limitations as well. First, the majority of the studies utilized only two assessment points and typically assessed negative life events at the end of the study, using this measurement to predict changes in depressive symptoms over the follow up. In testing the vulnerability-stress hypothesis, these studies typical utilize hierarchical multiple regression analyses of partial variance (Cohen & Cohen, 1983), which takes a nomothetic approach and assumes that the relation between negative life events and depressive symptom change is the same for each participant in the study. However, a negative life event score of 10, for example, may represent a significant increase for one participant, but a significant decrease for another participant. In this example, only the first participant would be expected to have an increase in depressive symptoms, but the typical method of analysis would treat both participants equivalently.

More recent analytic strategies for longitudinal data such as hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) provide more powerful tests of the hopelessness theory's vulnerability-stress hypothesis because they simultaneously analyze within-subject variations in the levels of, and relations between, negative events and depressive symptoms as well as between-subject effects of inferential styles on this relation. Within the context of our design, the association between negative life events and depressive symptoms is measured repeatedly. Repeated assessments provide a more accurate estimate of this association compared to averaging across assessments, as required by traditional hierarchical multiple regression (Cohen & Cohen, 1983). Indeed, ignoring the within-subject intraclass correlations results in an underestimation of the standard errors for regression coefficients. This overestimates precision and inflates significance levels (Kreft & De Leeuw, 1998).

Another limitation of studies examining the hopelessness theory's vulnerability-stress hypothesis is that they have focused largely on the influence of life events upon subsequent depression while virtually ignoring the potential influence of depression upon subsequent life events (i.e., stress-generation hypothesis; Hammen, 1991, 1992). Specifically, a number of studies have supported the hypothesis that depressed individuals contribute to the occurrence of negative events in their lives (e.g., Daley et al., 1997; Davila, Hammen, Burge, Paley, & Daley, 1995; Hammen, 1991; Potthoff, Holahan, & Joiner, 1995; Wingate & Joiner, 2004; for a review, see Hammen, 1999). Although recent revisions to the hopelessness theory (e.g., Hankin & Abramson, 2001) hypothesize bi-directional influences between negative life events and depressive symptoms, the theory is silent as to whether the stress-generation effect would be more likely to occur among individuals at high versus low cognitive vulnerability to depression. In addition, we are aware of no published studies that have examined whether negative inferential styles moderate the relation between depression and the generation of negative events. The primary goal of the current study was to provide a prospective test of the hopelessness theory's vulnerability-stress hypothesis. In so doing, we sought to overcome the limitations of previous studies listed above. Specifically, we utilized a prospective, multi-wave design in which we assessed levels of negative life events and

depressive symptoms at the initial assessment and then every week for 6 weeks. In addition, we utilized a data analytic strategy, HLM, that allowed us to model both within-subject and between-subject changes in depressive symptoms from week to week. Consistent with the hopelessness theory of depression, we hypothesized that participants' inferential styles would moderate the relation between weekly negative events and changes in depressive symptoms from week to week. A secondary goal of the study was to examine a stress-generation model. Consistent with previous findings (e.g., Daley et al., 1997; Davila et al., 1995), we predicted that elevations in depressive symptoms would prospectively predict increases in negative events from week to week. Although we also examined whether inferential styles moderated this relationship, we made no specific hypothesis given the paucity of theoretical and empirical research examining this question.

Method

Participants

One hundred and sixty-two undergraduates (116 women and 46 men) participated in the current study. Of these, 93 (57.4%) were Caucasian, 40 (24.7%) were Asian, 12 (7.4%) were African American, 8 (4.9%) were Hispanic, and the remaining 9 (5.6%) participants either were from other ethnic groups or did not report their ethnicity. The mean age of the participants was 19.67 years (SD = 4.43).

Measures

Inferential styles

The Cognitive Style Questionnaire (CSQ; Alloy et al., 2000), a revised version of the Attributional Style Questionnaire (Peterson et al., 1982), was used to assess cognitive vulnerability to depression as defined by the hopelessness theory (Abramson et al., 1989). The CSQ contains 24 hypothetical events (12 positive and 12 negative). In the current study, only the negative events were used because previous studies have shown that inferences for negative events are more strongly related to depressive symptoms than are inferences for positive events (e.g., Alloy et al., 2000). In response to each of the hypothetical events (e.g., ''You want to be in an intimate, romantic relationship, but aren't.''), the participant is asked to indicate what she or he believes would be the major cause of the event if it happened to her or him. In addition, the participant is asked to answer a series of questions about the cause and consequences of each event, as well as what the occurrence of the event would mean for his or her self-concept. A composite score is created by averaging participants' inferences regarding causes (stability and globality ratings), consequences, and self-implication ratings for each of the hypothetical negative events. For this composite, higher scores indicate more negative inferential styles. The CSQ composite for negative events has shown good retest reliability over a year (r = .80; Alloy et al., 2000) and predictive validity for symptoms and episodes of depression (e.g., Hankin et al., 2004). In the current study, the CSQ composite demonstrated excellent internal consistency at Time 1 (α = .95).

Depressive symptoms

The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) was used to assess participants' levels of depressive symptoms. The BDI-II consists of 21 self-report items, each rated on a 4-point Likert-type scale. Total scores on the BDI-II range from 0 to 63, with higher scores indicating more severe levels of depressive symptoms. Studies have supported the reliability and validity of the BDI-II in both clinical and nonclinical samples (Beck et al., 1996). In the current study, BDI-II scores exhibited excellent internal consistency (α ranged between .90 and .95 across the seven time points).

Negative life events

Negative life events were assessed using the Hassles and Uplifts Scale (DeLongis, Folkman, & Lazarus, 1988). In this study, only the Hassles Subscale was used. We chose to focus on hassles in this study rather than major negative life events (e.g., deaths or loss of job) because participants were expected to experience few if any major negative life events from week to week, which would have limited our statistical power for the analyses of interest. For each of the 53 items on the Hassles Scale, participants are asked to indicate if the event occurred during the past week and, if so, the degree of its impact. To reduce the potential of response bias that may be associated with depressive symptoms, we focused on the number of hassles endorsed each week rather than the subjective impact ratings. In the current study, the Hassles Scale exhibited excellent internal consistency (α ranged between .88 and .93 across the seven time points).

Procedure

Participants were recruited from undergraduate psychology classes and received course credit for their participation in the Time 1 assessment. Participants were then remunerated $10 for participation in the six follow-up assessments. The initial assessment was completed in the laboratory, during which participants completed the CSQ, Hassles Scale, and BDI-II. Participants were then asked to complete the Hassles Scale and BDI-II each week for the next 6 weeks using a secure website. A benefit of this procedure is that we were able to determine the exact date and time at which the weekly assessments were completed to determine whether they were completed as scheduled. To ensure the integrity of the data, questionnaires completed more than 1 day after they were due were omitted from our analyses.

Data analytic strategy

Analyses were conducted using HLM (Raudenbush & Bryk, 2002; Raudenbush, Bryk, Cheong, & Congdon, 2004). One benefit of HLM is that it can capture both within-subject and between-subject change. Thus, the Level 1 (within-subject) model in HLM analyzes the relationship between negative life events and depressive symptom change individually for each participant. The Level 2 (between-subject) model then allows an examination of whether inferential styles moderate any of the relations specified at Level 1.

The Level 1 (within-subject) model used to test the vulnerability-stress hypothesis in this study was:

$$\text{BDI} - \text{II}_{tij} = \beta_{0j} + \beta_{1j}(\text{BDI} - \text{II}_{t-1ij}) + \beta_{2j}(\text{Hassles}_{tij}) + r_{ij}$$

where BDI-II$_{tij}$ represents the BDI-II score at time t for Week i for a particular participant j, β_{0j} represents the BDI-II score at time t for participant j when both BDI-II at time t-1 and Hassles = 0 (BDI-II intercept at time t), and β_{1j} represents the slope of the relation between BDI-II scores at time t-1 and BDI scores at time t for participant j. Including BDI-II scores at time t-1 as a covariate in our Level 1 model allowed us to examine residual change in each participant's depressive symptom levels from week to week. Therefore, in this model, β_{2j} represents the slope of the relation between Hassles at time t and changes in BDI-II scores from time t-1 to time t for participant j, and r_{ij} represents the error term for participant j at Week i.

The Level 2 (between-subject) model used to test the vulnerability-stress hypothesis was:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{CSQ}) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{CSQ}) + u_{1j}$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{CSQ}) + u_{2j}$$

where γ_{01} is the cross-level interaction term representing the effect of CSQ on the BDI-II intercept at time t and γ_{11} is the cross-level interaction term representing the effect of CSQ on the slope of the relationship between BDI-II scores at time t-1 and BDI-II scores at time t (autocorrelation) from week to week. The primary statistic of interest in this study, γ_{21}, is the cross-level interaction term representing the effect of CSQ scores on the slope of the relationship between Hassles during week t and changes in BDI-II scores from week t-1 to week t. Finally, γ_{00}, γ_{10}, and γ_{20} represent the intercepts of their respective equations and u_{0j}, u_{1j}, and u_{2j} represent the error terms for their respective equations.

In testing the stress-generation hypothesis, the Level 1 model was:

$$\text{Hassles}_{tij} = \beta_{0j} + \beta_{1j}(\text{Hassles}_{t-1ij}) + \beta_{2j}(\text{BDI} - \text{II}_{t-1ij}) + r_{ij}$$

and the Level 2 model was:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{CSQ}) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{CSQ}) + u_{1j}$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{CSQ}) + u_{2j}$$

In this analysis, γ_{20}, represents the stress-generation effect of BDI-II scores at week t predicting changes in Hassles from week t-1 to week t. The cross-level interaction term, γ_{21}, represents the moderating effect of CSQ scores on this relation.

Results

Means and standard deviations for the study variables, as well as the number of participants completing each assessment on time, are presented in Table 1. Of the 1,134

Table 1 Means (and standard deviations) for study variables

Variable	T1	T2	T3	T4	T5	T6	T7
CSQ	3.52 (1.02)	–	–	–	–	–	–
BDI-II	11.44 (8.77)	8.61 (7.75)	8.41 (8.64)	8.51 (9.19)	8.18 (8.77)	7.81 (9.41)	6.95 (8.30)
Hassles Scale	19.48 (8.50)	18.88 (8.95)	17.41 (9.70)	15.64 (9.90)	14.46 (8.90)	13.64 (9.30)	13.46 (9.71)
n	162	153	153	154	145	146	136

Note: *CSQ* Cognitive Style Questionnaire, *BDI-II* Beck Depression Inventory-II

assessments completed for this project (162 participants × 7 assessments each), 1,050 (92.6%) were completed on time (i.e., completed within 1 day of due date). As mentioned above, data from questionnaires completed late were excluded from all analyses. Of the 51 participants with missing data at one or more assessment points, 33 missed only one assessment, 10 missed two assessments, 4 missed three assessments, 1 missed four assessments, and 3 missed five assessments. Participants with complete data at all assessment points ($n = 111$) did not differ significantly from those with one or more missing assessments on any of the demographic (age, sex, ethnicity) or Time 1 (CSQ, Hassles Scale, BDI-II) variables (lowest $p = .26$). In addition, Little's missing completely at random (MCAR) test, for which the null hypothesis is that the data are MCAR (Little & Rubin, 1987) was nonsignificant, $\chi^2(193) = 181.47$, $P = .71$. Given this, Empirical Bayesian estimates used by HLM 6 (Raudenbush et al., 2004) are appropriate and were used in all analyses.

Next, we tested the vulnerability-stress hypothesis using HLM 6. The results of this analysis can be seen in Table 2. As can be seen in the table, CSQ scores were significantly related to the BDI-II intercept at time *t*, $t(160) = 3.05$, $P = .003$, suggesting that participants with more negative inferential styles reported higher depressive symptoms across the follow-up. CSQ scores did not, however, moderate the strength of the relation between BDI-II scores at time *t*-1 and BDI-II scores at time *t*, $t(160) = -1.38$, $P = .17$.

Table 2 Summary of vulnerability-stress analysis predicting weekly changes in depressive symptoms

Fixed effect	Coefficient	SE	*t*
$\text{BDI-II}_{\text{time } t}$ intercept (β_0)			
Intercept (γ_{00})	–0.68	0.29	–2.33*
CSQ (γ_{01})	0.96	0.32	3.05**
$\text{BDI-II}_{\text{time } t\text{-}1}$ (β_1)			
Intercept (γ_{10})	0.44	0.04	10.05***
CSQ (γ_{11})	–0.04	0.03	–1.38
$\text{Hassles}_{\text{time } t}$ (β_2)			
Intercept (γ_{20})	0.18	0.03	6.26***
CSQ (γ_{21})	0.07	0.03	2.14*
Random effect	Variance component	*df*	χ^2
Intercept (u_0)	6.06	142	217.14***
$\text{BDI-II}_{\text{time } t\text{-}1}$ slope (u_1)	0.08	142	214.57***
Hassles slope (u_2)	0.04	142	150.30
Level-1 error (*r*)	19.37		

Note: *BDI-II* Beck Depression Inventory-II, *CSQ* Cognitive Style Questionnaire

* $P < .05$

** $P < .01$

*** $P < .001$

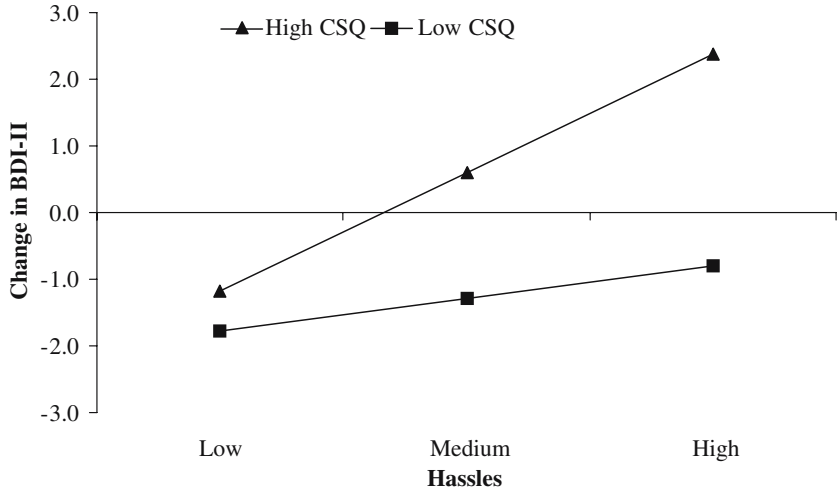

Fig. 1 Summary of vulnerability-stress interaction predicting weekly changes in depressive symptoms. *CSQ* Cognitive Style Questionnaire, *BDI-II* Beck Depression Inventory-II

Finally, as hypothesized, CSQ scores did moderate the relation between Hassles at time t and changes in BDI-II scores from time t-1 to time t, $t(160) = 2.14$, $P = .03$.

The form of this interaction was examined following the suggestions offered by Aiken and West (1991) and Cohen, Cohen, West, & Aiken, (2003) and is depicted in Fig. 1. Supporting the hopelessness theory's vulnerability-stress hypothesis, the largest increases in depressive symptoms from week to week occurred among participants at high cognitive risk for depression (high scores on the CSQ) who also experienced high levels of hassles. As can be seen in Table 2, no significant variability remained in the relation between weekly hassles and changes in depressive symptom levels once CSQ scores were taken into account, $\chi^2(142) = 150.30$, $P = .30$. In contrast, significant variance remained in both the BDI-II intercept at time t and the slope of the relation between BDI-II scores at time t-1 and BDI-II scores at time t (both ps $< .001$).

Finally, we tested the stress-generation model (see Table 3). Consistent with the stress-generation hypothesis, BDI-II scores at time t-1 predicted changes in hassles from week t-1 to week t, $t(160) = 2.64$, $P = .01$. However, CSQ scores did not moderate this relationship, $t(160) = -.53$, $P = .60$. In addition, CSQ scores were not significantly related to the hassles intercept at time t, $t(160) = 1.41$, $P = .16$.[1]

Discussion

The primary goal of this study was to test the hopelessness theory of depression's (Abramson et al., 1989) vulnerability-stress hypothesis using data from a prospective multi-wave study. Specifically, at the within-subject level, we examined the relations

[1] Given that Hammen's (1991, 1992) stress-generation model focuses primarily on negative interpersonal events, we also conducted this analysis focusing on interpersonal events from the Hassles Scale (e.g., intimacy, family-related obligations, health or well-being of a family member). The results of this analysis were virtually identical to those obtained when all of events from the Hassles Scale were included.

Table 3 Summary of stress-generation analysis predicting weekly changes in hassles

Fixed effect	Coefficient	SE	*t*
$\text{Hassles}_{\text{time } t}$ intercept (β_0)			
Intercept (γ_{00})	15.36	0.24	64.60***
CSQ (γ_{01})	0.33	0.24	1.41
$\text{Hassles}_{\text{time } t\text{-}1}$ (β_1)			
Intercept (γ_{10})	0.72	0.03	25.96***
CSQ (γ_{11})	0.02	0.02	0.66
$\text{BDI-II}_{\text{time } t\text{-}1}$ (β_2)			
Intercept (γ_{20})	0.09	0.03	2.64**
CSQ (γ_{21})	–0.01	0.02	–0.53
Random effect	Variance component	*df*	χ^2
Intercept (u_0)	2.17	145	202.31***
Hassles slope (u_1)	0.02	145	217.21***
$\text{BDI-II}_{\text{time } t\text{-}1}$ slope (u_2)	0.02	145	182.53*
Level-1 error (r)	25.54		

Note: *BDI-II* Beck Depression Inventory-II, *CSQ* Cognitive Style Questionnaire

* $P < .05$

** $P < .01$

*** $P < .001$

between weekly negative life events and weekly changes in depressive symptoms over a month and a half. Then, at the between-subject level, we examined whether negative inferential styles moderated the strength of these relations from week to week. As hypothesized, inferential styles moderated the relation between negative events reported each week and weekly changes in depressive symptoms. More specifically, we found that individuals with negative inferential styles who also experienced high levels of negative life events for a given week reported the greatest increases in depressive symptoms during that week. Indeed, there was no significant variability remaining in the negative events–depressive symptom relation once the influence of negative inferential styles was taken into account. These results add to the growing body of prospective, longitudinal studies supporting the hopelessness theory's vulnerability-stress hypothesis (for reviews, see Abramson et al., 2002; Gibb & Coles, 2005; Hankin & Abramson, 2001).

We also found support for the stress-generation hypothesis (Hammen, 1991, 1992) in that elevations in depressive symptom levels prospectively predicted weekly increases in negative life events. However, inferential styles did not moderate this relationship. If replicated, these results would suggest a refinement in Hankin and Abramson's (2001) transactional model. Specifically, although we found support for a bi-directional relationship between negative events and depressive symptoms, the strength of the stress-generation effect does not appear to vary as a function of participants' inferential styles. Although preliminary, these results suggest that the role of negative inferential styles may be limited to increasing the likelihood that negative events will contribute to depression, without further modifying the stress-generation feedback loop of the model. It should be noted, however, that we only examined one form of cognitive vulnerability to depression. Future research should examine other aspects of cognitive vulnerability as potential moderators (or mediators) of the stress-generation effect (cf. Joiner, Wingate, & Otamendi, 2005). Given that the stress-generation effect appears to be strongest for negative interpersonal events (for a review, see Hammen, 1999), combined with evidence suggesting that specific forms of cognitive vulnerability may predict in-

creases in domain incongruent negative life events (i.e., autonomy predicted increases in interpersonal stress; Nelson et al., 2001), researchers should consider examining the potential moderating roles of cognitive vulnerabilities such as sociotropy and autonomy (Beck, 1983; Clark, Beck, & Alford, 1999) separately in the same study.

The primary strength of this study was its prospective, multi-wave design, which allowed an examination of both within-subject and between-subject effects. However, there were several limitations to our design as well. First, all of the assessments were based upon participants' self-report. A benefit to this approach was that we could maximize the ease with which participants could complete the weekly assessments. However, responses to the questionnaires may have been subject to recall or response biases. Although we tried to minimize the risk of this bias in our assessment of negative life events by focusing on the occurrence of events rather than their subjective impact ratings, future studies would benefit from the inclusion of interviewer-administered measures of both negative events and symptoms. A related potential limitation is that we focused on depressive symptoms, which may limit the generalizability of our findings to diagnoses of depression. However, studies have supported the hopelessness theory's vulnerability-stress hypothesis in the prediction of both depressive symptoms and diagnoses (e.g., Hankin et al., 2004), which increases our confidence in the generalizability of our findings.

In summary, the current results add to the growing body of literature supporting the hopelessness theory of depression's (Abramson et al., 1989) vulnerability-stress hypothesis in the development of depressive symptoms. In addition, the results support recent refinements in the hopelessness theory (Hankin & Abramson, 2001) suggesting transactional rather than uni-directional relations between negative life events and depressive symptoms. However, it appears that the influence of negative inferential styles may be primarily in moderating the impact of negative events upon the occurrence of depression rather than in moderating the stress-generation effect.

Acknowledgments This project was supported in part by a pilot grant from the Center for Developmental Psychobiology, Binghamton University, and by National Institute of Child Health and Human Development grant HD048664 awarded to the first author.

References

Abela, J. R. Z., Brozina, K., & Seligman, M. E. P. (2004). A test of the integration of the activation hypothesis and the diathesis-stress component of the hopelessness theory of depression. *Cognitive Therapy and Research, 43*, 111–128.

Abramson, L. Y., Alloy, L. B., Hankin, B. L., Haeffel, G. J., MacCoon, D. G., & Gibb, B. E. (2002). Cognitive vulnerability-stress models of depression in a self-regulatory and psychobiological context. In I. H. Gotlib & C. L. Hammen (Eds.), *Handbook of depression* (pp. 268–294). New York: Guilford.

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

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park: Sage Publications.

Alloy, L. B., Abramson, L. Y., Hogan, M. E., Whitehouse, W. G., Rose, D. T., Robinson, M. S., Kim, R. S., & Lapkin, J. B. (2000). The Temple-Wisconsin cognitive vulnerability to depression project: Lifetime history of axis I psychopathology in individuals at high and low cognitive risk for depression. *Journal of Abnormal Psychology, 109*, 403–418.

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* (pp. 265–290). New York: Raven.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck depression inventory manual*. (2nd ed.) San Antonio: Psychological Corporation.

Clark, D. A., Beck, A. T., & Alford, B. A. (1999). *Scientific foundations of cognitive theory and therapy of depression*. New York: Wiley.

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

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. (3rd ed.). Mahwah: Lawrence Erlbaum Associates.

Daley, S. E., Hammen, C., Burge, D., Davila, J., Paley, B., Lindberg, N., & Herzberg, D. S. (1997). Predictors of the generation of episodic stress: A longitudinal study of late adolescent women. *Journal of Abnormal Psychology, 106*, 251–259.

Davila, J., Hammen, C., Burge, D., Paley, B., & Daley, S. E. (1995). Poor interpersonal problem solving as a mechanism of stress generation among adolescent women. *Journal of Abnormal Psychology, 104*, 592–600.

DeLongis, A., Folkman, S., & Lazarus, R. S. (1988). The impact of daily stress on health and mood: Psychological and social resources as mediators. *Journal of Personality and Social Psychology, 54*, 486–495.

Gibb, B. E., & Coles, M. E. (2005). Cognitive vulnerability-stress models of psychopathology: A developmental perspective. In B. L. Hankin & J. R. Z. Abela (Eds.), *Development of psychopathology: A vulnerability-stress perspective* (pp. 104–135). Thousand Oaks: Sage Publications.

Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology, 100*, 555–561.

Hammen, C. (1992). Life events and depression: The plot thickens. *American Journal of Community Psychology, 20*, 179–193.

Hammen, C. (1999). The emergence of an interpersonal approach to depression. In T. Joiner & J. C. Coyne (Eds.), *The interactional nature of depression: Advances in interpersonal approaches* (pp. 21–35). Washington: American Psychological Association.

Hankin, B. L., & Abramson, L. Y. (2001). Development of gender differences in depression: An elaborated cognitive vulnerability-transactional stress theory. *Psychological Bulletin, 127*, 773–796.

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

Hankin, B. L., Abramson, L. Y., Miller, N., & Haeffel, G. J. (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.

Hankin, B. L., Fraley, R. C., & Abela, J. R. Z. (2005). Daily depression and cognitions about stress: Evidence for a traitlike depressogenic cognitive style and the prediction of depressive symptoms in a prospective daily diary study. *Journal of Personality and Social Psychology, 88*, 673–685.

Joiner, T. E. Jr., Wingate, L. R., & Otamendi, A. (2005). An interpersonal addendum to the hopelessness theory of depression: Hopelessness as a stress and depression generator. *Journal of Social and Clinical Psychology, 24*, 649–664.

Kreft, I., & De Leeuw, J. (1998). *Introducing multilevel modeling*. Thousand Oaks: Sage Publications.

Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data*. New York: Wiley.

Nelson, D. R., Hammen, C., Daley, S. E., Burge, D., & Davila, J. (2001). Sociotropic and autonomous personality styles: Contributions to chronic life stress. *Cognitive Therapy and Research, 25*, 61–76.

Peterson, C. R., Semmel, A., von Baeyer, C., Abramson, L. Y., Metalsky, G. I., & Seligman, M. E. P. (1982). The Attributional Style Questionnaire. *Cognitive Therapy and Research, 6*, 287–300.

Potthoff, J. G., Holahan, C. J., & Joiner, T. E. Jr. (1995). Reassurance seeking, stress generation, and depressive symptoms: An integrative model. *Journal of Personality and Social Psychology, 68*, 664–670.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. (2nd ed.). Thousand Oaks: Sage Publications.

Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., & Congdon, R. (2004). *HLM 6: Hierarchical linear and nonlinear modeling*. Lincolnwood: Scientific Software International Inc.

Wingate, L. R., & Joiner, T. E. (2004). Depression-related stress generation: A longitudinal study of black adolescents. *Behavior Therapy, 35*, 247–261.