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Life stress and first onset of psychiatric disorders in daughters of depressed mothers

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ABSTRACT

This study used a comprehensive, interview-based measure of life stress to assess the role of different types of stress in predicting first onset of psychiatric disorders among daughters of depressed ($n = 22$) mothers and healthy ($n = 22$) mothers. Several types of stress were assessed: Chronic interpersonal stress, chronic non-interpersonal stress, episodic dependent (i.e., self-generated) interpersonal stress, episodic dependent non-interpersonal stress, episodic independent interpersonal stress, and episodic independent non-interpersonal stress. Daughters (ages 9–14) were recruited to have no clinically significant symptoms upon entry (T1). By a 30-month follow-up assessment (T2), 45% of the daughters of depressed mothers, but none of the daughters of healthy mothers, had developed a psychiatric disorder. Overall, daughters of depressed mothers were exposed to more severe chronic interpersonal and non-interpersonal stress than were daughters of healthy mothers. Further, daughters of depressed mothers who developed a psychiatric disorder by T2 were exposed to more severe chronic non-interpersonal stress and episodic dependent stress than were daughters of depressed mothers who remained healthy. We discuss the implications of these findings in the context of a stress-generation model for the intergenerational transmission of psychiatric risk among children of depressed mothers.

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Research has shown consistently that children of depressed mothers are at elevated risk for developing a range of psychiatric disorders (for reviews see Hammen, 2009; Joormann et al., 2008). This risk persists beyond the duration of a given maternal depressive episode and can continue into adulthood (e.g., Weissman et al., 1997). Daughters may be especially vulnerable; investigators have found that daughters of depressed mothers are more likely to develop psychopathology than are sons, especially if the exposure to maternal depression occurs during adolescence (Davies and Windle, 1997; Hops, 1996). The mechanisms by which risk for psychopathology is transmitted from mother to child, however, are not clearly understood.

Life stress has long been conceptualized as a central mechanism in the etiology and course of several psychiatric disorders, particularly major depression (for reviews, see Brown and Harris, 1989; Hammen, 2005; Monroe et al., 2009). Maternal depression often is accompanied by stressful conditions, including occupational and financial difficulties, marital discord, impaired social relationships, and family conflict (for a review see Gotlib and Goodman, 1999). Children who grow up with a depressed mother are therefore exposed not only to a psychiatrically ill parent, but also to the stressful environmental context within which the mother's illness occurs (Hammen and Brennan, 2001). Children of depressed mothers have been shown to experience elevated levels of both chronic and episodic stress than children of either chronically medically ill mothers or of mothers with no medical or psychiatric disorder (Adrian and Hammen, 1993). Exposure to the stressful context of maternal depression, in turn, has been associated with children's depression symptoms. Using a large cohort sample of 15-year-old offspring of depressed and comparison mothers, Hammen et al. (2004) tested the relative impact of multiple risk factors in predicting the severity of children's depression symptoms. Findings indicated that the severity of depressive symptoms in offspring was largely mediated by youth's

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exposure to chronic maternal stress, which included poor parenting quality and marital discord. Thus, studies to date show that children of depressed mothers are exposed to elevated levels of stress compared to children of healthy mothers (Adrian and Hammen, 1993), and that exposure to chronic family stress is associated with more severe depressive symptoms among children of depressed mothers (Hammen et al., 2004). However, the extent to which stress contributes to the *initial* onset of psychiatric disorder among children of depressed mothers is not yet known.

In addition to chronic stress within the family environment, children of depressed mothers may be exposed to stress in contexts outside the home (e.g., Hammen et al., 2004). Growing up with a depressed mother may, for example, interfere with the development of adaptive strategies for social interactions, leading to problematic relationships with peers. Indeed, compared with children of non-depressed mothers, children of depressed mothers have been found to exhibit less adequate social skills and poorer peer relationships (Adrian and Hammen, 1993; Goodman et al., 1993; Lee and Gotlib, 1989, 1991). Peer stress may influence the risk for psychopathology onset, as it has been associated with adverse outcomes in non-depressed children (e.g., Coie et al., 1995; Ladd and Troop-Gordon, 2003) and with internalizing symptoms in adolescent girls (Rudolph, 2002). The adverse consequences of peer stress appear to be particularly salient for adolescent girls, who have stronger connection-oriented goals and report greater concern about peer evaluation than do boys (for a review see Rose and Rudolph, 2006).

Adolescent daughters of depressed mothers may be particularly susceptible to dependent or self-generated forms of stress (i.e., stress to which they contribute through their own characteristics and/or behaviors). According to the stress-generation theory (Hammen, 1991), depressed and depression-prone individuals generate stressful events and circumstances that perpetuate or exacerbate their symptoms. Consistent with this theory, adults with recurrent depression (compared to adults with a single previous depressive episode; Harkness et al., 1999) and depressed offspring of depressed mothers (compared to depressed offspring of non-depressed mothers; Hammen and Brennan, 2001) generate more dependent stress. Support for the stress-generation theory also has emerged among depressed youth with comorbid externalizing psychopathology (Rudolph et al., 2000) and among depressed adolescent girls but not boys (Rudolph et al., 2009). Moreover, self-generated interpersonal stress (e.g., ending a friendship), but not non-interpersonal stress (e.g., failing an exam because the adolescent did not study), mediated the continuity of depression over time in adolescent girls (Rudolph et al., 2009). Beyond depressive symptoms, characteristics and behaviors of depression-prone individuals, such as negative conceptions of relationships (Caldwell et al., 2004) and problematic interpersonal problem-solving styles (Davila et al., 1995), predict subsequent generation of interpersonal stress. In light of the interpersonal deficits characterizing the children of depressed mothers (Anderson and Hammen, 1993), these children are likely to generate more stress, particularly in their relationships. However, research has not yet fully examined multiple types of stress experienced by the adolescent daughters of depressed mothers, or the extent to which these types of stress contribute to the initial onset of disorder among these girls.

This study aimed to address these notable gaps by providing a comprehensive evaluation of the role of different types of stress in the risk for first onset of psychiatric illness among adolescent daughters of depressed mothers. Specifically, we examined daughters' exposure to chronic (ongoing) and episodic (acute) stress using life stress interviews. We rated the severity of stressors using the contextual threat method. Chronic and episodic stressors were assessed within interpersonal (e.g., mother–child relationship) and non-interpersonal (e.g., academic performance) domains. Episodic stressors also were rated for dependence, evaluating the extent to which the daughter contributed to the event's occurrence. To the best of our knowledge, this is the first study to use a rigorous semi-structured interview methodology to elucidate the role of different types of stress in first onset of disorder in this high-risk group.

Based on previous findings indicating higher rates of psychopathology among children of depressed parents compared to children of healthy parents (e.g., Hammen, 2009), we predicted that daughters of depressed mothers would develop psychiatric disorders, particularly depression, at higher rates during the 30-month study interval than would daughters of healthy mothers. With regard to daughters' stress exposure we had two predictions. First, based on findings indicating higher levels of chronic and episodic interpersonal stress among children of depressed mothers relative to children of healthy mothers (Adrian and Hammen, 1993), we predicted that daughters of depressed mothers would be exposed to more severe chronic and episodic stress, particularly in the interpersonal domain, during the study interval than would daughters of healthy mothers. Second, based on findings highlighting the importance of chronic interpersonal stress (Hammen et al., 2004) and dependent forms of episodic interpersonal stress in youth depression (Hammen and Brennan, 2001; Rudolph et al., 2009), we predicted that exposure to more severe chronic and episodic dependent stress, particularly in the interpersonal domain, during the study interval would be associated with the first onset of psychiatric disorder by the end of the study.

1. Method

1.1. Participants

As part of a larger study, a total of 86 pairs of mothers and their biological daughters were recruited from the community through newspaper, flyer, and online advertisements, as well as by direct referrals from psychiatric research and treatment clinics. Two groups of mothers were recruited: depressed and healthy. Mothers were assigned to the depressed group if they met diagnostic criteria for Major Depressive Disorder (MDD) within the last five years and to the healthy group if they did not meet lifetime criteria for any Axis I psychiatric disorder based on DSM-IV criteria. Mothers were excluded from the depressed group if they: (1) met diagnostic criteria for bipolar disorder; or (2) met diagnostic criteria for alcohol or substance dependence or abuse over the previous six months. Mothers were excluded from either group if they exhibited any significant psychotic symptoms. Dyads were composed of eligible mothers, as outlined above, and their biological daughters, who were between the ages of 9 and 14.

Daughters were included in the study if they did not meet lifetime criteria for any Axis I psychiatric diagnosis and did not exhibit significant depressive symptomatology, defined as scoring higher than a 10 on the Children's Depression Inventory (CDI; Kovacs, 1985). These exclusionary criteria ensured that significant symptoms during the follow-up period reflected first onset of disorder. Of the 86 mother–daughter dyads recruited, 34 were excluded after the first session because they did not meet the eligibility criteria. A total of fifty-two dyads met eligibility criteria and were included in the study: 27 mothers diagnosed with MDD and their biological daughters and 25 mothers with no history of psychopathology and their biological daughters.

Participants were invited to return to the laboratory for a follow-up assessment (Time 2; T2) 30 months after their initial session. Of the 52 dyads who were enrolled at Time 1 (T1), eight mother–daughter dyads did not participate in the T2 assessment (five