
The Apple Does Not Fall Far From the Tree: Attachment Styles and Personality Vulnerabilities to Depression in Three Generations of Women

Avi Besser

Sapir Academic College, Israel

Beatriz Priel

Ben-Gurion University of the Negev, Israel

The intergenerational transmission of attachment insecurity was examined in a community sample of 300 participants consisting of 100 three-generation triads of women. It was hypothesized that personality vulnerabilities mediate the association between attachment insecurity and depression within each generation. Findings show significant intergenerational congruence of trait vulnerabilities and attachment styles. Moreover, the second generation's attachment dimensions and personality vulnerabilities were found to mediate the association between first- and third-generation scores on attachment and vulnerability variables. Findings supported the following hypothesized within- and between-generation paths: Within generations, self-criticism was found to mediate the association between attachment insecurity and depression; between generations, depression, but not self-criticism, mediated the association between assessments of attachment insecurity in mothers and their daughters. This study constitutes a first approach to the delineation of the role played by self-criticism in the association between negative models of the self and depression across generations.

Keywords: *intergenerational transmission; personality vulnerability; self-criticism; dependency; attachment; depression*

In recent years, theoretical and clinical interest in the relationship between attachment insecurity and psychological distress has grown markedly, as has interest in the intergenerational continuity of attachment styles. Although relationships between attachment and psychological distress—in particular, depression—are clearly evident both within and between generations, few previous studies have provided data that could explain the mechanisms underlying these associations. In the present study, we aimed to investigate trait personality vul-

nerabilities as mechanisms that might further illuminate the intergenerational transmission of attachment insecurity and the attachment-depression relationship. Focusing on three-generation triads, three levels of mediation were assumed:

1. Within each generation, a mediation model was proposed in which attachment insecurity affects trait personality vulnerabilities, which, in turn, lead to depression.
2. Between generations, we explored two theoretically based alternative mediating models in which maternal depression or, alternatively, maternal trait vulnerability to depression leads to daughters' attachment insecurity, which, in turn, fosters daughters' trait personality vulnerabilities that lead to depression.
3. Congruence across generations was assumed in which the second generation's (G2's) levels of depression, attachment dimensions, and trait personality vulnerabilities mediate the association between the first-generation (G1) and the third-generation (G3) levels of

Authors' Note: Special gratitude is expressed to Dr. Gordon L. Flett of York University, Toronto, Canada, for his very useful comments and suggestions on an earlier draft of this article. Thanks are due to Tamar Tandler, Asaf Franco, and Idan Yanovsky of Ben-Gurion University of the Negev, Eilat Campus, Israel, for their invaluable assistance with various aspects of data collection and to the families who participated so willingly in this intensive study. We thank the anonymous reviewers for their constructive suggestions. We also gratefully acknowledge and thank Dr. David A. Kenny for insightful statistical advices. Address correspondence to Avi Besser, Department of Behavioral Sciences, Sapir Academic College, D. N. Hof Ashkelon 79165, Israel; e-mail: besser@mail.sapir.ac.il; or to Beatriz Priel, Department of Behavioral Sciences, Ben-Gurion University of the Negev, Beer-Sheva 84105, Israel; e-mail: bpriel@bgumail.bgu.ac.il.

PSPB, Vol. 31 No. 8, August 2005 1052-1073

DOI: 10.1177/0146167204274082

© 2005 by the Society for Personality and Social Psychology, Inc.

depression, attachment, and trait personality vulnerability, respectively.

Attachment theory posits that early relationships with caregivers lead to the construction of internal working models that guide expectations and behavior in future relationships (Bowlby, 1969/1982, 1973, 1980). The concept of internal working models of attachment has been proposed as a cognitive and affective construct that includes the respondent's memories, perceptions, and expectations in relation to significant others. A growing body of empirical research has extended the study of attachment beyond childhood (Fonagy et al., 1995a, 1995b; Hazan & Shaver, 1987). Bartholomew (1990) and Bartholomew and Horowitz (1991) proposed, on theoretical grounds, a classification of adult internal working models of attachment determined by the positivity of the models of self and other. The positivity of the self involves the degree to which the self is loveable and worthy and the degree to which others are expected to be responsive to the self. The positivity of the other involves a person's expectations about significant others' availability and support. The low positive model of the self is characterized by anxiety about closeness and dependence on others for self-esteem, and the low positive model of others is characterized by the avoidance of intimacy. High and low positive models of the self and others define four different patterns of attachment: secure (positive model of self and others), preoccupied (negative model of self and positive model of others), dismissing (positive model of self and negative model of others), and fearful (negative model of self and others; Griffin & Bartholomew, 1994b).

Continuity of Attachment

Bowlby's (1988) theory predicts that attachment representations are significantly stable across time (continuous) and yet open to change produced by attachment-relevant life experiences. Two main aspects of this continuity have been the focus of extensive theoretical thinking and empirical evidence: the continuity between mother's attachment security and infant's attachment security and the continuity of attachment representations from infancy through adulthood. Research focusing on infant-parent relationships has provided well-established evidence of the correspondence between parents' internalized models of relationships and the infant's attachment classification (Main, Kaplan, & Cassidy, 1985). Empirical studies have consistently found high correspondence between mother's attachment style, as measured by the Adult Attachment Interview (George, Kaplan, & Main, 1984), and infant's attachment style in the strange situation whether the data were examined prospectively, retrospectively, or

concurrently (see Benoit & Parker, 1994; Crowell & Feldman, 1991; Fonagy, Steele, & Steele, 1991). In general, individuals categorized as secure are significantly more likely to have children who are securely attached to them (van Ijzendoorn, 1995). This turns out to be true even in prospective studies in which the attachment styles of parents are assessed before the birth of the child (Benoit & Parker, 1994; Fonagy, Steele, Moran, Steele, & Higgitt, 1991; Steele, Steele, & Fonagy, 1996; Ward & Carlson, 1995).

The quality of caregiving and the parent-child interactions (mainly mothers' responsiveness and support) have been considered to be the main mechanisms responsible for the transmission of attachment styles between parent and infant. George and Solomon (1996) proposed that the ability to provide protection, which characterizes the caregiving behavioral system, is a mature transformation of earlier relational experiences and their representations. From an evolution theory perspective, Belsky (1997) maintained that early experiences of caretaking translate into caregiving expectations and capacities in adulthood.

Recent research provides evidence of a moderate degree of correspondence between early childhood and adult attachment representations. Studies by Waters, Merrick, Treboux, Crowell, and Albersheim (2000) and Klohnen and Bera (1998) have shown important security-insecurity correspondences between infancy and adulthood, as well as possibilities of change according to life experiences. Weinfield, Sroufe, and Egeland (2000) provided evidence of lawful discontinuity (i.e., discontinuity that can be explained according to the main tenets of attachment theory) of attachment styles from infancy into early adulthood. Fraley (2002), in a meta-analysis of this issue, concluded that there is a moderate degree of stability in attachment from infancy to adulthood.

In the present study, we explore an additional aspect of the continuity of the attachment construct: mother to adult daughter continuity of working models of attachment. Continuity between mother and adult daughter attachment representations is a plausible correlate of the correspondence between mother to infant and infant to adult representations of attachment: Because children's internal models are affected by their mothers' internal models and are relatively stable until adulthood, one may hypothesize a moderate continuity of attachment styles between mothers and their adult daughters.

Attachment and Depression: Within- and Between-Generation Effects

Bowlby's (1969/1982) model proposes that internalized models of early caregiving experiences are not only

prototypes for relationships with others but constitute the context within which the child, and later on the adult, organizes and regulates emotional experiences. Research on adult attachment provides evidence of the relations between attachment styles and emotional self-regulation in adolescent and adult populations. From this perspective, attachment styles are viewed as organized rules that guide the individual's responses in situations of distress. Kobak and Sceery (1988), for instance, suggested that secure persons tend to manage distress effectively and not be depressed, whereas persons reporting insecure attachment styles use less adaptive coping strategies thus leading to depression. Insecure patterns of attachment have been found to associate with higher levels of depressive symptomatology in adult clinical and community samples (Besser & Priel, 2003a; Besser, Priel & Wiznitzer, 2002; Carnelley, Pietromonaco, & Jaffe, 1994; Priel & Shamai, 1995; Roberts, Gotlib, & Kassel, 1996). In particular, attachment styles involving a negative self-model have been found to be predictive of depression (Besser et al., 2002; Carnelley et al., 1994; Hammen et al., 1995; Hortacsu, Cesur, & Oral, 1993). Contrariwise, working models characteristic of secure attachment have been found to reduce susceptibility to depression (e.g., Carnelley et al., 1994; Hortacsu et al., 1993; Rice & Mirzadeh, 2000). Moreover, insecurely attached adults report more physical symptoms (Hazan & Shaver, 1990), negative affect (Simpson, 1990), eating disorders (Brennan, Shaver, & Tobey, 1991), and higher levels of distress in stressful situations.

Empirical studies of the intergenerational transmission of attachment styles have shown that both the mother's attachment styles and levels of depression predict children's attachment insecurity (Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001; Coyl, Roggman, & Newland, 2002; Cummings & Cicchetti, 1990; Teti, Gelfand, Messinger, & Isabella, 1995). These studies consistently reported a significant association between maternal depression and children's quality of attachment with secure attachment significantly less likely when mothers were depressed. In addition to genetic factors, research on the mechanism of association between maternal depression and offspring attachment style has addressed parent-child relations. Attachment insecurity has repeatedly been found to be associated with the unresponsive, rejecting, and insensitive parenting that characterizes depressed mothers. The infant's overwhelming negative experience over time leads to the development of a conception of the self as ineffective (Teti & Nakagawa, 1990).

A review of the attachment and depression literature shows both continuity of attachment orientation between generations and a persistent association between depression and insecure attachment styles

within each generation. Taking a step further in this direction, the present study explores the assumption that specific personality *vulnerabilities* to depression—that is, dependency and self-criticism (Blatt, 1974, 1991)—play a significant role in the link between depression and attachment insecurity within and between generations. In the next section, we present Blatt (1974, 1991) and colleagues' conceptualization of trait personality vulnerabilities to depression and empirical evidence of the association between these personality vulnerabilities and attachment styles.

Trait Personality Vulnerabilities to Depression

Blatt (1974) proposed a model of personality development that has been applied to the study of both normal and pathological processes. Blatt characterized personality development as the integration of a person's capabilities for self-definition (self-criticism) and interpersonal relatedness (dependency). The self-definition process relates to "the development of a realistic, essentially positive and increasingly integrated self-definition and self-identity" (Blatt, 1991, p. 453). The interpersonal relatedness process is defined as "the capacity to establish increasingly mature, reciprocal and satisfying interpersonal relationships" (Blatt, 1991, p. 453). These two basic modalities of human existence have been referred to in different theoretical contexts as autonomy and surrender (Angyal, 1951), agency and communion (Bakan, 1966), and achievement or power versus affiliation or intimacy (McAdams, 1985; McClelland, 1985; Winter, 1973).

Self-definition and relatedness capabilities are assumed to develop mostly in the context of early interpersonal relationships (Blatt, 1974; Blatt & Homann, 1992). Empirical studies corroborate the role of the quality of parenting practices in the development of dependent and self-critical vulnerabilities to depression. For example, McCranie and Bass (1984) reported significant associations between self-critical vulnerability and parental coldness and between self-critical vulnerability and high expectancies of achievement. They also found that dependency was associated with strict, controlling, and inconsistent care (for a recent, extensive review of the link between self-criticism and dependency and negative parental characteristics, see Blatt, 2004).

An adequate balance between relatedness and self-definition capacities contributes to an evolving self-sufficiency that, in turn, facilitates the establishment of stable interpersonal relationships (e.g., Blatt, 1974, 1990; Blatt & Blass, 1996; Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982; Blatt & Shichman, 1983). However, excessive emphasis on either one of these dimensions has been found to predispose individuals to depression (Blatt & Zuroff, 1992). Overemphasis on the

relatedness dimension—dependency—is characterized by an excessive preoccupation with the availability of love, nurturance, and support and by a heightened need for closeness and interpersonal support. Exaggerated stress on self-definition—self-criticism—is associated with harsh standards, heightened strivings for mastery and achievement, and a marked need for acknowledgment. The formulation of this model of vulnerability to depression is congruent with Beck's (1983) model of sociotropic and autonomous types of depression or the dominant other and dominant goal depression types of Arieti and Bemporad (1980).

The concepts of dependency and self-criticism have been empirically validated using the Depressive Experiences Questionnaire (DEQ). The DEQ includes items chosen to represent common experiences, rather than overt symptoms, of depressed individuals (Blatt, D'Afflitti, & Quinlan, 1976). The first DEQ factor, Dependency, includes concerns about abandonment, helplessness, and loneliness and the need for close and dependent interpersonal relationships. The items loading on the second DEQ factor, Self-Criticism, reflect a continuous preoccupation with failure, ambivalent feelings about self and others, and a self-critical stance (Blatt et al., 1976). A considerable body of empirical research has demonstrated the relevance of self-criticism and dependency as personality vulnerabilities to depression (Flett, Hewitt, Endler, & Bagby, 1995; Klein, 1989; Quimette & Klein, 1993; Zuroff, Igeja & Mongrain, 1990; for a recent review, see Zuroff, Mongrain, & Santor, 2004).

The association between self-criticism and depression has been demonstrated in several community samples (e.g., Besser, 2004; Besser, Flett, & Davis, 2003; Besser & Priel, 2003a, 2003b, in press; Besser, Priel, Flett, & Wiznitzer, 2004; Priel & Besser, 1999, 2000b; Quimette & Klein, 1993; Zuroff et al., 1990; for a recent review, see Zuroff et al., 2004). Although dependency is also associated with depression (Aube & Whiffen, 1996; Besser & Priel, 2003a, 2003b; Blatt, Zohar, Quinlan, Zuroff, & Mongrain, 1995; Bornstein, 1992; Mongrain, 1998; Priel & Besser, 1999, 2000b), there are also indications that dependency might generate supportive interpersonal relationships that mitigate depressive feelings (Mongrain, Lubbers, & Struthers, 2004). This pattern of results implies that personality vulnerability variables such as dependency and self-criticism do affect the quality of interpersonal relationships thereby reducing or exacerbating individuals' levels of depression (Daley et al., 1997; for a review, see Blatt, 2004).

Attachment and Trait Vulnerabilities to Depression

Levy, Blatt, and Shaver (1998) and Zuroff and Fitzpatrick (1995) provided evidence regarding the asso-

ciation between attachment insecurity and the dependent and self-critical vulnerabilities to depression. These researchers found an association between the fearful-avoidant styles and self-criticism and between the preoccupied attachment style and dependency as determined by self-reports. Recently, Reis and Grenyer (2002) corroborated the associations between fearful attachment and self-criticism and between preoccupied attachment and dependency. In a study of vulnerability to depression in married couples, Besser and Priel (2003a) found that according to targets' self-reports and also according to spouses' reports about targets, low positivity of the self-dimension of attachment was associated with high self-criticism, and both were associated with high depression scores.

Blatt and Homann (1992) reviewed available data on the characteristics of the parents of self-critical and dependent individuals and concluded that there is an inextricable link between these personality vulnerabilities and attachment insecurity. These authors inferred that impaired working models of the self and other create a remarkable vulnerability to depression: Insecurely attached individuals' difficulties with separation lead to a constant seeking of reassurance and support and an anticipation of rejection and criticism thereby producing very low levels of self-esteem and an increased need for acknowledgement. More recently, Thompson and Zuroff (1998, 1999) developed a model of development of self-criticism among adolescent girls. According to this model, the attachment insecurity of daughters mediates the relations between maternal warmth and daughters' self-critical vulnerability.

The literature on attachment and trait vulnerabilities to depression indicates that the negative view of the self that characterizes both fearful and preoccupied insecure attachment styles might plausibly establish the self-punitive, distrustful style of relating that characterizes self-criticism. In addition, findings suggest that preoccupied attachment might play a role in the development of the dependency vulnerability to depression. Thus, both the fearful and the preoccupied attachment styles, which are the main correlates of personality vulnerabilities in the extant literature, include a negative model of the self. Note that insecurity and trait vulnerability to depression are related but distinct constructs. Although both the attachment and personality vulnerability constructs describe experiences and behavior and are connected to cognitive organization, they differ in that self-criticism and dependency refer to a specific way of thinking and feeling about the self (e.g., negatively evaluating the self, depending on others, setting unrealistic standards, etc.), whereas a negative model of the self in the context of attachment theory refers to general negative feelings about the self in relation to others including

feeling unloved and unlovable (also see Blatt, 2004). This distinction suggests that self-criticism and dependency might refer to specific aspects of the more general negative model of the self in relation to others.

The Present Study

The theoretical and empirical close connections between attachment insecurity and depression, as well as attachment insecurity and vulnerabilities to depression, within and between generations serve as the context for the present study about the intergenerational transmission of adult attachment styles. As detailed above, research on the relationships between attachment and depression shows a significant intergenerational transmission of both depression and attachment styles as well as close connections between attachment insecurity and depression within and across generations. Maternal depression associates with offspring's attachment insecurity; within insecure attachment styles, those including negative self-representations are closely associated with depression. A parallel line of research reports distinctive associations between the negative self-dimensions of attachment and trait personality vulnerabilities to depression within generations: Self-criticism associates with the fearful and dependency with the preoccupied style of attachment. To explore the intergenerational transmission of depression, trait personality vulnerabilities, and attachment insecurity across three generations, we put forward three simultaneous mediation pathways for the within- and between-generation associations of attachment insecurity, personality vulnerabilities, and depression as follows:

Path 1. According to the existing literature, we expect that attachment insecurity, depression, and trait vulnerabilities assessments of grandmothers (G1) will associate with the attachment insecurity, depression, and trait vulnerabilities assessments in mothers (G2). This pattern is expected to repeat itself between mothers and granddaughters (G3). Moreover, furthering this line of thought, we hypothesized that G2 attachment insecurity, depression, and trait vulnerabilities assessments mediate the congruency between G1 and G3 in these assessments.

Path 2. Within each generation, self-criticism and dependency are expected to mediate the effects of attachment orientation on depression; that is, attachment insecurity is assumed to affect self-criticism or/and dependency, which, in turn, affects depression within each generation.

Path 3a. Between generations, grandmothers' vulnerabilities to depression are expected to mediate the effect of grandmothers' attachment orientation on mothers' attachment orientation. This pattern is expected to be repeated in the next generation.

Path 3b. Alternatively, between generations, grandmothers' depression is expected to mediate the effect of grand-

mothers' attachment orientation on mothers' attachment orientation. This pattern is expected to be repeated in the next generation.

Taken together, these hypothesized paths of effects suggest a model in which mothers' trait vulnerabilities to depression (or depressive symptomatology) lead to daughters' attachment insecurity orientation that, in turn, promotes daughters' vulnerabilities to depression (or depressive symptomatology), which leads to depression (or depressive symptomatology; see Figure 1).

It should be noted that the present study's model focuses on women, because the mother is in most cases the primary caregiver. In addition, given that depression is a major public health problem affecting women at a rate double that of men (Le, Munoz, Ippen, & Stoddard, 2003), there is heuristic value for depression research focusing on women.

It was expected that the use of a three-generation design (triads of grandmother, mother, and daughter) and multiple indicators (the positive self [PS] and positive other [PO] attachment dimensions, dependency, self-criticism, and depression) would strengthen our findings by reducing some of the method variance biases that have been problematic in prior studies regarding the associations between trait vulnerabilities to depression, attachment insecurity, and depression.

The following hypotheses were proposed:

Hypothesis 1: Congruency of assessments across three generations.

(a) Depression, attachment security, and personality vulnerabilities to depression are associated between and across generations. For instance, G1 depression levels associate with G2 depression levels and G2 depression levels associate with G3 depression levels (between-generation associations). In addition, G1 depression levels associate with G3 depression levels (across-generation association). (b) Transmission of depression, attachment, and personality vulnerabilities from grandmothers (G1) to granddaughters (G3) is mediated by mothers' (G2) depression, attachment, and personality vulnerabilities, respectively.

Hypothesis 2: Mediation within each generation.

Personality vulnerabilities (dependency and self-criticism) mediate the association between attachment insecurity and depression in each generation.

Hypothesis 3: Mediation between generations.

Two alternative mediation models for the transmission of attachment insecurity will be compared: (a) Between generations, mothers' depression levels mediate the association between mothers and daughters' attachment insecurity, and (b) between generations, the association between mothers and daughters' attachment insecurity is mediated by mothers' self-critical or dependent vulnerability to depression.

Figure 1 provides a graphic representation of these hypotheses.

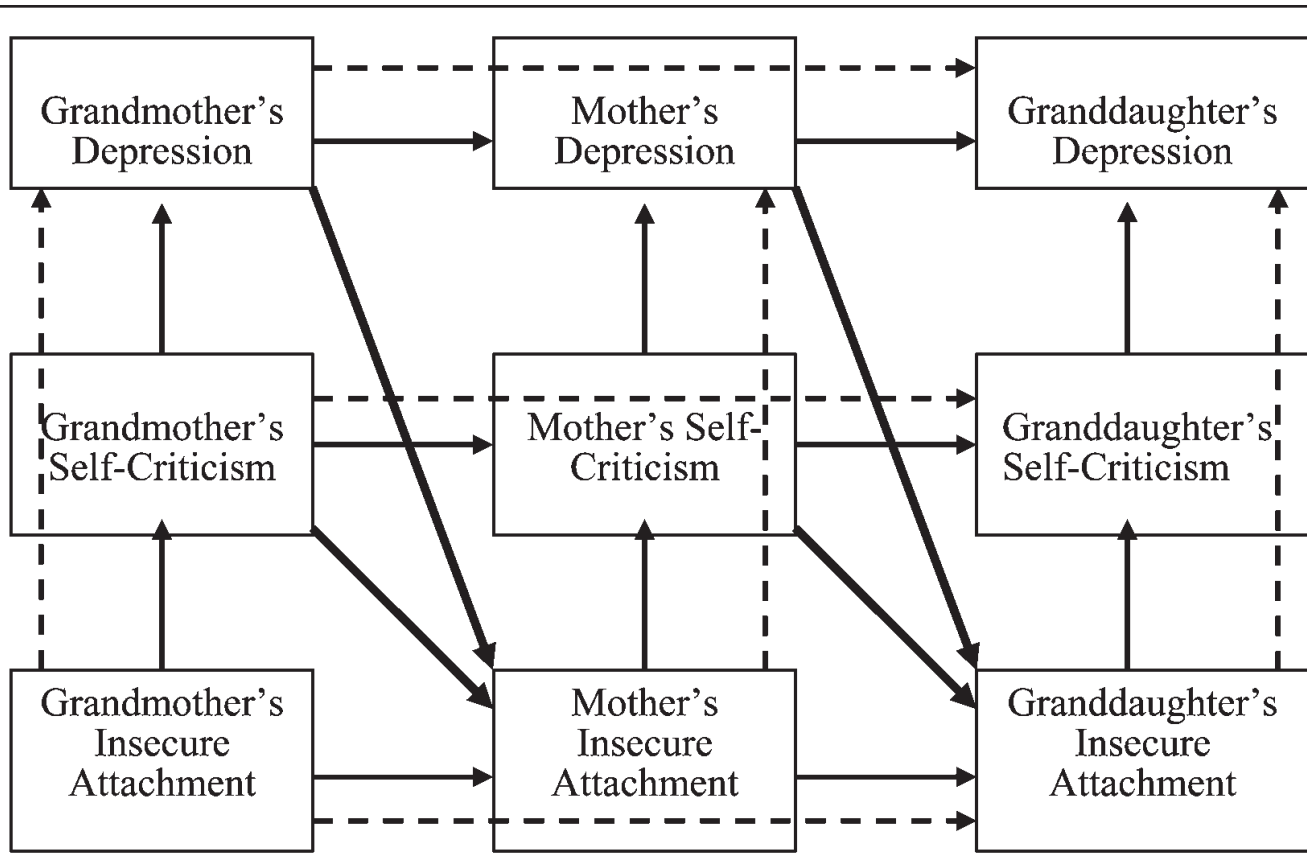


Figure 1 The theoretical model.

NOTE: The general conceptual models that underlie the present study are shown. The figure outlines a mediation model, which assumes that grandmothers' personality vulnerability, depression, and attachment affect granddaughters' personality vulnerability, depression, and attachment through mothers' personality vulnerability and attachment, respectively. Beyond the intergenerational associations, an intervening process is proposed: Within each generation, the effect of attachment insecurity on depression is assumed to be mediated by its effect on personality vulnerability. Moreover, between generations, grandmothers' depression and/or personality vulnerability are assumed to affect mothers' attachment orientation, and mothers' depression and/or personality vulnerability affect granddaughters' attachment orientation. Dashed lines are predicted associations assumed to be mediated by (accounted for by) the hypothesized within-, between-, and across-generational mediators.

METHOD

Participants

Initially, a community sample of 120 granddaughters responded to our call for volunteers to take part in a study about grandmothers, mothers, and daughters' personalities. One requirement for participation in the study was the agreement of all three generations. Potential participants were met and interviewed at one of the family members' homes. Of this pool of potential participants, 83.3% were accepted to participate in the study. The remaining 16.7% (20 triads) did not participate in the study because 17 grandmothers (85% of those not accepted) and 3 mothers (15% of those not accepted) were not fluent in Hebrew. Thus, the final sample included 100 triads of grandmothers (mean age = 73.0, *SD* = 7.28; mean years of formal education = 9.77, *SD* = 2.84), mothers (mean age = 47.91, *SD* = 5.55; mean years of formal education = 13.52, *SD* = 2.97), and grand-

daughters (mean age = 22.82, *SD* = 4.11; mean years of formal education = 12.69, *SD* = 1.57) who were eligible to participate and complete our questionnaires. Because triads who did not participate were dropped from further consideration before completing the questionnaires, comparisons with participants who completed the study could not be made.

Measures

The DEQ. The DEQ was used to assess vulnerability to depression. The DEQ (Blatt et al., 1976) is a 66-item scale that yields three orthogonal factors—Dependency, Self-Criticism, and Efficacy—when subjected to a principal components analysis with varimax rotation. The first two factors assess patterns of experience that contain predispositions to depressive states and are therefore appropriate for use with a nonclinical population. The Dependency factor reflects a preoccupation with abandonment and separation, feelings of being unloved, and

fear of loss (e.g., "Without the support of others who are close to me, I would be helpless"). The second factor, Self-Criticism, reflects concerns about failure and guilt, self-criticism, and being unable to meet high standards set by the self and by others (e.g., "It is not who you are but what you have accomplished that counts"). The third factor, Efficacy, represents personal resilience and inner strength (e.g., "I have many inner resources"). Scores on this third factor were not used in the present study because efficacy is not a risk factor for depression. Internal consistency and test-retest reliability were adequate (Blatt et al., 1982). Items were converted to *z* scores and multiplied by the factor weight coefficient according to Israeli norms (Priel, Besser, & Shahar, 1998). Correlations between pairs' scores on the three DEQ factors as obtained using the English and the Hebrew versions of the DEQ have been found to be in the mean of .91 (Priel et al., 1998). According to Blatt and colleagues (1976), each of the 66 items' standardized scores should be multiplied by the factor weight coefficient obtained in the normed sample for the loadings on both Self-Criticism and Dependency. In this unit-weight scoring system, all 66 items, relative to their factor-weight coefficients, contribute to form the final scores of *both* Dependency and Self-Criticism. Therefore, internal consistency reliability coefficients are reported only for the entire DEQ questionnaire. In the present sample, we obtained internal consistency reliability coefficients of $\alpha = .86$, $\alpha = .89$, and $\alpha = .90$ for grandmothers, mothers, and granddaughters, respectively.

The Center for Epidemiological Studies Depression Scale (CES-D). The CES-D (Radloff, 1977) was used to measure depressive symptoms. The CES-D is a 20-item scale designed to measure current levels of depressive symptomatology in the general population. The items, each of which is assessed on a scale from 0 to 3, measure the following aspects of depression: depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbances (Radloff, 1977). This scale has been shown to be valid and reliable in many different Israeli samples (e.g., see Besser & Priel, 2003a, 2003b; Besser et al., 2002; Priel & Besser, 1999, 2000b, 2002). In the present sample, we obtained internal consistency reliability coefficients of $\alpha = .85$, $\alpha = .90$, and $\alpha = .83$ for grandmothers, mothers, and granddaughters, respectively.

Relationship Questionnaire (RQ). The RQ (Bartholomew & Horowitz, 1991) was used to assess adult attachment style. The RQ consists of four short paragraphs each describing a prototypical attachment pattern (secure, preoccupied, fearful avoidant, or dismissing

avoidant). First, participants select the paragraph that describes them most accurately in a procedure known as categorical attachment classification. Next, participants evaluate on a 5-point scale the extent to which each of the four paragraphs represents them in a procedure known as continuous attachment classification (Bartholomew & Horowitz, 1991). Although some concerns have been expressed about the use of single-item measures to assess attachment (Griffin & Bartholomew, 1994a), the construct validity of this measure has been demonstrated in a variety of contexts (Griffin & Bartholomew, 1994b). For example, RQ self-reports show moderate convergence with interview-based ratings of attachment (Griffin & Bartholomew, 1994b) and are related in theoretically predicted directions to variables such as interpersonal behavior (Bartholomew & Horowitz, 1991), maternal representations (Priel & Besser, 2000b), and spousal support (Besser et al., 2002). In addition, the RQ has produced results very similar to those found with a more recently developed dimensional measure (Brennan, Clark, & Shaver, 1998).

Following recommendations regarding the relevance of continuous over categorical measures of adult attachment (Griffin & Bartholomew, 1994b), our analyses focused on summary scores of PS and PO in the form of continuous attachment dimensions. The PS dimension was computed by summing the scores of the two attachment patterns involving positive models of the self (secure and dismissing) and subtracting the scores of the two attachment patterns involving negative models of the self (preoccupied and fearful). The PO dimension was computed by summing the scores of the two attachment patterns involving positive models of the other (secure and preoccupied) and subtracting the scores of the two attachment patterns involving negative models of the other (dismissing and fearful; Griffin & Bartholomew, 1994b). In the present sample, we obtained internal consistency reliability coefficients of $\alpha = .83$, $\alpha = .80$, and $\alpha = .84$ for the continuous attachment classification for grandmothers, mothers, and granddaughters, respectively.

Procedure

After the first contact with the participants, eligible triads were met and interviewed at one of the family members' homes. Each member of the triad completed the questionnaire package while seated in a separate room. After each member completed the background questionnaire, she completed the DEQ, CES-D, and RQ. The questionnaires were written in Hebrew. The order of presentation of the questionnaires was randomized within and between triads.

RESULTS

The main purpose of this study was to demonstrate our three hypotheses. Hypothesis 1 concerned associations across generations: (a) Depression, attachment insecurity, and personality vulnerabilities to depression are transmitted across three generations, and (b) the transmission of depression, attachment insecurity, and personality vulnerabilities from grandmothers (G1) to granddaughters (G3) is mediated by the mothers' generation (G2). Hypothesis 2 concerned within-generation mediation: Personality vulnerability mediates the association between attachment insecurity and depression. Hypothesis 3 concerned mediation between generations. We compared two theoretically based alternatives: (a) Mothers' depression levels mediate the association between mothers and daughters' attachment insecurity across generations, and (b) the association between mothers and daughters' attachment insecurity is mediated by mothers' personality vulnerability to depression across generations.

Series correlations, regressions, and path structural equation modeling (SEM) analyses were utilized to test these hypothesized associations.

Descriptive Statistics

Differences between the three generations were tested using MANOVA with generation as the independent variable and all variables in the study as the dependent variables. Table 1 presents the means, *SDs*, and univariate *F*s of this analysis. Levels of self-criticism, dependency, PS, and PO were found to be similar across the generations, but grandmothers were significantly higher on levels of current depressive mood than their daughters, $F(1, 297) = 18.90, p < .0001$, and granddaughters, $F(1, 297) = 13.23, p < .0001$. No significant difference was found between mothers and granddaughters' depressive scores, $F(1, 297) = 0.50, p > .48$.

In the present study, 47%, 22%, 13.67%, and 17.33% of the participants reported being secure, fearful, preoccupied, and dismissing, respectively. The three generations' distributions of attachment styles (see Table 2a) did not differ significantly, $\chi^2(df = 6) = 7.14, p = .31$.

Hypothesis 1a: Associations Across Generations

As can be seen in Table 2b, the concordance between grandmothers and mothers' attachment classifications was significant, $\chi^2_{(G1-G2)}(df = 9) = 71.73, p < .0001$; $\kappa_{(G1-G2)} = .49, SE = .06$, Approx. $T = 8.14, p < .0001$; Cramer's $V = .49, p < .0001$. Table 2b also shows a significant concordance between mothers and granddaughters' attachment classifications, $\chi^2_{(G2-G3)}(df = 9) = 64.55, p < .0001$; $\kappa_{(G2-G3)} = .45, SE = .07$, Approx. $T = 7.26, p < .0001$; Cramer's $V = .46, p < .0001$. Finally, the concordance between grandmothers and granddaughters' attachment classifications was also

significant, $\chi^2_{(G1-G3)}(df = 9) = 50.86, p < .0001$; $\kappa_{(G1-G3)} = .37, SE = .068$, Approx. $T = 6.35, p < .0001$; Cramer's $V = .41, p < .0001$.

Table 3 presents the correlations between the ratings of each generation on attachment dimensions (PS and PO), DEQ factors, and depression (CES-D) scores. Significant positive associations, moderate in magnitude, were found between the ratings of the three generations' DEQ factors and PS and PO attachment dimensions. However, nonsignificant low positive correlations were obtained for the three generations' reports of depressive mood. To ensure that the correlations obtained were due to the triadic nature of our sample, we randomly mixed triads so that grandmothers were matched with daughters and granddaughters who were not related to the same family. These data produced nonsignificant correlations.

Hypothesis 1b: Mothers (G2) Mediate the Associations Between Grandmothers (G1) and Granddaughters' (G3) Personality, Attachment, and Depression Variables

To test the mediating role of mothers' (G2) RQ and DEQ variables in the association between grandmothers' (G1) CES-D, RQ, and DEQ variables and granddaughters' (G3) CES-D, RQ, and DEQ variables, regression models were performed. The unit of analysis (Kenny, 2003; Kenny & Judd, 1986) was the generation (between-subjects design with $n = 100$ for each generation). Following Baron and Kenny's (1986) recommendation, three regressions were performed. In the first regression, the direct relationship between the independent variable (G1) and the dependent variable (G3) was investigated. If this relationship attained significance, the mediational model was examined. In the second regression, the relationship between the independent variable and the hypothesized mediator (G2) was estimated. In the third regression, the relationship between the independent variable and the dependent variable, controlling for the hypothesized mediator, was investigated. In this model, mediation would be indicated by the following combination: (a) a significant relationship between the independent variable and the hypothesized mediator, (b) a significant relationship between the hypothesized mediator and the dependent variable, and (c) a decrease in the direct relationship between the independent variable and the dependent variable (Baron & Kenny, 1986; Kenny, Kashy, & Bolger, 1998). If the direct relationship in (c) remained significant, partial mediation would be indicated, whereas if this direct relationship no longer remained significant, full mediation would be indicated. As a further test of mediation, MacKinnon, Lockwood, Hoffman, West, and Sheets's (2002) z' test was computed to examine the significance of the indirect relationship between the inde-

TABLE 1: Differences Between Generations for the Study Variables

Variable	Grandmothers		Mothers		Granddaughters		F(2, 297) ^a
	M	SD	M	SD	M	SD	
1. Positive self ^b	0.98	2.82	0.79	2.92	1.16	2.78	0.42
2. Positive other ^c	0.02	3.13	0.63	2.85	0.69	2.74	1.62
3. Self-criticism	-0.57	0.95	-0.85	1.01	-0.81	0.90	2.46
4. Dependency	-0.35	0.88	-0.56	0.87	-0.57	0.78	2.30
5. CES-D ^d	27.32	8.64	22.30	8.47	23.12	7.32	10.88***

NOTE: N = 100 three-generation triads. CES-D = Center for Epidemiological Studies Depression Scale.

a. Two-tailed test.

b. Positive self = (secure + dismissed) – (fearful + preoccupied).

c. Positive other = (secure + preoccupied) – (dismissed + fearful).

d. Depressive symptomatology.

****p* < .001.

TABLE 2: Analyses of Attachment Styles

<i>(a) Distribution of Attachment Styles in Each Generation</i>					
Generation	Attachment Categories				n
	Secure	Fearful	Preoccupied	Dismissing	
Grandmothers	38	24	15	23	100
Mothers	50	23	11	16	100
Granddaughters	53	19	15	13	100
Entire sample	141	66	41	52	300

<i>(b) Intergenerational Concordance of Attachment Styles</i>					
Grandmothers (G1)	Attachment Categories, Mothers (G2)				Total
	Secure	Fearful	Preoccupied	Dismissing	
Secure	35	1	1	1	38
Fearful	5	14	2	3	24
Preoccupied	1	5	6	3	15
Dismissing	9	3	2	9	23
Total	50	23	11	16	100

Mothers (G2)	Attachment Categories, Granddaughters (G3)				Total
	Secure	Fearful	Preoccupied	Dismissing	
Secure	37	3	4	4	50
Fearful	7	13	2	1	23
Preoccupied	4	1	6	0	11
Dismissing	5	2	1	8	16
Total	53	19	15	13	100

Grandmothers (G1)	Attachment Categories, Granddaughters (G3)				Total
	Secure	Fearful	Preoccupied	Dismissing	
Secure	29	1	5	3	38
Fearful	8	14	2	0	24
Preoccupied	5	3	5	2	15
Dismissing	11	1	3	8	23
Total	53	19	15	13	100

NOTE: G1 = first generation; G2 = second generation; G3 = third generation.

pendent variable and the dependent variable via the hypothesized mediator. Four models were explored (see

Figure 2), one for each of the following four variables: PS, PO, self-criticism, and dependency. Because nonsignificant associations were found for the three generations for the CES-D scores, depression scores did not meet the initial criteria for mediation (there is no effect to be mediated).

The direct paths from G1 to G3 for the DEQ factors and for the RQ factors were significant (see the values in parentheses in Figure 2). As can be seen in Figure 2, grandmothers' (G1) scores were no longer significantly associated with the granddaughters' scores (G3) except for the PS measure, and mothers' (G2) scores were significant predictors of granddaughters' (G3) scores. The drops in the coefficients of the direct paths from G1 to G3 once the G2 reports mediator was controlled (see values outside parentheses in Figure 2) were significant according to the *z'* test (MacKinnon et al., 2002), *z'* = 2.00, *p* < .045; *z'* = 2.41, *p* < .016; *z'* = 2.57, *p* < .01; and *z'* = 2.83, *p* < .005, for self-criticism, dependency, PS, and PO, respectively. Thus, except for the significant partial mediation for PS, G2 scores are almost full (although not necessarily exclusive) mediators of the association between G1 and G3 scores. As can be seen in Figure 2, grandmothers' (G1) reports were significantly associated with the mothers' reports, which, in turn, were significantly associated with granddaughters' reports (G3) for the four variables analyzed.

Mediations Within and Between Generations: Analytic Strategy

Table 4 presents the correlations between attachment dimensions, self-criticism, dependency, and depression within each generation. Within each generation, we found significant associations between the low PS attachment dimension and the self-criticism and dependency personality vulnerability assessments. In addition, within each generation, we found significant associations between assessments of self-criticism, low PS, and depression. Dependency was not associated with depres-

TABLE 3: Correlations Between Generations: Relationship Questionnaire, Depressive Experiences Questionnaire, and Center for Epidemiological Studies Depression Scale (CES-D) Variables

Variable	Grandmothers and Mothers	Grandmothers and Granddaughters	Mothers and Granddaughters
1. Positive self ^a	.44***	.48***	.44***
2. Positive other ^b	.47***	.35***	.42***
3. Self-criticism	.29**	.22*	.29**
4. Dependency	.40***	.23*	.34***
5. CES-D ^c	.15	.12	.19

NOTE: *N* = 100 three-generation triads; two-tailed test.

a. Positive self = (secure + dismissed) – (fearful + preoccupied).

b. Positive other = (secure + preoccupied) – (dismissed + fearful).

c. Depressive symptomatology.

p* < .05. *p* < .01. ****p* < .001.

sion levels in any of the three generations, and the PO dimension of attachment was associated neither with personality vulnerability factors nor with depression in any of the three generations. The examination of the effects of PO × PS and Dependency × Self-Criticism interactions on depression levels also did not produce significant results.¹ Because PO and dependency did not produce significant associations with depression scores within any of the three generations, they were excluded from our subsequent analyses of the within-generation mediation models following Baron and Kenny’s (1986) criteria. Furthermore, as can be seen in Figure 2, G1’s self-criticism association with G3’s self-criticism was found to be nonsignificant (demonstrating that it is mediated by G2’s self-criticism). Accordingly, we excluded this path from all subsequent analyses while retaining G1’s PS association with G3’s PS, which remained significant thus indicating only partial mediation.

Path models were performed using SEM (Hoyle & Smith, 1994). Using AMOS 4.0 (Arbuckle, 1999), which is based on the variance-covariance matrix, we tested the adequacy of the measurement model and the fit of the structural models using maximum likelihood estimations.

We used the chi-square statistic as a fit index to evaluate how the proposed model (i.e., the hypothesized covariance matrix that represents our specified model) fit the data as compared to the observed matrix generated by the observed empirical data. A nonsignificant chi-square has traditionally been used as a criterion for not rejecting an SEM model; a nonsignificant chi-square indicates that the discrepancy of the covariance matrix of the parameters estimated based on the model being evaluated is not different from the observed matrix based on the empirical data. However, this is a very strict,

sensitive criterion that is influenced by the number of variables and participants (Landry, Smith, Swank, & Miller-Loncar, 2000). We therefore used additional fit indices²: the chi-square/*df* ratio, the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the goodness-of-fit index (GFI), and the incremental fit index (IFI). The unit of analysis (Kenny, 2003; Kenny & Judd, 1986) was the generation (between-subjects design with *n* = 100 for each generation).

Our model (Figure 1) includes observed variables only. As a first stage before using these variables separately to test our within- and across-generation hypotheses, we wanted to rule out the possibility of an underlying single vulnerability construct for the personality, attachment, and depressive measures in each generation, as well as the possibility that the three generations share method variance for the three measures (depression, PS, and self-criticism). The preliminary measurement models address these issues.

Preliminary Measurement Models

The claim has been made that there is considerable overlap between the constructs of depression and self-criticism (Coyne & Whiffen, 1995). To take this into account when testing our models, we controlled for the shared variance of the measures of depression with the DEQ and RQ variables that participated in the models. It is also the case that the self-critical orientation described is not independent of attachment styles (Blatt & Homann, 1992). That is, measuring all variables from a single source might result in inflated associations between constructs due to respondents’ dispositions or global personality traits (Watson & Clark, 1984). Because each of these variables is measured within generations by self-report, they share identical method variance. It could be argued, therefore, that for each generation, all the variables could be subsumed under one large latent construct: vulnerability. To rule out this possibility, we performed a preliminary measurement model (Anderson & Gerbing, 1988; Hoyle, 1991) in which we defined one latent construct—vulnerability, represented by three indicators: low PS, self-criticism, and depression—for each generation. In the measurement model, the three vulnerability constructs were defined to be correlated (correlations between three exogenous latent constructs). This measurement model resulted in the following indices of fit, all of which were unacceptable, $\chi^2(24, N = 100) = 115.12$; $\chi^2/df = 4.80$; *p* < .0001; GFI = .82; CFI = .50; IFI = .52; RMSEA = .20.

Although this measurement model indicates that the within-generation variables do not measure a single latent construct thus allowing us to use them separately to test our within-generation hypotheses, our hypotheses also involve between-generation paths—within fami-

TABLE 4: Correlations Within Generations: Relationship Questionnaire, Depressive Experience Questionnaire, and Center for Epidemiological Studies Depression Scale (CES-D) Variables

Variable	Grandmothers					Mothers					Granddaughters				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1. Positive self ^a															
2. Positive other ^b	.05					.13					-.00				
3. Self-criticism	-.26**	.04				-.34***	-.04				-.28**	-.13			
4. Dependency	-.27**	-.06	.31**			-.28**	-.09	.13			-.33***	-.03	.15		
5. CES-D ^c	-.18*	.03	.46***	.15		-.27**	.04	.38***	.09		-.18*	-.06	.51***	.17	

NOTE: $N = 100$ three-generation triads; two-tailed test.

a. Positive self = (secure + dismissed) – (fearful + preoccupied).

b. Positive other = (secure + preoccupied) – (dismissed + fearful).

c. Depressive symptomatology.

* $p < .05$. ** $p < .01$. *** $p < .001$.

lies—that would capture two phenomena: a causal effect and shared method variance. That is, measuring our variables for the three generations using the same measures (DEQ, CES-D, and RQ) might result in inflated associations between generations for the same constructs because of shared method variance. It could be argued, therefore, that the same variables in different generations could be subsumed under three large latent constructs: depression, self-criticism, and PS. To rule out this possibility, we performed a second preliminary measurement model in which we defined three latent constructs—depression, self-criticism, and PS—each represented by three indicators: the scores obtained for the variable measured using the same measure for the three generations (scores obtained for variables obtained between generations for the same measures were a latent factor on which the three indicators load). In the measurement model, the three measured constructs were defined to be correlated (correlations between three exogenous latent constructs). This measurement model resulted in the following indices of fit, all of which were also unacceptable, $\chi^2(24, N = 100) = 107.99$; $\chi^2/df = 4.50$; $p < .0001$; GFI = .81; CFI = .54; IFI = .57; RMSEA = .19. Results of this model suggested that the between-generation variables do not measure a single latent construct and that we could use them separately to test our across-generation hypotheses without controlling for the errors. We thus continued to test for the proposed within- and between-generation path models using the observed variables (see Figure 1).

Hypothesis 2: Within Generations, Self-Criticism Mediates the Association Between PS and Depression

Within generations, we hypothesized that self-criticism mediates the effect of low PS on depression. Following Baron and Kenny (1986), we estimated in the first step, simultaneously among all three generations, the direct effects of low PS on depression (predictor on

outcome). In the second step, we estimated the direct effects of low PS on self-criticism (predictor on mediator). Both models simultaneously included the already-obtained intergenerational associations of PS and self-criticism. The model specifying a direct effect of PS on depression (Figure 3a; predictor on outcome) also controlled for the intergenerational associations of depression and resulted in the following acceptable indices of fit, $\chi^2(6, N = 100) = 12.73$; $\chi^2/df = 2.1$; $p > .05$; GFI = .96; CFI = .91; IFI = .92; RMSEA = .01. These results indicated that beyond the intergenerational associations of PS and while controlling for the intergenerational associations of depression, PS has significant effects on depression in all three generations (see Figure 3a).

The model specifying direct effects of low PS on self-criticism (Figure 3b; predictor on mediator), mediated by G2's self-criticism (which was thus not included in the model), resulted in the following acceptable indices of fit, $\chi^2(7, N = 100) = 11.42$; $\chi^2/df = 1.63$; $p > .12$; GFI = .96; CFI = .95; IFI = .96; RMSEA = .000. These results indicate that beyond the intergenerational associations of PS and controlling for intergenerational associations of self-criticism levels, low PS has significant effects on self-criticism in all three generations (see Figure 3b).

These models indicated and verified the existence of the required initial significant effects of the predictors (PS) on the outcomes (CES-D) and of the predictors (PS) on the mediators (self-criticism) simultaneously among all three generations (see Hoyle & Smith, 1994).

We proposed that beyond the intergenerational associations of self-criticism and low PS, while controlling for intergenerational associations of depression levels, self-criticism mediates the effects of low PS on depression within each generation. Specifying the complete direct-indirect mediational effect model resulted in the following acceptable indices of fit, $\chi^2(19, N = 100) = 30.70$; $\chi^2/df = 1.62$; $p > .05$; GFI = .95; CFI = .94; IFI = .94; RMSEA = .01.

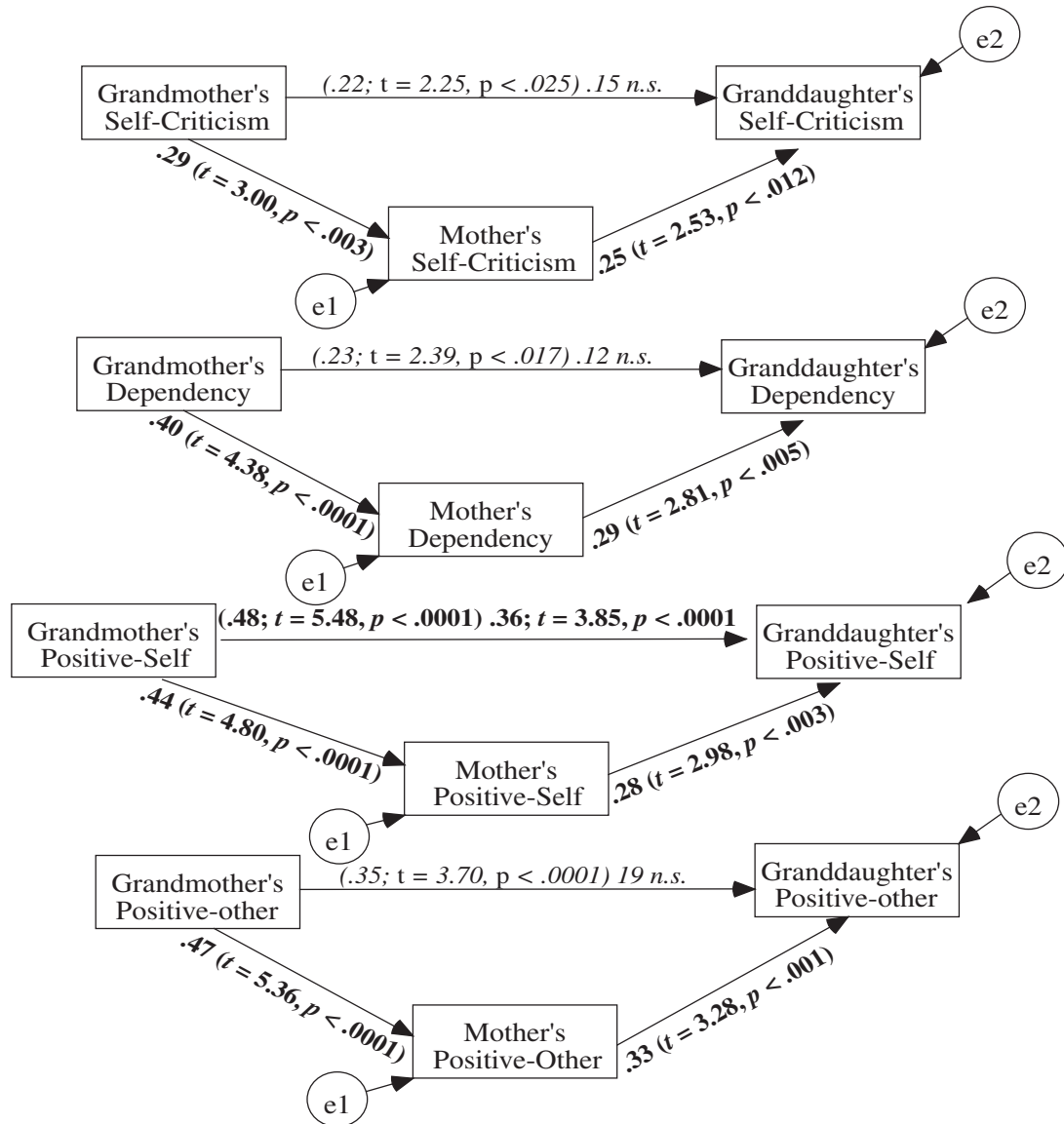


Figure 2 The intergenerational associations of Relationship Questionnaire and Depressive Experiences Questionnaire factors from grandmother (generation 1) to granddaughter (generation 3) and the mediating role of the mother (generation 2).

NOTE: Bolded estimates are significant regression coefficient β s. Numbers in parentheses are β s before mothers' scores were entered into the model. Small circles represent residual variances, and unidirectional arrows depict hypothesized directional or causal links.

Hypothesis 3: Alternative Theoretical Models for the Across-Generations Mediation

We proposed two theoretical competing explanations for the across-generational associations between mothers and daughters' insecure attachment styles. In the first, mothers' depression was assumed to mediate the effect of mothers' attachment insecurity on daughters' attachment insecurity; alternatively, mothers' self-critical personality was assumed to play the mediating role in

the association between mothers and daughters' attachment styles.

First model: Mothers' depression mediates the inter-generational associations between insecure attachment assessments. The first theoretical model proposed that depression in one generation leads to attachment orientation in the next generation (while controlling for the intergenerational associations of PS, self-criticism, and depression). We added to the previous model the effect

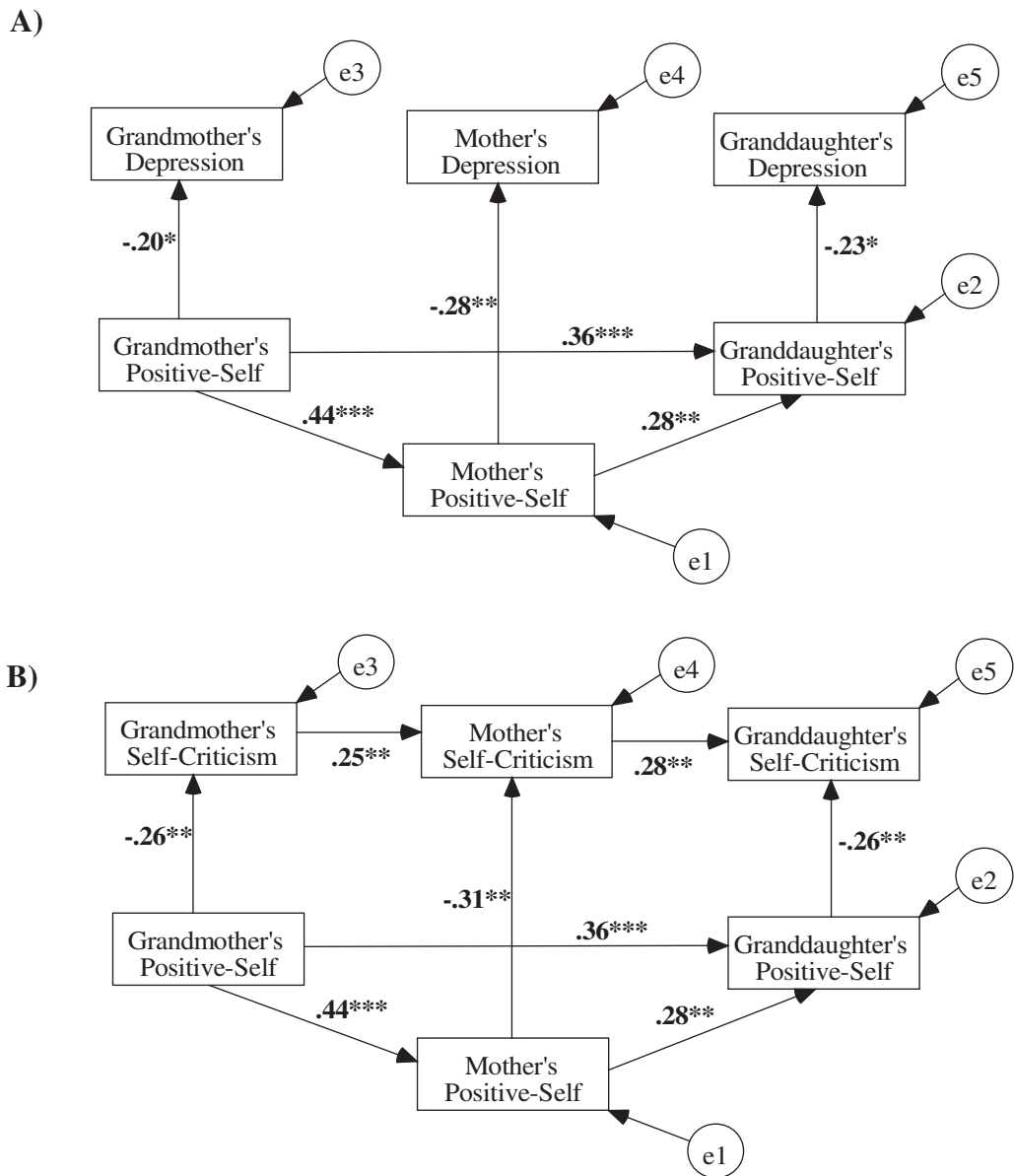


Figure 3 (a) The effects of low positive self on depression (predictor on outcome). (b) The effects of low positive self on self-criticism (predictor on mediator).

NOTE: The first model (Figure 3a) was estimated while controlling for the associations between the three generations' depression levels. These paths were all nonsignificant; to simplify the presentation, these paths were removed from the figure. Bolded estimates are standardized maximum likelihood parameters. Small circles represent residual variances; unidirectional arrows depict hypothesized directional or causal links.

* $p < .05$. ** $p < .01$. *** $p < .001$.

of G1's depression on G2's PS and the effect of G2's depression on G3's PS (see Figure 4). Specifying the complete within- and across-generation mediational effect model resulted in the following acceptable indices of fit: $\chi^2(17, N = 100) = 23.56$; $\chi^2/df = 1.39$; $p > .05$; GFI = .95; CFI = .96; IFI = .97; RMSEA = .01. Adding the across-generation paths from mothers' depression to

daughters' attachment insecurity resulted in significantly improved fit, $\Delta\chi^2(2, N = 100) = 7.14, p < .03$.

As can be seen in Figure 3a, direct paths from PS to depression were significant, $\beta_{G1} = -.20, t = -2.01, p < .05$; $\beta_{G2} = -.28, t = -2.92, p < .01$; and $\beta_{G3} = -.23, t = -2.35, p < .02$. Figure 4 shows, however, that in the complete mediation model these associations decreased and became

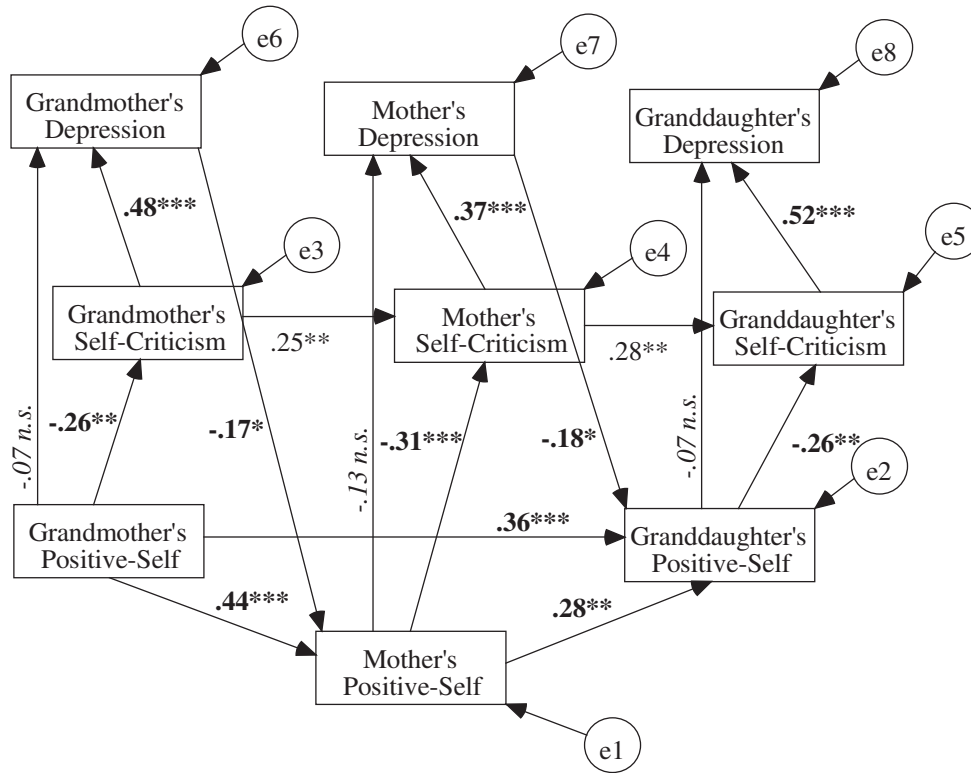


Figure 4 The complete model. Within generations: the mediating role of self-criticism in the association between low positive self and depression. Between generations: the effect of maternal depression on daughters' low positive self and the across-generation associations.

NOTE: The model was estimated while controlling for the associations between the three generations' depression levels. These paths were all nonsignificant; to simplify the presentation, these paths were removed from the figure. Bolded estimates are standardized maximum likelihood parameters. Small circles represent residual variances; unidirectional arrows depict hypothesized directional or causal links.

* $p < .05$. ** $p < .01$. *** $p < .001$.

nonsignificant, $\beta_{G1} = -.07, ns$; $\beta_{G2} = -.13, ns$; and $\beta_{G3} = -.07, ns$. The decreases in the coefficients of the direct paths from PS to depression, once the self-criticism mediator was controlled, were significant according to the z' test (MacKinnon et al., 2002), $z'_{G1} = 2.37, p < .018$; $z'_{G2} = 2.53, p < .011$; and $z'_{G3} = 2.58, p < .009$. Thus, beyond the intergenerational associations of self-criticism and low PS and while controlling for the intergenerational associations of CES-D and for the across-generation effects of mothers' depression on daughters' low PS, reports of self-criticism are almost full (although not necessarily exclusive) mediators of the association between low PS reports and depression reports. This indicates that the low PS dimension of attachment underlies the personality vulnerability factor of self-criticism, $\beta_{G1} = -.26, t = -2.68, p < .01$; $\beta_{G2} = -.31, t = -3.40, p < .001$; and $\beta_{G3} = -.26, t = -2.89, p < .01$, which, in turn, associates with depression levels, $\beta_{G1} = .48, t = 5.40, p < .0001$; $\beta_{G2} = .37, t = 3.96, p < .0001$; and $\beta_{G3} = .52, t = 6.06, p < .0001$.

Moreover, we found that high levels of maternal depression associate with daughters' low PS, $\beta_{G1-G2} = -.17, t = -1.98, p < .05$, and $\beta_{G2-G3} = -.18, t = -2.11, p < .05$; daughters' low PS, in turn, associates with daughters' self-criticism, which, in turn, associates with daughters' depression levels (see Figure 4). As can be seen in Figure 4, the associations between mothers and daughters' attachment, while the effect of mothers' depression on daughters' attachment was controlled, remained significant. This indicates that beyond the intergenerational associations of PS, the PS of one generation has significant indirect effects on PS in the next generation through its effects on depression; low maternal PS is significantly associated with high depression, which, in turn, is associated with low PS in daughters. These effects did not alter the obtained significant effects of grandmothers' PS on mothers and granddaughters' PS and of mothers' PS on granddaughters' PS found in the previous models thus demonstrating significant indirect effects for mothers' PS on daughters' PS through the

effect of mothers' depression on daughters' PS (see Holmbeck, 1997, for further elaboration on the distinction between mediated and indirect effects). The final model (see Figure 4) accounted for 25%, 20%, and 29% of the variances in CES-D and for 7%, 19%, and 17% of the variances in self-criticism for G1, G2, and G3, respectively, and for 22% and 31% of the variances in PS for G2 and G3, respectively.

Second model: Mothers' self-criticism mediates the intergenerational associations between insecure attachment assessments. The second theoretical model proposed that self-criticism in one generation leads to attachment orientation in the next generation (while controlling for the intergenerational associations of PS, self-criticism, and depression). To examine this alternative model, additional pathways from G1's self-criticism to G2's low PS and from G2's self-criticism to G3's low PS were added to the model presented in Figure 4. This model also achieved adequate fit, $\chi^2(15, N = 100) = 23.00$; $\chi^2/df = 1.53$; $p > .08$; GFI = .95; CFI = .96; IFI = .96; RMSEA = .02. However, a comparison between this model and the model presented in Figure 4 suggests that the addition of these paths does not significantly improve the model fit, $\Delta\chi^2(2, N = 100) = 0.56, ns$. The previously obtained significant paths were not altered. Moreover, the direct effects added from G1's self-criticism to G3's low PS, $\beta = .07, ns$, and from G2's self-criticism to G3's low PS, $\beta = .02, ns$, were nonsignificant. To ensure that these nonsignificant effects were not obtained because of our model specification of the effects from G1's depression to G2's low PS and from G2's depression to G3's low PS, we reevaluated the effects of G1's self-criticism on G2's low PS and of G2's self-criticism on G3's low PS while removing these effects. Results indicated that the previously obtained significant paths were not altered, and the effects from G1's self-criticism to G3's low PS, $\beta = -.01, ns$, and from G2's self-criticism to G3's low PS, $\beta = .07, ns$, remained nonsignificant.

To obtain the most parsimonious model, we modified the model presented in Figure 4 by removing statistically nonsignificant paths (Bentler & Mooijaart, 1989); we removed the nonsignificant direct paths from PS to CES-D for the three generations. The more parsimonious model—the final model—fit the data very well, $\chi^2(20, N = 100) = 26.33$; $\chi^2/df = 1.32$; $p > .06$; GFI = .94; CFI = .97; IFI = .97; RMSEA = .000. No significant difference in the change in fit between the previous and the reduced model was found, $\Delta\chi^2(3, N = 100) = 2.77, ns$.

Summary of Results

1. Significant associations were found between generations for personality as well as for attachment scores (at both categorical and dimensional levels) but not for the depression scores.

2. The significant associations obtained between G1 and G3's ratings were significantly mediated by G2 except for the PS dimension of attachment, which demonstrated both a direct effect of G1 on G3 as well as a significant indirect effect through G2's PS.
3. Within generations, self-criticism, but not dependency, and low PS, but not low PO scores, were found to be significantly associated with depression.
4. Within generations, the associations between low PS and depression were mediated by self-criticism.
5. From the two theoretical competing models proposed for across-generation transmission of attachment insecurity, the mothers' depression levels, but not their self-critical personality levels, were found to significantly (although not fully) mediate the associations between mothers and daughters' low PS.

The final model (see Figure 4) indicates that beyond the significant intergenerational associations and the hypothesized mediating role of G2, within each generation, low PS (attachment insecurity) associates with self-criticism, which, in turn, affects depression. In addition, across-generation maternal depression leads to daughters' attachment insecurity, which, in turn, fosters daughters' self-criticism and vulnerability to higher depression levels.

DISCUSSION

The current study represents a first attempt to examine the associations of attachment insecurity and vulnerability to depression in three generations of women. Moreover, this study constitutes a first approach to the delineation of the role played by self-criticism in the association between negative models of the self and depression across generations.

In the present study, our main interest was to explore the mediating role of trait vulnerabilities in the association between attachment insecurity and depressive mood within generations and in the transmission of attachment insecurity between generations. Using a cross-sectional, multigenerational design, we explored the pattern of relations between all of the following: grandmothers, their daughters, and their granddaughters' self-reported depression; PS and PO attachment dimensions; and the trait vulnerabilities of self-criticism and dependency. This study's findings supported the hypothesized intergenerational associations and demonstrated the assumed mediation effect of G2: Grandmothers' (G1) attachment insecurity and personality vulnerabilities to depression associated with their granddaughters' (G3) attachment insecurity and personality vulnerabilities to depression via the association between grandmothers and mothers' (G2) attachment insecurity and personality vulnerabilities to depression. Overall results pointed to important intergenerational continuities of attachment and vulnerability assessments. In addi-

tion, our findings indicate two main associations: First, within generations, self-criticism was found to mediate the association between low PS and depression. Second, between generations and beyond the intergenerational associations, mothers' depression effects daughters' low PS, which, in turn, fosters daughters' self-criticism and depression.

Intergenerational Continuities

Our findings regarding associations of the categorical attachment patterns among generations indicate that daughters' attachment styles are in most cases similar to their mothers' attachments styles (see Table 2). Although the distributions of the four attachment styles do not significantly differ between the three generations and overall there is significant intergenerational transmission of attachment patterns, the findings presented in Table 2 do indicate some changes in attachment categorical patterns between generations—mainly changes from attachment insecurity in one generation to secure attachment in the following one. The intergenerational congruence of attachment styles suggests an important link between attachment models and caregiving practices: The parenting received by a child might produce a model of attachment that influences this child's future parenting style. Such a model has been suggested by Belsky's (1997) evolution theory perspective.

The similarities in attachment patterns among generations found in the present study raise the issue of the coexistence of continuity with the well-known dynamic fluctuations in the functioning of the attachment behavior system (e.g., Davila, Burge, & Hammen, 1997). Bowlby (1973) regarded early interactions with caregivers as formative, but he proposed that working models of attachment are continually revised in light of new relationship experiences. Two general perspectives have recently been proposed and discussed in the literature on attachment. Fraley (2002) assigned the name *revisionist* based on a perspective that assumes that early attachment representations are revised and updated in light of the individual's ongoing experiences and consequently may or may not correspond to later attachment representations. The second perspective, which Fraley termed *prototype*, assumes that early attachment representations are retained throughout development and have an ongoing effect on attachment dynamics throughout the life course. The moderate correlations obtained in the present study might indicate that early expectations persist to some degree because individuals tend to elicit from their environments reactions that are congruent with their internal working models. Our findings support to some extent a prototype-like process in which early prototypes moderately influence subsequent interactions thus indicating relative stability along with

change. This assumption is strengthened by the disappearance of associations between generations when these are treated as independent samples.

Against the background of the similarities and associations across generations found for the personality vulnerability factors and the attachment dimensions, it is important to recall that the levels of depression differed across generations: Grandmothers reported significantly higher depression levels than their daughters and granddaughters. These mean differences are in line with the growing recognition of the prevalence of depression in late adulthood (e.g., Alexopoulos, Young, & Meyers, 1993). In addition, whereas the personality variables were associated intergenerationally, nonsignificant low positive correlations between generations were obtained for reports of depressive mood. These results suggest that although trait vulnerabilities might be transmitted from one generation to the next, actual depressive mood is more significantly affected by each individual's particular experiences. These findings shed light on a conceptualization of vulnerability to depression as stemming mainly from an individual's history of relationships, whereas actual depressive symptomatology appears to be more significantly affected by contextual factors (Priel & Besser, 2002).

The significant associations between generations on attachment dimensions and personality vulnerabilities to depression can be viewed from two different but complementary perspectives: the environmental and the neurodevelopmental genetic points of view. According to the environmental perspective, the contribution of a less than optimal parenting environment as a plausible mechanism of intergenerational transmission of vulnerability is consistent with findings that point to the importance of sensitive and responsive caregiving on the part of the attachment figure for the development of a child's secure attachment (Belsky, 1999). Research on trait vulnerability to depression demonstrated that mothers high in self-criticism are controlling and engage in higher levels of negative feedback than mothers who are not high in self-criticism (Thompson & Zuroff, 1998).

The intergenerational associations of personality traits can also be viewed from the complementary neurodevelopmental perspective (Perry, 1997). Researchers in this field have argued that childhood experiences affect brain development, which, in turn, influences emotional, behavioral, and cognitive development. With increasingly advanced genetic profiles available and given the current state of knowledge in the field of behavioral genetics, particularly Reiss and colleagues' (Reiss, Cederblad, et al., 2001; Reiss, Pederson, et al., 2001) extensive and systematic work, scientists have been able to establish a relationship between an individual's genetic makeup and a predisposition to depression

(e.g., Bonnier et al., 2002). In addition, it has been reported that genetic transmission may account for some component of the prediction from parental attachment status to a child's security of attachment (van Ijzendoorn, 1992). Thus, brain research also emphasizes the impact of early experiences and assumes intergenerational transmission of traits.

Moreover, the literature on intergenerational transmission of risk suggests that parents and children may have some common inherited personality traits that promote, or hinder, both parent and child development (e.g., McGue & Lykken, 1992). For instance, genetic factors have been implicated in individual differences in optimism (Schulman, Keith, & Seligman, 1993) and neuroticism (Jang, Livesley, Angleitner, Riemann, & Vernon, 2002). Finally, whereas results of a recent behavioral genetic study involving 300 twin pairs reported by Spinath and O'Connor (2003) indicated modest overlap between personality and parenting, the moderate phenotypic covariation found was attributed largely to nongenetic factors. However, it is important to note that genetic influence does not preclude the effects of environmental factors and that parental care characteristics such as responsive sensitivity are a basic, cumulative product of both genetic and environmental influences (see also Jang et al., 2002; Reiss, Cederblad, et al., 2001; Reiss, Pederson, et al., 2001).

The environmental and the neurodevelopmental genetic perspectives can be integrated in a conceptualization of the intergenerational transmission of personality trait vulnerabilities as a dynamic transaction between environmental events and physical, sometimes inborn, characteristics.

Within-Generation Mediation

The current study's results confirmed the hypothesized mediation of self-criticism in the association between attachment insecurity and depression. These results reveal that within each of the three generations, the low positive self-attachment dimension was associated with both self-criticism and dependency. However, only self-criticism and the low positive self-attachment dimension were found to associate with depression. These findings are congruent with the accumulating research on self-critical vulnerability and with previous findings regarding the low positivity of the self-dimension of attachment as vulnerability to depression (e.g., Besser & Priel, 2003a; Besser et al., 2002; Hammen et al., 1995). Perceptions of the self as unworthy might be one of the predictors of the development of self-criticism, which, in turn, is associated with increased vulnerability to depression. Low positivity of self was significantly associated with dependency, as expected, but did not lead to increased depressive symptomatology. These

findings join an accumulating literature on the issue of the differences between dependency and self-criticism as vulnerability factors among women: Dependency, implying a primary orientation toward others, may not lead to depression within specific contextual factors such as increased social support (Priel & Besser, 1999, 2002). In a review of studies with different populations, Helgeson (1994) presented extensive evidence for the orientation toward the self as a vulnerability factor. At the same time, a primary orientation toward others among women (which would characterize dependency) does not seem to constitute a mental health vulnerability at all, even though it may be a diathesis for physical illness (Helgeson, 1994). Thus, the study of dependency may be confounded by gender role or specific life circumstances variables. Further studies including samples of both women and men are important for a better understanding of the correlates of the dependency vulnerability trait.

Between-Generation Mediation

Our analyses indicated that, when controlling for each generation's depression levels, grandmothers' depression levels did significantly affect mothers' attachment insecurity. Although depression in one generation was not found to be significantly associated with depression in the following generation, our findings demonstrated significant intergenerational effects for mothers' depression on daughters' attachment orientations (low PS), which, in turn, promoted daughters' self-criticism and vulnerability to depression. This finding is congruent with Blatt and Homann's (1992) argument that attachment style differences precede individual differences in self-criticism and depression. Moreover, the present study's findings confirmed the assumption that insecurely attached mothers who tend to be self-critical are prone to depression. Furthermore, in congruence with the ample literature on the effects of maternal depression, our findings suggest that maternal depression might associate with avoidant child care practices that lead to daughters' attachment insecurity, which, in turn, promotes self-criticism and depression.

Maternal depression (but not maternal self-criticism) mediates the association between mothers and daughters' attachment insecurity. Both maternal self-criticism and maternal depression levels have been found to associate with less than optimal parenting practices. However, maternal depression appears as the most powerful variable affecting offspring attachment insecurity, plausibly because of its stronger effects on parental practices. It can be argued that the mother's depression levels directly associate with actual disturbances in the mother-child relationships. Moreover, maternal depression has been found to constitute the strongest predictor of a

child's depression (Downey & Coyen, 1990; Hammen, Burge, & Adrian, 1991; Hammen, Burge, Burney, & Adrian, 1990). Hammen and her colleagues (1990, 1991) noted the extensive implications of maternal depressive symptomatology, arguing that it is not necessarily maternal depression per se that transmits risk for depression but, rather, that the child's depression occurs in the context of impaired maternal functioning and chronically stressful family conditions as well as in the context of maternal dysphoric mood (Burge & Hammen, 1991; Conrad & Hammen, 1989; Hammen, 1991; Hammen, Burge, & Stansbury, 1990). It has been hypothesized that parental sensitive responsiveness is the main mechanism through which attachment security is transmitted (e.g., Priel & Besser, 2000a). Mickelson, Kessler and Shaver (1997) suggested that personal behavior that parents could not easily control (e.g., depression) tended to be associated with an avoidant adult attachment style in their offspring.

The nonconfirmation of the model in which self-criticism mediates the association between mothers and daughters' attachment insecurity reveals an important difference between self-criticism and depression as assessed in the present study. This difference has also been noted by Zuroff et al. (2004), thus demonstrating that self-criticism is a continuous dimension that can be identified and measured independently from neuroticism, depression, and social context. Our findings support the main tenet that Blatt's (1974, 1991) personality vulnerability variables cannot be reduced to depressive symptomatology thereby pointing to self-criticism as a state of mind with less extensive deleterious effects on caregiving practices than depression. Moreover, theoretically, one could assume that maternal self-criticism may not necessarily affect children's depression but, rather, aspects of child development related to perceived competence and achievement such as intrinsic or achievement motivation. This is an issue that deserves further research.

From a methodological perspective, our use of multiple reporters and multiple indicators, measured in the same way for all generations, strengthens findings by increasing validity and reducing method variance. Our results also indicate the importance of moving beyond a simple dyadic focus to one that encompasses a process that moves from one parent-child dyad to a new dyad in the next generation.

Limitations and Suggestions

Although the current investigation yielded many unique findings, some limitations must be acknowledged. Whether fathers and grandfathers might also contribute to the intergenerational transmission of attachment patterns and vulnerabilities to depression

remains an important question for further research. Second, to enable drawing conclusions regarding process, long-term longitudinal research is needed. Although we used extensive data collection techniques, the current investigation was cross-sectional in nature and causal statements are therefore not warranted. For example, one important question is whether depression causes self-criticism rather than the other way around.³ Further research using a longitudinal design and two time measures of each construct within a crossed-lagged model might address this issue. In addition, although in our study measurement models indicated that we could use the within-generation variables and the between-generation variables separately to test our hypotheses, it is still the case that observed variables standing alone in a model are considered and specified to be free of error of measurement (i.e., the parameter estimates of the direct between-generation paths capture two phenomena, a causal effect and shared method variance). Accordingly, future intergenerational studies using latent variables with multiple indicators (multimethod and multimeasures) will have the benefit of controlling for the shared method errors between the three-generation triads.

Third, it is evident that the generalizability of these findings has yet to be established; future research should explore this issue in other communities and in clinical samples drawn from a variety of cultures and with both younger and older respondents. Fourth, further research using interview techniques and external assessments of variables is important to evaluate the validity of the obtained findings. For example, research using direct assessments of parental behavior and family interactions may prove useful in advancing the study of the mechanisms accounting for the intergenerational transmission of personality vulnerability factors. Finally, attention needs to be paid to the question of specificity: Further research is needed to investigate the possibility that attachment insecurity and self-criticism might also contribute to anxiety disorders and symptoms.

Within these limitations, the current study represents a first attempt to examine the transmission of adult attachment insecurity across three generations of women and to study its associations with trait vulnerabilities to depression. Moreover, this study constitutes a first approach to the delineation of the roles played by self-criticism and depression in the association between negative models of the self and vulnerabilities to depression across generations.

NOTES

1. Variables were centered (represented as deviations from their own sample means) before the computation of the product (interaction) terms by multiplying the relevant variables.

2. In evaluating the overall goodness of fit of the path models, the following criteria were used: (a) the chi-square/*df* ratio, (b) the robust

comparative fit index (CFI; Bentler, 1990), (c) the goodness-of-fit index (GFI; Jöreskog & Sörbom, 1985), and (d) the incremental fit index (IFI; Bollen, 1989). These indices all adjust for sample size and specify the amount of covariation in the data accounted for by the hypothesized model relative to a null model that assumes independence among variables. For the CFI, GFI, and IFI, where 1.0 indicates a perfect fit, a cutoff of .90 is generally accepted as indicating a good fit. For the root mean square error of approximation (RMSEA; Browne & Cudeck, 1993), a value of less than .05 indicates a good fit. We chose to accept a model in which the chi-square/*df* ratio was ≤ 3 or in which the CFI, GFI, and IFI were all greater than .90. These moderately stringent acceptance criteria clearly reject inadequate or poorly specified models while accepting models that meet real-world criteria for reasonable fit and representation of the data (Kelloway, 1998).

3. In an ancillary analysis, when the direction of specification of self-criticism and depression was reversed (depression \rightarrow self-criticism instead of self-criticism \rightarrow depression), we found that the model specifying the effect of depression on self-criticism resulted in an increased chi-square value ($\chi^2 = 4.08$), a larger *p* value, increased RMSEA, and increased Akaike information criterion (Akaike, 1987), all of which indicate that compared to the depression \rightarrow self-criticism model, the self-criticism \rightarrow depression model better fits the empirical data. However, it should be noted that for some models, the fit would change when paths are reversed, but for many, the fit is the same (these are known as equivalent models). Thus, theory must be used to decide causal direction.

REFERENCES

- Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, *52*, 317-332.
- Alexopoulos, G. S., Young, R. C., & Meyers, B. S. (1993). Geriatric depression: Age of onset and dementia. *Biological Psychiatry*, *34*, 141-145.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*, 411-423.
- Angyal, A. (1951). *Neurosis and treatment: A holistic theory*. New York: Wiley.
- Arbuckle, J. L. (1999). *AMOS: A structural equation modeling program*. Chicago: Small Waters.
- Arieti, S., & Bemporad, J. R. (1980). The psychological organization of depression. *American Journal of Psychiatry*, *137*, 1360-1365.
- Aube, J., & Whiffen, V. E. (1996). Depressive styles and social acuity. *Communication Research*, *23*, 407-424.
- Bakan, D. (1966). *The duality of human existence: An essay on psychology and religion*. Chicago: Rand McNally.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182.
- Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, *7*, 147-178.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, *61*, 226-244.
- 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.
- Belsky, J. (1997). Attachment, mating, and parenting. *Human Nature*, *8*, 361-381.
- Belsky, J. (1999). Modern evolutionary theory and patterns of attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 141-161). New York: Guilford.
- Benoit, D., & Parker, K. (1994). Stability and transmission of attachment across three generations. *Child Development*, *65*, 1444-1457.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238-246.
- Bentler, P. M., & Mooijaart, A. (1989). Choice of structural model via parsimony: A rationale based on precision. *Psychological Bulletin*, *106*, 315-317.
- Besser, A. (2004). Self- and best-friend assessments of personality vulnerability and defenses in the prediction of depression. *Social Behavior and Personality*, *32*, 559-594.
- Besser, A., Flett, G. L., & Davis, R. (2003). Self-criticism, dependency, silencing the self, and loneliness: Testing for mediational model. *Personality and Individual Differences*, *35*, 1735-1752.
- Besser, A., & Priel, B. (2003a). A multisource approach to self-critical vulnerability to depression: The moderating role of attachment. *Journal of Personality*, *71*, 515-556.
- Besser, A., & Priel, B. (2003b). Trait vulnerability and coping strategies in the transition to motherhood. *Current Psychology*, *22*, 57-72.
- Besser, A., & Priel, B. (in press). Interpersonal relatedness and self-definition in late adulthood depression: Personality predispositions, and protective factors. *Social Behaviour and Personality*, *32*(4).
- Besser, A., Priel, B., Flett, L. G., & Wiznitzer, A. (2004). Linear and nonlinear-threshold models of dependency and self-criticism: Comparing high and low-situational stress. Manuscript submitted for publication.
- Besser, A., Priel, B., & Wiznitzer, A. (2002). Childbearing depressive symptomatology in high-risk pregnancies: The roles of working models and perceived spouse support. *Personal Relationships*, *9*, 395-413.
- Blatt, S. J. (1974). Levels of object representation in anaclitic and introjective depression. *Psychoanalytic Study of the Child*, *24*, 107-157.
- Blatt, S. J. (1990). Interpersonal relatedness and self-definition: Two personality configurations and their implications for psychopathology and psychotherapy. In J. L. Singer (Ed.), *Repression and dissociation* (pp. 299-335). Chicago: University of Chicago Press.
- Blatt, S. J. (1991). A cognitive morphology of psychopathology. *Journal of Nervous and Mental Disease*, *179*, 449-458.
- Blatt, S. J. (2004). *Experiences of depression: Theoretical, clinical and research perspectives*. Washington, DC: American Psychological Association.
- Blatt, S. J., & Blass, R. (1996). Relatedness and self-definition: A dialectic model of personality development. In G. G. Noam & K. W. Fischer (Eds.), *Development and vulnerabilities in close relationships* (pp. 309-338). Hillsdale, NJ: Lawrence Erlbaum.
- Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology*, *85*, 383-389.
- Blatt, S. J., & Homann, E. (1992). Parent-child interaction in the etiology of dependent and self-critical depression. *Clinical Psychological Review*, *12*, 47-91.
- Blatt, S. J., Quinlan, D. M., Chevron, E. S., McDonald, C., & Zuroff, D. C. (1982). Dependency and self-criticism: Psychological dimensions of depression. *Journal of Counseling and Clinical Psychology*, *150*, 113-124.
- Blatt, S. J., & Shichman, S. (1983). Two primary configurations of psychopathology. *Psychoanalysis and Contemporary Thought*, *6*, 187-254.
- Blatt, S. J., Zohar, A. H., Quinlan, D. M., Zuroff, D. C., & Mongrain, M. (1995). Subscales within the Dependency factor of the Depressive Experiences Questionnaire. *Journal of Personality Assessment*, *64*, 319-339.
- Blatt, S. J., & Zuroff, D. C. (1992). Interpersonal relatedness and self-definition: Two prototypes for depression. *Clinical Psychology Review*, *12*, 527-562.
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley.
- Bonnier, B., Gorwood, P., Hamon, M., Sarfati, Y., Boni, C., & Hardy-Bayle, M. C. (2002). Association of 5-HT_{2A} receptor gene polymorphism with major affective disorders: The case of a subgroup of bipolar disorder with low suicide risk. *Biological Psychiatry*, *51*, 762-765.
- Bornstein, R. F. (1992). The dependent personality: Development, social, and clinical perspectives. *Psychological Bulletin*, *112*, 3-23.

- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation*. New York: Basic Books.
- Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss, sadness, and depression*. New York: Basic Books.
- Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books. (Original work published 1969)
- Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. New York: Basic Books.
- Brennan, K. A., Clark, C. C., & Shaver, P. R. (1998). Self-report measurement of adult attachment. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: Guilford.
- Brennan, K. A., Shaver, P. R., & Tobey, A. E. (1991). Attachment styles, gender, and parental problem drinking. *Journal of Social and Personal Relationships*, 8, 451-466.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In I. K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.
- Burge, D., & Hammen, C. (1991). Maternal communication: Predictors of outcome at follow-up in a sample of children at high and low risk for depression. *Journal of Abnormal Psychology*, 100(2), 174-180.
- Carnelley, K. B., Pietromonaco, P. R., & Jaffe, K. (1994). Depression, working models of others, and relationship functioning. *Journal of Personality and Social Psychology*, 66, 137-140.
- Carter, A. S., Garrity-Rokous, F. E., Chazan-Cohen, R., Little, C., & Briggs-Gowan, M. J. (2001). Maternal depression and comorbidity: Predicting early parenting, attachment security, and toddler social-emotional problems and competencies. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 18-36.
- Conrad, M., & Hammen, C. (1989). Role of maternal depression in perceptions of child maladjustment. *Journal of Consulting and Clinical Psychology*, 57, 663-667.
- Coyl, D., Roggman, L., & Newland, L. (2002). Stress, maternal depression, and negative mother-infant interactions in relation to infant attachment. *Infant Mental Health Journal*, 23, 145-163.
- Coyne, J. C., & Whiffen, V. A. (1995). Issues in personality as diathesis for depression: The case of sociotropy-dependency and autonomy-self-criticism. *Psychological Bulletin*, 118, 358-378.
- Crowell, J. A., & Feldman, S. S. (1991). Mothers' working models of attachment relationships and mother and child behavior during separation and reunion. *Developmental Psychology*, 27, 597-605.
- Cummings, E. M., & Cicchetti, D. (1990). Toward a transactional model of relations between attachment and depression. In M. T. Greenberg & D. Cicchetti (Eds.), *Attachment in the preschool years: Theory, research, and intervention. The John D. and Catherine T. MacArthur Foundation series on mental health and development* (pp. 339-372). Chicago: University of Chicago Press.
- 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, 251-259.
- Davila, J., Burge, D., & Hammen, C. (1997). Why does attachment style change? *Journal of Personality and Social Psychology*, 73, 826-838.
- Downey, G., & Coyen, J. C. (1990). Children of depressed parents: An integrative review. *Psychological Bulletin*, 108, 50-76.
- Flett, G. L., Hewitt, L., Endler, N. S., & Bagby, R. M. (1995). Conceptualization and assessment of personality factors in depression. *European Journal of Personality*, 9, 309-350.
- Fonagy, P., Steele, H., Moran, G., Steele, M., & Higgitt, A. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. *Infant Mental Health Journal*, 13, 200-217.
- Fonagy, P., Steele, H., & Steele, M. (1991). Maternal representations of attachment during pregnancy predict the organization of infant-mother attachment at one year of age. *Child Development*, 62, 891-905.
- Fonagy, P., Steele, M., Steele, H., Leigh, T., Kennedy, R., Mattoon, G., et al. (1995a). Attachment, the reflective self, and borderline states: The predictive specificity of the Adult Attachment Interview and pathological emotional development. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental and clinical perspectives* (pp. 233-278). New York: Analytic Press.
- Fonagy, P., Steele, M., Steele, H., Leigh, T., Kennedy, R., Mattoon, G., et al. (1995b). The predictive validity of Mary Main's Adult Attachment Interview: A psychoanalytic and developmental perspective on the transgenerational transmission of attachment and borderline states. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental and clinical perspectives* (pp. 233-278). Hillsdale, NJ: Analytic Press.
- Fraleay, R. C. (2002). Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling development mechanisms. *Personality and Social Psychology Review*, 6, 123-151.
- George, C., Kaplan, N., & Main, M. (1984). *Adult Attachment Interview*. Unpublished manuscript, University of California, Berkeley.
- George, C., & Solomon, J. (1996). Representational models of relationship: Links between caregiving and attachment. *Infant Mental Health Journal*, 17, 198-216.
- Griffin, D., & Bartholomew, K. (1994a). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology*, 67, 430-445.
- Griffin, D., & Bartholomew, K. (1994b). The metaphysics of measurement: The case of adult attachment. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood* (pp. 17-52). London: Kingsley.
- Hammen, C. L. (1991). *Depression runs in families: The social context of risk and resilience in children of depressed mothers*. New York: Springer-Verlag.
- Hammen, C. L., Burge, D., & Adrian, C. (1991). Timing of mother and child depression in a longitudinal study of children at risk. *Journal of Consulting and Clinical Psychology*, 59, 341-345.
- Hammen, C. L., Burge, D., Burney, E., & Adrian, C. (1990). Longitudinal study of diagnoses in children of women with unipolar and bipolar affective disorder. *Archives of General Psychiatry*, 47, 112-117.
- Hammen, C. L., Burge, D., Daley, S. E., Davila, J., Paley, B., & Rudolph, K. D. (1995). Interpersonal attachment cognitions and prediction of symptomatomatic responses to interpersonal stress. *Journal of Personality and Social Psychology*, 104, 436-443.
- Hammen, C. L., Burge, D., & Stansbury, K. (1990). Relationship of mother and child variables to child outcomes in a high-risk sample: A causal modeling analysis. *Developmental Psychology*, 26, 24-30.
- Hazan, C., & Shaver, P. R. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511-524.
- Hazan, C., & Shaver, P. R. (1990). Love and work: An attachment theoretical perspective. *Journal of Personality and Social Psychology*, 59, 270-280.
- Helgeson, V. S. (1994). Relation of agency and communion to well-being: Evidence and potential explanations. *Psychological Bulletin*, 116, 412-428.
- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology*, 65, 599-610.
- Hortacsu, N., Cesur, S., & Oral, A. (1993). Relationship between depression and attachment styles in parent- and institution-reared Turkish children. *Journal of Genetic Psychology*, 154, 329-337.
- Hoyle, R. H. (1991). Evaluating measurement models in clinical research: Covariance structure analyses of latent variable models of self-concept. *Journal of Consulting and Clinical Psychology*, 59, 67-76.
- Hoyle, R. H., & Smith, G. T. (1994). Formulating clinical research hypotheses as structural equation models: A conceptual overview. *Journal of Consulting and Clinical Psychology*, 62, 429-440.
- Jang, K. L., Livesley, W. J., Angleitner, A., Riemann, R., & Vernon, P. A. (2002). Genetic and environmental influences on the covariance of facets defining the domains of the five-factor model of personality. *Personality and Individual Differences*, 33, 83-101.
- Jöreskog, K. G., & Sörbom, D. (1985). *LISREL VI: Analysis of linear structural relationships by the method of maximum likelihood*. Mooresville, IN: Scientific Software.

- Kelloway, E. K. (1998). *Using LISREL for structural equation modeling: A researcher's guide*. Thousand Oaks, CA: Sage.
- Kenny, D. A. (2003, March 9). *Dyadic analysis*. Retrieved March 25, 2004, from <http://users.rcn.com/dakenny/dyad.htm>
- Kenny, D. A., & Judd, C. M. (1986). Consequences of violating the independence assumption in analysis of variance. *Psychological Bulletin*, *99*, 422-431.
- Kenny, D. A., Kashy, D. A., & Bolger, N. (1998). Data analysis in social psychology. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., pp. 233-265). New York: McGraw-Hill.
- Klein, D. N. (1989). The depressive experiences questionnaire: A further evaluation. *Journal of Personality Assessment*, *53*, 703-715.
- Klohn, E. C., & Bera, S. (1998). Behavioral and experiential patterns of avoidantly and securely attached women across adulthood: A 31-year longitudinal perspective. *Journal of Personality and Social Psychology*, *74*, 211-223.
- Kobak, R. R., & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development*, *59*, 135-146.
- Landry, S. H., Smith, K. E., Swank, P. R., & Miller-Loncar, C. L. (2000). Early maternal and child influences on children's later independent cognitive and social functioning. *Child Development*, *71*, 358-375.
- Le, H., Munoz, R. F., Ippen, C. G., & Stoddard, J. L. (2003). Treatment is not enough: We must prevent major depression in women. *Prevention & Treatment*, *6*, Article 0010a. Retrieved August 1, 2003, from <http://journals.apa.org/prevention/volume6/pre0060010a.html>
- Levy, K. N., Blatt, S. J., & Shaver, P. R. (1998). Attachment styles and parental representations. *Journal of Personality and Social Psychology*, *74*, 407-419.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, *7*, 83-104.
- Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development*, *50*(1-2, Serial No. 209).
- McAdams, D. (1985). *Power, intimacy and the life story: Personal inquiries into identity*. New York: Guilford.
- McClelland, D. C. (1985). *Human motivation*. Glenview, IL: Foresman.
- McCranie, E. W., & Bass, J. D. (1984). Childhood family antecedents of dependency and self-criticism: Implications for depression. *Journal of Abnormal Psychology*, *93*, 3-8.
- McGue, M., & Lykken, D. T. (1992). Genetic influence on risk of divorce. *Psychological Science*, *3*, 368-373.
- Mickelson, K. D., Kessler, R. C., & Shaver, P. R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology*, *73*, 1092-1106.
- Mongrain, M. (1998). Parental representations and support-seeking behaviors related to dependency and self-criticism. *Journal of Personality*, *66*, 151-173.
- Mongrain, M., Lubbers, R., & Struthers, W. (2004). The power of love: Mediation of rejection in roommate relationships of dependents and self-critics. *Personality and Social Psychology Bulletin*, *30*, 94-105.
- Perry, B. D. (1997). Incubated in terror: Neurodevelopmental factors in the "cycle of violence." In J. D. Osofsky (Ed.), *Children in a violent society* (pp. 124-149). New York: Guilford.
- Priel, B., & Besser, A. (1999). Vulnerability to postpartum depressive symptomatology: Dependency, self-criticism and the moderating role of antenatal attachment. *Journal of Social and Clinical Psychology*, *18*, 240-253.
- Priel, B., & Besser, A. (2000a). Adult attachment styles, early relationships, antenatal attachment and perceptions of infant temperament: A study of first-time mothers. *Personal Relationships*, *7*, 291-310.
- Priel, B., & Besser, A. (2000b). Dependency and self-criticism among first-time mothers: The roles of global and specific support. *Journal of Social and Clinical Psychology*, *19*, 437-450.
- Priel, B., & Besser, A. (2002). Representations of early relationships during the transition to motherhood: The mediating role of social support. *Infant Mental Health Journal*, *23*, 343-360.
- Priel, B., Besser, A., & Shahar, G. (1998). *Israeli adaptation of the DEQ: Psychometric properties*. Unpublished manuscript, Ben-Gurion University of the Negev, Beer-Sheva, Israel.
- Priel, B., & Shamai, D. (1995). Attachment style and perceived social support: Effect on affect regulation. *Personality and Individual Differences*, *19*, 235-241.
- Quimette, P., & Klein, D. N. (1993). Convergence of psychoanalytic and cognitive-behavioral theories of depression: An empirical review and new data on Blatt's and Beck's models. In J. M. Masling & R. F. Bornstein (Eds.), *Psychoanalytic perspectives on psychopathology* (pp. 191-224). Washington, DC: American Psychological Association.
- Radloff, L. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychosocial Measurement*, *1*, 385-401.
- Reis, S., & Grenyer, B. F. S. (2002). Pathways to anaclitic and introjective depression. *Psychology and Psychopathology: Theory, Research and Practice*, *75*, 445-459.
- Reiss, D., Cederblad, M., Pedersen, N. L., Lichtenstein, P., Elthammar, O., Neiderhiser, J. M., et al. (2001). Genetic probes of three theories of maternal adjustment: II. Genetic and environmental influences. *Family Process*, *40*, 261-272.
- Reiss, D., Pedersen, N. L., Cederblad, M., Lichtenstein, P., Hansson, K., Neiderhiser, J. M., et al. (2001). Genetic probes of three theories of maternal adjustment: I. Recent evidence and model. *Family Process*, *40*, 247-259.
- Rice, K. G., & Mirzadeh, S. A. (2000). Perfectionism, attachment, and adjustment. *Journal of Counseling Psychology*, *47*, 238-250.
- Roberts, J. E., Gotlib, I. H., & Kassel, J. D. (1996). Adult attachment security and symptoms of depression: The mediating roles of dysfunctional attitudes and low self-esteem. *Journal of Personality and Social Psychology*, *70*, 310-320.
- Schulman, P., Keith, D., & Seligman, M. E. P. (1993). Is optimism heritable? A study of twins. *Behaviour Research and Therapy*, *31*, 569-574.
- Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology*, *59*, 971-980.
- Spinath, F. M., & O'Connor, T. G. (2003). A behavioral genetic study of the overlap between personality and parenting. *Journal of Personality*, *71*, 785-808.
- Steele, H., Steele, M., & Fonagy, P. (1996). Associations among attachment classifications of mothers, fathers, and their infants: Evidence for a relationship-specific perspective. *Child Development*, *67*, 541-555.
- Teti, D. M., Gelfand, D. M., Messinger, D. S., & Isabella, R. (1995). Maternal depression and the quality of early attachment: An examination of infants, preschoolers, and their mothers. *Developmental Psychology*, *31*, 364-376.
- Teti, D. M., & Nakagawa, M. (1990). Assessing attachment in infancy. In E. D. Gibbs & D. M. Teti (Eds.), *Interdisciplinary assessment of infants* (pp. 191-214). Baltimore: Brookes.
- Thompson, R., & Zuroff, D. C. (1998). Dependent and self-critical mothers' responses to adolescent autonomy and competence. *Personality and Individual Differences*, *24*, 311-324.
- Thompson, R., & Zuroff, D. C. (1999). Development of self-criticism in adolescent girls: Roles of maternal dissatisfaction, maternal coldness, and insecure attachment. *Journal of Youth and Adolescence*, *28*, 197-210.
- van Ijzendoorn, M. H. (1992). Intergenerational transmission of parenting: A review of studies in nonclinical populations. *Developmental Review*, *12*, 76-99.
- van Ijzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis

- on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*, 117, 387-403.
- Ward, M. J., & Carlson, E. A. (1995). Associations among adult attachment representations, maternal sensitivity, and infant-mother attachment in a sample of adolescent mothers. *Child Development*, 66, 69-79.
- Waters, W., Merrick, S., Treboux, D., Crowell, J., & Albersheim, L. (2000). Attachment security in infancy and early adulthood: A 20-year longitudinal study. *Child Development*, 71, 684-689.
- Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*, 96, 465-490.
- Weinfield, N. S., Sroufe, L. A., & Egeland, B. (2000). Attachment from infancy to adulthood in a high-risk sample: Continuity, discontinuity, and their correlates. *Child Development*, 71, 695-702.
- Winter, D. (1973). *The power motive*. New York: Free Press.
- Zuroff, D. C., & Fitzpatrick, D. (1995). Depressive personality styles: Implications for adult attachment. *Personality and Individual Differences*, 18, 253-365.
- Zuroff, D. C., Igreja, I., & Mongrain, M. (1990). Dysfunctional attitudes, dependency, and self-criticism as predictors of depressive mood states: A 12-month longitudinal study. *Cognitive Therapy and Research*, 14, 315-326.
- Zuroff, D. C., Mongrain, M., & Santor, D. A. (2004). Conceptualizing and measuring personality vulnerability to depression: Comment on Coyne and Whiffen (1995). *Psychological Bulletin*, 130, 489-511.

Received October 22, 2003

Revision accepted November 24, 2004