

Stress Generation Research in Depression: A Commentary

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The concept of stress generation is a powerful tool that is consistent with existing cognitive-behavioral theories of depression. In this brief commentary on the literature on stress generation in depression, we highlight several issues that we believe will help to advance the stress generation field. Specifically, we discuss important methodological considerations, issues related to generality and specificity, and theoretical and clinical implications of stress generation. We then address common misperceptions of the stress generation hypothesis. Finally, we end by posing several questions about the mechanisms driving stress generation that should be addressed in future research. Advancing the field's knowledge about stress generation will yield a tangible direction for theory-driven, targeted intervention. Our hope is that this commentary will help to stimulate and frame future research in this exciting area.

According to the stress generation hypothesis (Hammen, 1991), depressed individuals and those prone to depression, influenced by their beliefs, expectations, and personal characteristics, are likely to behave in ways that contribute to the occurrence of negative events in their lives (i.e., dependent events that are at least partially influenced by the individual). That is, not only are these individuals vulnerable to depression when confronted with life stressors, as articulated in vulnerability-stress models of depression (Abramson, Metalsky, & Alloy, 1989; Levinson, 2006), but they are also more likely to generate the very stressors that increase their risk for this disorder. Thus, stress and depression (or depressogenic vulnerabilities) are posited to share a transactional relation, with each exerting an influence on the other in a bidirectional manner. There is now a considerable body of research supporting the stress generation effect in clinical (Harkness, Monroe, Simons, & Thase, 1999) and community samples (Kercher, Rapee, & Schniering, 2009), and in children (Shih, Abela, & Starrs, 2009) and adults (Daley, Hammen, Davila, & Burge, 1998).

In this article, we highlight several issues that will be important to consider as the stress generation field advances. Specifically, we discuss important methodological considerations, issues related to generality and specificity, and theoretical and clinical

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implications of stress generation. We then address common misperceptions of the stress generation hypothesis. Finally, we end by posing several questions about the mechanisms driving stress generation.

METHODOLOGICAL ISSUES IN STRESS GENERATION RESEARCH

What constitutes an ideal study of stress generation? Hammen, Mayol, deMayo, and Marks (1986) outlined three characteristics of well-designed stress-depression studies: (1) a prospective design, (2) interview-based measures of life stress, and (3) an interview-based assessment of depression. Employing a prospective framework with frequent assessment points would allow for accurate and sensitive measurement of life events. As it pertains specifically to stress generation research, not only would relatively brief assessment intervals greatly enhance recall accuracy (e.g., 1 to 5 months; Brown & Harris, 1982; Hammen et al., 1986), especially for minor events, but such an approach may allow researchers to delineate more precisely the parameters of the stress generation effect of depression. For example, just as depression onset appears more related to recently occurring events (e.g., within the past several weeks to months) than to more distant ones (Hammen et al., 1986), the reverse may also hold true. That is, given the transactional relationship between stress and depression, depressive episodes and symptoms may similarly be more prospectively predictive of dependent events occurring in the near future than those experienced over longer intervals. Thus, the use of multiple assessments over brief intervals would provide a more accurate and fine-grained evaluation of the stress generation effect. Additionally, the inclusion of large samples would be particularly important with this approach, not only in terms of providing sufficient power to detect relatively small effect sizes, but also for buffering against possible attrition.

A common methodological limitation of stress generation studies is the reliance on self-report measures of stress (Liu & Alloy, 2010). Given the focus of the stress generation hypothesis, it is particularly crucial for researchers not only to document actual rather than perceived events, but also accurately to distinguish between dependent and independent events. The use of self-report checklists of stressful life events poses limitations on both accounts; compared to interview-based assessments, they are more susceptible to participants' interpretative biases (Brown & Harris, 1978), and do not provide the rich contextual information particularly essential to differentiating between dependent and independent events. For example, depression itself and vulnerability to depression are associated with a tendency to perceive or report benign events as stressful (Joiner, Wingate, Gencoz, & Gencoz, 2005). In particular, individuals with depressogenic cognitive styles may interpret relatively innocuous events as stressful and overreport them. This possibility underscores the inadequacy of self-report stress checklists, which are inherently susceptible to biased or subjective reporting, and the importance of utilizing more objective interview-based measures of life stress. The use of multiple informants may further increase assessment accuracy, a practice that has traditionally been more frequently used in research with children and early adolescents. Such an approach facilitates cross-validation of reported events, as well as the collection of richer contextual information from which to determine dependence ratings for individual events. Finally, it is essential to comprehensively document

the occurrence of life events across various content domains, in order to examine associations between different vulnerabilities and patterns of specific dependent stressors.

A third feature of an ideal study is the inclusion of assessments of both depressive episodes and interepisode symptoms, especially as both clinical depression and sub-clinical symptomatology have been implicated in the stress generation effect (Krackow & Rudolph, 2008). For similar reasons to those outlined above for life events measurement, these depression assessments should occur over several brief intervals, and include diagnostic interviews rather than simply self-report measures.

In order to advance stress generation research toward the examination of more complex mediational or moderational models, and to evaluate the unique contribution of individual vulnerabilities, it will be important to concurrently assess multiple depression vulnerabilities. It should also be noted that, to date, research in this area has relied almost exclusively on self-report measures of depressogenic vulnerabilities, very seldom utilizing task-based assessments. Therefore, future studies could build on the literature by integrating behavioral assessments of possible predictors of stress generation (e.g., cognitive inflexibility), thus examining this process at multiple levels of analysis.

Finally, sophisticated statistical techniques (e.g., hierarchical linear modeling and growth curve analyses) offer a more sensitive (i.e., idiographic) means of handling longitudinal data than is possible with traditional statistical approaches (e.g., multiple regression) restricted to nomothetic analyses. The use of multiple assessments of stress and depression over brief intervals, mentioned above, is especially amenable to these more advanced forms of analyses.

GENERALITY AND SPECIFICITY OF STRESS GENERATION EFFECTS

Despite the need for future methodological improvements, the extant literature has yielded some notable empirical trends and questions. First, to what degree is stress generation general across age and gender? There is some evidence that this process occurs to a degree across all age groups, including children (Harkness & Stewart, 2009; Shih et al., 2009), young adults (Daley et al., 1998), and older adults (Moos, Schutte, Brennan, & Moos, 2005). However, stress generation may become more pronounced during adolescence, thus potentially offering an explanation for the rise in depression at this age. Adolescence is notable as a period of increase in stressful life events, autonomy, and individuation, especially within interpersonal domains, as adolescents take a greater role in shaping their social contexts (Parke & Bhavnagri, 1989; Wagner & Compas, 1990). Also, negative cognitive styles appear to consolidate during adolescence and early adulthood (Gibb, Uhrlass, Grassia, Benas, & McGeary, 2009), and may thereby serve as another mechanism for increased rates of dependent stressors during this developmentally transitional period. That said, there is an even greater dearth of research on stress generation processes in older adults. The preponderant focus of most studies has been on children and young adults, with only one study to date assessing the relation between depression and generated stress in a sample of older adults (i.e., Moos et al., 2005). Just as an increase in stress generation may be observed during adolescence, a mirroring attenuation of this process may occur during late adulthood, corresponding to decreases in depression (Jorm, 2000), life stressors and hassles (Birditt, Fingerman, & Almeida, 2005; Folkman, Lazarus, Pimley, &

Novacek, 1987), and emotional and behavioral reactivity to stress, especially those of an interpersonal nature (Birditt & Fingerman, 2003; Birditt, Fingerman, & Almeida, 2005; Charles, Piazza, Luong, & Almeida, 2009), often observed in this older age group. Longitudinal studies focusing on adolescence and older samples will be essential in determining possible age-related or developmental period-related changes in stress generation patterns. There is a need to understand better what aspects of stress generation are specific to age or developmental stage, and what aspects are generally stable across the lifespan.

With respect to gender, there is some evidence that stress generation may be stronger for females, with gender moderating the stress generation effect of depression, and cognitive and interpersonal vulnerabilities to depression (Rudolph & Hammen, 1999; Safford, Alloy, Abramson, & Crossfield, 2007; Shih et al., 2009; see also Liu & Alloy, 2010, for a review). This gender difference may be due in part to the greater emphasis on and salience of interpersonal relationships, especially those characterized by intimacy and self-disclosure, that emerge in females during adolescence (Berndt, 1982; Laursen, 1996). This greater investment and sensitivity to interpersonal relationships in females may lead to greater opportunities to experience interpersonal stressors. Additionally, gender differences in depression and depressogenic cognitive styles (e.g., rumination and negative inferential styles) may serve to increase subsequent dependent stressors in females (Hankin & Abramson, 2001).

Second, although the stress generation effect of depression has been consistently documented, to what degree is this trend general across cultures and ethnic groups? The overwhelming majority of studies to date have evaluated stress generation among North American samples, and the few exceptions consist almost exclusively of Western samples (e.g., Kercher et al., 2009; Orth, Robins, & Meier, 2009; Shahar & Priel, 2003). Moreover, we are aware of only two studies that expressly examined and found stress generation in other ethnic or cultural groups (i.e., Abela, Stars, Hammen, Yao, & Zhu, 2009; Wingate & Joiner, 2004).

Third, is stress generation limited to the clinically depressed state? The stress generation hypothesis specifies that the generation of dependent stress is not exclusively due to periods of clinically significant depression. Consistent with this view, research suggests that formerly depressed individuals may continue to show increased rates of dependent stress, even during remitted periods (Daley et al., 1997; Hammen, 1991). Also, stress generation occurs among individuals with dysphoria or subsyndromal depressive symptoms (e.g., Joiner, Wingate, Gencoz, & Gencoz, 2005; Joiner, Wingate, & Otamendi, 2005), which may in part account for the relation between past depression and generated stress (Shih & Eberhart, 2008). These findings are important for two reasons. First, to demonstrate that the phenomenon reflects more than acute, symptom-related functional impairment, stress generation must also be observed outside periods of diagnosable depression. Second, the presence of stress generation outside of diagnosable episodes is important to the theory's purported ability to explain recurrences over the longitudinal course of the disorder.

Fourth, is the stress generation phenomenon general across depressogenic cognitive and interpersonal vulnerabilities, independent of depression? Although the findings are still somewhat mixed, several studies have implicated various stable cognitive vulnerabilities in the stress generation effect, including negative cognitive styles in women but not men (Safford, Alloy, Abramson, & Crossfield, 2007), rumination in adolescent boys and girls (Hankin, Stone, & Wright, 2010), and self-criticism in an adolescent sample (Shahar & Priel, 2003). Similarly, a number of personality and

interpersonal vulnerabilities have been found to predict stress generation, including neuroticism in a sample of adolescent girls (Kercher et al., 2009), dependency in adolescents (Shahar & Priel, 2003), and excessive reassurance seeking in adults (Potthoff, Holahan, & Joiner, 1995). Moreover, cognitive/personality vulnerabilities to anxiety disorders, looming maladaptive cognitive style, and anxiety sensitivity, also have been found to predict stress generation in a predominantly female sample of young adults (Riskind, Black, & Shahar, 2010).

Finally, how general is the stress generation effect across different disorders? Hammen (2006) speculated that this phenomenon may not be unique to depression, but that different disorders may be associated with their own unique pattern of dependent stress. Consistent with this possibility, bipolar disorder may be associated with the generation of dependent stressors relating to reward sensitivity (Urošević et al., 2010). Thus far, however, studies examining other disorders alone or in comparison to depression generally suggest that the stress generation effect may be stronger in depression, and comorbid conditions appear to augment this effect in depressed individuals (Daley et al., 1997; Harkness & Luther, 2001; for a review, see Liu & Alloy, 2010).

COMMON MISUNDERSTANDINGS OF THE STRESS GENERATION HYPOTHESIS

The stress generation hypothesis is an example of action theory, in which individuals shape their own environments (Hammen, 2006). Stress generation models rest on the general assumption that individuals vulnerable to or diagnosed with depression causally contribute to stressful life events. Perhaps this is most evident when a stressful event directly and immediately results from an individual's behavior. The stress generation process, however, may also exert an effect through more indirect and less immediately observable means. Specifically, vulnerable individuals may self-select into environments that are more stressful, thus increasing the likelihood of exposure to life stressors (Hammen, 2005). A specific example of this would be positive assortative mating (Daley, Burge, & Hammen, 2000; Ellinbogen & Hodgins, 2004). Furthermore, individuals may find themselves in stressful environments because of their families of origin. As a result, and coupled with an increased likelihood of genetic predisposition, they are more likely to develop depression. This explanation is also consistent with a harsh environment model (Ellinbogen & Hodgins, 2004), an implication of which is that stress generation may differ across age as children are less able to select their environments.

In order to definitively support a stress generation model, research methodologies must be able to distinguish among these various sources of stress. Carefully distinguishing between dependent and independent stress represents one step toward clarifying this puzzle. However, researchers vary in their conceptualization and measurement of event dependence. As mentioned earlier, the use of narrative-rating procedures (e.g., LEDS-based interviews) in which contextual information is elicited, and independent raters evaluate the extent of a person's contribution, can also aid in discriminating between these direct and indirect effects of stress generation. It seems likely that both harsh environment and stress generation effects operate to different degrees, across individuals and stages of development. Increased theoretical and methodological precision is required in order to determine whether depressed individuals play direct, indirect, or passive roles in the stressful events they experience.

THEORETICAL AND CLINICAL IMPLICATIONS OF STRESS GENERATION FOR DEPRESSION

Stress generation has important theoretical implications for our understanding, prevention, and treatment of depression. When considered within the context of vulnerability-stress models of depression, the stress generation effect implies a “two-hit” model of the effects of depressogenic vulnerabilities. Specifically, not only are depression-prone individuals more likely to become depressed when confronted with stressful life events, but they may also be more likely to act in ways or self-select into environments that increase their exposure to these very stressors. As dependent stressors, particularly interpersonal ones, are more strongly associated with depression than are independent stressors (Kendler, Karkowski, & Prescott, 1999), stress generation may serve as an explanatory mechanism for depressive onset, relapse, and recurrence.

The stress generation model also has important implications for the clinical treatment of depressive disorders, related to the aforementioned “two-hit” vulnerability-stress model. Specifically, treatments must adopt a dual emphasis on (1) teaching vulnerable individuals more adaptive strategies for coping with life events, such as modifying cognitive interpretations and obtaining social support, and (2) teaching vulnerable individuals to identify and reduce their own roles in generating stressful events. This dual emphasis requires the development of both problem-focused and emotion-focused coping skills. Stress generation is easily addressed in the context of many empirically supported treatments for depression, including cognitive-behavioral and interpersonal therapies. Incorporating components of dialectical behavior therapy (e.g., interpersonal effectiveness, emotion regulation, and distress tolerance; Harley, Sprich, Saffren, Jacobo, & Fava, 2008; Linehan, Dexter-Mazza, & Barlow, 2008) may also aid in the reduction of maladaptive stress generation processes. The optimal therapeutic approach will depend largely on the mechanisms in operation, as well as the specificity of stress generation effects. However, simply incorporating the general idea of stress generation may empower depressed individuals to take a more proactive role in managing the course of their disorders.

DIRECTIONS FOR FUTURE RESEARCH: MECHANISMS OF STRESS GENERATION

Since the original formulation of the theory, researchers have made considerable progress in describing and modeling stress generation processes. However, many questions remain empirically unanswered. Most notably, the mechanisms through which stress generation operates are not well understood. Given the wide range of vulnerabilities associated with stress generation effects (e.g., negative cognitive style, rumination, neuroticism, self-criticism, anxiety sensitivity, excessive reassurance seeking), what are the essential characteristics or “active ingredients” driving the phenomenon? Is there a unitary factor that precipitates stress generation, or is the process caused by specific combinations of vulnerabilities? Research suggests that depression could be caused by an interaction between specific types of vulnerabilities and stressors. So, too, could individuals generate specific types of stressors according to the idiographic nature of their vulnerabilities. A closer examination of the event domains most strongly associated with a stress generation effect may provide insight into underlying mechanisms.

For example, is stress generation related to an event's valence, content, severity, predictability, controllability, degree of associated life change, degree of associated psychological distress, or some combination?

Moreover, the mechanisms critical to stress generation may vary across subgroups such as gender (Davila, Bradbury, Cohan, & Tochluk, 1997; Safford et al., 2007), culture, context, depression severity, or diagnostic comorbidity (Daley et al., 1997; Daley, Hammen, Davila, & Burge, 1998; Harkness & Luther, 2001). Finally, research indicates that the relationship between psychosocial stress and episode initiation may change over the course of recurrent depression (Monroe & Harkness, 2005; Post, 1992; Stroud, Davila, & Moyer, 2008). If this is the case, the implications of stress generation are likely to change over time as well.

CONCLUSION

In conclusion, existing research clearly supports the idea that individuals with or vulnerable to depression may generate stressful, depressogenic events. However, current empirical knowledge provides only a general outline of this undoubtedly complex, nuanced, and transactional process. Methodological improvements will provide a more valid, fine-grained analysis of stress generation. For example, a prospective design is critical to examining stress generation, because temporal sequencing is of fundamental importance to this model. Multiple brief assessment intervals, interview-based life stress assessments with collateral reports, measurement of depression at both the syndromal and subsyndromal levels, and combined idiographic and nomothetic statistical approaches will also be important. Increased emphasis should also be placed on issues relevant to generality and specificity, underlying assumptions and mechanisms of the model, and clinical implications of the stress generation phenomenon.

The concept of stress generation is a powerful tool that is consistent with existing cognitive-behavioral theories of depression. Advancing the field's knowledge about stress generation will yield a tangible direction for theory-driven, targeted intervention. Our hope is that this commentary will help to stimulate and frame future research in this exciting area.

REFERENCES

- Abela, J.R.Z., Starrs, C., Hammen, C.L., Yao, S., & Zhu, X.Z. (2009). *Vulnerability factors as predictors of stress generation in Chinese adolescents*. Paper presented at the Association for Behavioral and Cognitive Therapies Meeting, New York, NY.
- Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, 96, 358-372.
- Berndt, T. J. (1982). The features and effects of friendships in early adolescence. *Child Development*, 53, 1447-1460.
- Birditt, K. S., & Fingerman, K. L. (2003). Age and gender differences in adults' descriptions of emotional reactions to interpersonal problems. *Journals of Gerontology: Series B*, 58, 121-128.
- Birditt, K. S., Fingerman, K. L., & Almeida, D. M. (2005). Age differences in exposure and reactions to interpersonal tensions: A daily diary study. *Psychology and Aging*, 20, 330-340.
- Brown, G. W., & Harris, T. O. (1978). *Social origins of depression*. New York: The Free Press.
- Brown, G. W., & Harris, T. O. (1982). Fall-off in the reporting of life events. *Social Psychiatry*, 17, 23-28.
- Charles, S. T., Piazza, J. R., Luong, G., & Almeida, D. M. (2009). Now you see it, now you don't: Age differences in affective reactivity to social tensions. *Psychology and Aging*, 24, 645-653.

- Daley, S.E., Burge, D., & Hammen, H. (2000). Borderline personality disorder symptoms as predictors of 4-year romantic relationship dysfunction in young women: Addressing issues of specificity. *Journal of Abnormal Psychology, 109*, 3, 451-460.
- Daley, S.E., Hammen, C., Burge, D., Davila, J., Paley, B., Lindberg, N., et al. (1997). Predictors of the generation of episodic stress: A longitudinal study of late adolescent women. *Journal of Abnormal Psychology, 106*, 2, 251-259.
- Daley, S. E., Hammen, C., Davila, J., & Burge, D. (1998). Axis II symptomatology, depression, and life stress during the transition from adolescence to adulthood. *Journal of Consulting and Clinical Psychology, 66*, 595-603.
- Davila, J., Bradbury, T.N., Cohan, C.L., & Tochluk, S. (1997). Marital functioning and depressive symptoms: Evidence for a stress generation model. *Journal of Personality and Social Psychology, 73*, 4, 849-861.
- Ellenbogen, M.A., & Hodgins, S. (2004). The impact of high neuroticism in parents on children's psychosocial functioning in a population at high risk for major affective disorder: A family-environmental pathway for intergenerational risk. *Development and Psychopathology, 16*, 113-136.
- Folkman, S., Lazarus, R. S., Pimley, S., & Novacek, J. (1987). Age differences in stress and coping processes. *Psychology and Aging, 2*, 171-184.
- Gibb, B. E., Uhrlass, D. J., Grassia, M., Benas, J. S., & McGeary, J. (2009). Children's inferential styles, 5-HTTLPR genotype, and maternal expressed emotion-criticism: An integrated model for the intergenerational transmission of depression. *Journal of Abnormal Psychology, 118*, 734-745.
- Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology, 100*, 555-561.
- Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology, 1*, 293-319.
- Hammen, C. (2006). Stress generation in depression: Reflections on origins, research, and future directions. *Journal of Clinical Psychology, 62*, 1065-1082.
- Hammen, C., Mayol, A., deMayo, R., & Marks, T. (1986). Initial symptom levels and life-event-depression relationship. *Journal of Abnormal Psychology, 95*, 114-122.
- 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., Stone, L., & Wright, P. A. (2010). Corumination, interpersonal stress generation, and internalizing symptoms: Accumulating effects and transactional influences in a multiwave study of adolescents. *Development and Psychopathology, 22*, 217-235.
- Harkness, K.L., & Luther, J. (2001). Clinical risk factors for the generation of life events in major depression. *Journal of Abnormal Psychology, 110*, 4, 564-572.
- Harkness, K. L., Monroe, S. M., Simons, A. D., & Thase, M. (1999). The generation of life events in recurrent and non-recurrent depression. *Psychological Medicine, 29*, 135-144.
- Harkness, K. L., & Stewart, J. G. (2009). Symptom specificity and the prospective generation of life events in adolescence. *Journal of Abnormal Psychology, 118*, 278-287.
- Harley, R., Sprich, S., Safren, S., Jacobo, M., & Fava, M. (2008). Adaptation of dialectical behavior therapy skills training group for treatment-resistant depression. *Journal of Nervous and Mental Disease, 196*, 2, 136-143.
- Joiner, T.E., Jr., Wingate, L.R., Gencoz, T., & Gencoz, F. (2005). Stress generation in depression: Three studies on its resilience, possible mechanism, and symptom specificity. *Journal of Social & Clinical Psychology, 24*(2), 236-253.
- Joiner, T.E., Jr., Wingate, L.R., & Otamendi, A. (2005b). An interpersonal addendum to the hopelessness theory of depression: Hopelessness as a stress and depression generator. *Journal of Social & Clinical Psychology, 24*(5), 649-664.
- Jorm, A. F. (2000). Does old age reduce the risk of anxiety and depression? A review of epidemiological studies across the adult life span. *Psychological Medicine, 30*, 11-22.
- Kendler, K. S., Karkowski, L. M., & Prescott, C. A. (1999). Causal relationship between stressful life events and the onset of major depression. *American Journal of Psychiatry, 156*, 837-841.
- Kercher, A., Rapee, R. M., & Schniering, C. A. (2009). Neuroticism, life events and negative thoughts in the development of depression in adolescent girls. *Journal of Abnormal Child Psychology, 37*, 903-915.
- Krackow, E., & Rudolph, K. D. (2008). Life stress and the accuracy of cognitive appraisals in depressed youth. *Journal of Clinical Child & Adolescent Psychology, 37*, 376-385.
- Laursen, B. (1996). Closeness and conflict in adolescent peer relationships: Interdependence with friends and romantic partners. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence. Cambridge studies in social and emotional development* (pp. 186-210). New York: Cambridge University Press.

- Levinson, D. F. (2006). The genetics of depression: A review. *Biological Psychiatry*, 60, 84-92.
- Linehan, M.M., Dexter-Mazza, E.T., & Barlow, D.H. (2008). Dialectical behavior therapy for borderline personality disorder. In *Clinical handbook of psychological disorders: A step-by-step treatment manual* (4th ed., pp. 365-420). New York: Guilford.
- Liu, R. T., & Alloy, L. B. (2010). Stress generation in depression: A systematic review of the empirical literature and recommendations for future study. *Clinical Psychology Review*, 30, 582-593.
- Monroe, S.M., & Harkness, K.L. (2005). Life stress, the "kindling" hypothesis, and the recurrence of depression: Considerations from a life stress perspective. *Psychological Review*, 112, 2, 417-445.
- Moos, R. H., Schutte, K. K., Brennan, P. L., & Moos, B. S. (2005). The interplay between life stressors and depressive symptoms among older adults. *Journal of Gerontology: Psychological Sciences*, 60B, 199-206.
- Orth, U., Robins, R. W., & Meier, L. L. (2009). Disentangling the effects of low self-esteem and stressful events on depression: Findings from three longitudinal studies. *Personality and Individual Differences*, 97, 307-321.
- Parke, R. D., & Bhavnagri, N. P. (1989). Parents as managers of children's peer relationships. In D. Belle (Ed.), *Children's social networks and social supports* (pp. 241-259). New York: Wiley.
- Post, R.M. (1992). Transduction of psychosocial stress into the neurobiology of recurrent affective disorder. *American Journal of Psychiatry*, 149, 999-1010.
- 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.
- Riskind, J.H., Black, D., & Shahar, G. (2010). Cognitive vulnerability to anxiety in the stress generation process: Interaction between looming cognitive style and anxiety sensitivity. *Journal of Anxiety Disorders*, 24, 124-128.
- Rudolph, K. D., & Hammen, C. H. (1999). Age and gender as determinants of stress exposure, generation, and reactions in youngsters: A transactional perspective. *Child Development*, 70, 660-677.
- Safford, S. M., Alloy, L. B., Abramson, L. Y., & Crossfield, A. G. (2007). Negative cognitive style as a predictor of negative life events in depression-prone individuals: A test of the stress generation hypothesis. *Journal of Affective Disorders*, 99, 147-154.
- Shahar, G., & Priel, B. (2003). Active vulnerability, adolescent distress, and the mediating/suppressing role of life events. *Personality and Individual Differences*, 35, 199-218.
- Shih, J. H., Abela, J. R. Z., & Starrs, C. (2009). Cognitive and interpersonal predictors of stress generation in children of affectively ill parents. *Journal of Abnormal Child Psychology*, 37, 195-208.
- Shih, J. H., & Eberhart, N. K. (2008). Understanding the impact of prior depression on stress generation: Examining the roles of current depressive symptoms and interpersonal behaviours. *British Journal of Psychology*, 99, 413-426.
- Stroud, C.B., Davila, J., & Moyer, A. (2008). The relationship between stress and depression in first onsets versus recurrences: A meta-analytic review. *Journal of Abnormal Psychology*, 117(1), 206-213.
- Urošević, S., Abramson, L.Y., Alloy, L.B., Nusslock, R., Harmon-Jones, E., Bender, R., & Hogan, M.E. (2010). Increased rates of events that activate or deactivate the Behavioral Approach System, but not events related to goal attainment, in bipolar spectrum disorders. *Journal of Abnormal Psychology*, 119, 610-615.
- Wagner, B. M., & Compas, B. E. (1990). Gender, instrumentality, and expressivity: Moderators of the relation between stress and psychological symptoms during adolescence. *American Journal of Community Psychology*, 18, 383-406.
- Wingate, L. R., & Joiner, T. E., Jr. (2004). Depression-related stress generation: A longitudinal study of black adolescents. *Behavior Therapy*, 35, 247-261.