

## SELF- AND BEST-FRIEND ASSESSMENTS OF PERSONALITY VULNERABILITY AND DEFENSES IN THE PREDICTION OF DEPRESSION

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The associations are explored between personality vulnerability and the use of defense mechanisms in the prediction of depression. A nonclinical community sample of 187 respondents and their same-sex best friends reported on participants' personality vulnerability factors (Self-criticism, Dependency and Efficacy), defense mechanisms (Mature, Immature and Emotion-avoiding), and depression (Center for Epidemiological Studies Depression Scale: CES-D; Radloff, 1977). It was found that Mature defenses were associated only with Efficacy. Extensive use of Immature and Emotion-avoiding defenses was associated with vulnerability to depression. Furthermore, Immature defenses interacted with personality vulnerabilities. Specifically, highly self-critical participants who reported low levels of Immature defense were less depressed than were participants high on both Self-criticism and Immature defense. High Immature defense scores mediated the effect of Dependency on depression. Finally, more severe vulnerability was found when targets both rated themselves and were rated by their best friends as higher on Dependency and/or on Emotion-avoiding defenses. The implications of these findings for the study of the role of defense mechanisms in personality configurations and their susceptibility to depression, as well as for the use of multisource assessment strategies in the study of personality, are discussed. Finally, the practical and theoretical implications of these findings are discussed.

The purpose of this study was to investigate the role of defense mechanisms in the association between personality factors and depression. Using both self- and

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same-sex best-friend reports to assess relevant personality factors (Dependency, Self-criticism, and Efficacy), defense factors (Mature, Immature, and Emotion-avoiding), and depression, the present study aimed to overcome some of the shortcomings involved in self-report designs, and to extend understanding of the interpersonal aspects of depressive symptomatology.

Integrating psychoanalytic ego psychology with developmental-cognitive theory, Blatt (1991) 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, p. 453). The *interpersonal-relatedness* process is defined as “*the capacity to establish increasingly mature, reciprocal and satisfying interpersonal relationships*” (Blatt, p. 453). These two basic modalities of human existence have been referred to also in different theoretical contexts as *autonomy* and *surrender* (Angyal, 1951), *agency* and *communion* (Baken, 1966), and *achievement* or *power* versus *affiliation* or *intimacy* (McAdams, 1985; McClelland, 1985; Winter, 1973).

A considerable body of empirical research has demonstrated the relevance of high levels of Self-criticism and Dependency as trait vulnerability dimensions for depression (e.g., Besser, Flett, & Davis, 2003; Besser & Priel, 2003a, b, c, d, e; Flett, Hewitt, Endler, & Bagby, 1995; Klein, 1989; Priel & Besser, 1999, 2000; Quimette & Klein, 1993; Robins, Hayes, Block, Kramer, & Villena, 1995). These basic personality configurations delineate two major types of negative experiences that might lead to vulnerability to depression: (a) the disruption of gratifying interpersonal relationships, and (b) the disruption of an effective, essentially positive, sense of self (Blatt, 1974; Blatt, D’Afflitti, & Quinlan, 1976; Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982; Blatt & Shichman, 1983). According to Blatt and colleagues, *normality* can be defined as *an integration of* (a) *the capacity to develop meaningful and satisfying interpersonal relations*, and (b) *a consolidated, realistic, essentially positive self-concept*. Overemphasis on one of these dimensions at the cost of the other defines the self-critical and dependent personality configurations respectively and vulnerability to depression is likely to increase (Blatt, 1990; Blatt & Blass, 1990; Blatt & Shichman, 1983). Each personality configuration is associated with a particular experiential mode, a mode of adaptation, preferred forms of cognition, and particular defenses (Blatt & Shichman). Excessive preoccupation with either of these dimensions (relatedness/Dependency or self-definition/Self-criticism) might create a selective vulnerability to stressful life events that can lead to depression (for a recent extensive review see Blatt, 2004).

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 et al., 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).

This study centers on the roles played by different defenses in the association between personality vulnerability and depression. *Defense mechanisms* have been conceptualized as *internal, nonintentional, intrapsychic transformations that occur in response to a threatening affect*. The purpose of a defense mechanism is to protect the individual from experiencing excessive anxiety. Cramer (1998a, 1998b) included additional purposes: the protection of self-esteem and, in more pathological cases, the protection of self-integration.

Defense mechanisms vary in their adaptiveness or maturity. Defense mechanisms are defined as adaptive or *Mature* when they effectively ward off a threatening affect without undue distortion of the reality perceived, whereas maladaptive defense mechanisms often involve significant reality distortion (Cramer, 1991; Vaillant, 1977). Moreover, adaptive or mature defense mechanisms usually lead to constructive action, whereas maladaptive or *Immature* defense mechanisms generally produce inaction or inappropriate action (Vaillant, 1977). Frequent use of maladaptive defense mechanisms has been found to be associated with increased psychopathology and maladjustment (Andrews, Pollock, & Stewart, 1989; Bond, Gardner, Christian, & Sigal, 1983; Perry & Cooper, 1989; Vaillant, 1974, 1976, 1977, 1994; Vaillant & Vaillant, 1992).

It is believed that dependent individuals, in their desire to maintain interpersonal relationships while neglecting the development of the self, characteristically use defense mechanisms that lead to the avoidance of threat, such as denial, repression, and displacement (Blatt & Shichman, 1983). In contrast, it has been suggested that self-critical individuals are characterized by the propensity to protect and preserve the self by transforming conflictual situations through the use of counteractive defenses such as projection, externalization, introjection, doing and undoing, reaction formation, overcompensation, and identification with the aggressor (Blatt & Shichman, 1983; Blatt & Zuroff, 2002). Thus, it has been suggested that both the self-critical and the dependent vulnerability dimensions include the use of immature or maladaptive defenses (also see Zuroff, Moskowitz, Wielgus, Powers, & Franko, 1983). Moreover, the extensive use of maladaptive defenses leading to specifically biased perceptions of reality might be seen as a main dimension of vulnerability.

An empirical test of the defense styles in Self-criticism and Dependency was conducted by Cramer, Blatt, and Ford (1988), who investigated the use of the denial, projection, and identification defense mechanisms by hospitalized psychiatric patients diagnosed as depressed with either a clinically determined anaclitic or introjective personality configuration. The results of this study demonstrated that both clinical depression types were characterized by the use of similar and very immature defenses; this finding was explained either as related to the severity of the pathology of the participants or as associated with the effects of other variables such as gender. These findings suggest that immature defenses may exacerbate the relationship between trait vulnerability and depression (Cramer, 1991, 1998a, 1998b; Kwon, 2000a, 2000b). However, on the basis of this study, the exact association between defense styles and Self-criticism and Dependency is unclear because there were no significant differences in defense styles between the self-critical and dependent groups. Moreover, Cramer et al. (1988) did not include a comparison group of patients who were not characterized by elevated levels of Self-criticism or Dependency. Thus, although there are indications that anaclitic and introjective personality styles are linked with maladaptive defenses, this has not been clearly established in the existing literature.

The model specified by Blatt and colleagues also includes a dimension of non-vulnerability or resilience: *Efficacy* (Blatt et al., 1976). This dimension is unrelated to depression and assesses the individual's adequate goal striving, feelings of independence, sense of confidence about his or her resources, capacities and inner strength, sense of responsibility, pride, and satisfaction about self-accomplishments (Blatt et al., 1976, pp. 384-385). In the present investigation, it has been assumed that this dimension of resilience involves the use of mainly mature and adaptive defenses. The investigation of the defenses associated with Efficacy was intended to validate the basic assumption that Efficacy, but not Dependency or Self-criticism, will associate with Mature defenses.

There are important differences between the empirical findings regarding Self-criticism and Dependency as trait vulnerability configurations. The propensity to depression among self-critical individuals has been amply demonstrated in different community samples (e.g., Besser & Priel, 2003a, b, c, d, e; Fichman, Koestner, Zuroff, & Gordon, 1999; Klein, 1989; Priel & Besser, 1999, 2002; Quimette & Klein, 1993; Santor & Zuroff, 1997; Thompson & Zuroff, 1999; Zuroff, Igreja, & Mongrain, 1990). The empirical associations between Dependency and depression are more complex, indicating, in addition to the propensity to depression, the possibility of adaptive aspects of Dependency in specific populations (Aube & Whiffen, 1996; Besser & Priel, 2003a, 2003b; Blatt, Zohar, Quinlan, Zuroff, & Mongrain, 1995; Bornstein, 1992; Mongrain,

1998; Priel & Besser, 1999, 2000). Differences between Dependency and self-critical vulnerabilities have been attributed to methodological constraints (e.g., Blatt et al., 1995) as well as to gender differences (Helgeson, 1994). In a review of studies with different populations, whereas Helgeson presented extensive evidence for orientation-towards-self as a vulnerability factor in mental health, she also found that a primary orientation-towards-others among women did not seem to constitute a mental health vulnerability at all, even though it may have been a diathesis for physical illness. Empirical evidence suggests that the capacity of highly dependent women to enlist social support may be the core of their relative resilience (Helgeson, 1994; Priel & Besser, 2000). There are also indications that Dependency might generate supportive interpersonal relationships that moderate depressive feelings (Mongrain, Lubbers, & Struthers, 2004). In congruence with the differences between Dependency and Self-criticism that have been reported in the empirical literature, in this study it has been assumed that self-critical vulnerability involves more, and more frequently used, Immature defense mechanisms than does Dependency.

Since defenses are defined as unintentional (Cramer, 1998a, 1998b), exclusive reliance on self-reported measurements may be methodologically questionable. In addition, social desirability may affect self-reports of defense mechanisms (Davidson & MacGregor, 1998). Moreover, the presence of specific defenses may affect both the self-report of defenses and the self-report of outcomes (Colvin, Block, & Funder, 1995; Costa & McCrae, 1987; Cramer, 1998a, 1998b; Larsen, 1992; Pearson, Ross, & Dawes, 1992). In order to overcome, at least in part, the methodological limitations involved in the use of self-reported evaluations of defense mechanisms, the present study used self- as well as same-sex best-friend reports of defensive style and also gathered best-friend perceptions of the target's depression and personality vulnerabilities. Obtaining assessments from both a target individual and an observer who knew the target individual rather well allowed us to measure the congruency of the assessments of self and other. The current investigation expected only moderate congruence, because self-perceptions and best-friend perceptions of the target were assumed to be closely related – but different – constructs. The multisource approach used in the present study also allowed for the study of the separate as well as the conjoint self- and best-friend appraisals of personality, depression, and defense variables (Kurtz & Sherker, 2003; Watson, Hubbard, & Wiese, 2000) in the prediction of targets' depression levels.

Additionally, the use of multisource data was important in order to further address the claim that the constructs of depression and Self-criticism might overlap considerably (Coyne & Whiffen, 1995), as well as the claim that there might be a possible overlap between these variables and Immature defense mechanisms. According to this argument, Self-criticism may also be seen as

reflecting the effects of depression rather than as a vulnerability factor. Furthermore, both Self-criticism and depression might be reflections of specific underlying defense styles (Cramer, 1998a, 1998b). The use of two sources for the assessment of each variable (Self-criticism, depression, and defense styles) might contribute to the elucidation of these important questions. The inclusion of the best-friend perceptions of the target permitted us to estimate the associations between the study variables independent of the effects of self-report. Moreover, it allowed for the estimation of the relationship between personality vulnerability, depression, and defenses simultaneously, as measured within and between self-reports and best-friend reports, and the estimation of the convergent and divergent validity among these reports. A path model analysis explored these possibilities.

Accordingly, the present study investigated how individual differences assessed by means of self-reports and best-friend appraisals of personality vulnerabilities and defense mechanisms are associated with self- and best-friend evaluations of targets' depressive symptomatology.

The following hypotheses were investigated:

**H1:** Self- and best-friend-reported assessments of Dependency and Self-criticism are both moderately correlated with Immature defenses.

**H2:** Self- and best-friend-reported Dependency and Self-criticism associate with self- and best-friend reports of depressive symptomatology, respectively. Similarly, Immature defenses associate with self- and best-friend reports of depressive symptomatology, respectively.

**H3:** Self- and best-friend-reported Efficacy associate with self- and best-friend reports of Mature defenses, respectively.

**H4:** Immature defense scores contribute to the prediction of the deleterious effects of self-reported personality vulnerabilities on depressive symptomatology.

**H5:** Negative assessments (i.e., high vulnerability levels or high Immature defense levels) by target participants and best friends (interactions) contribute uniquely to the prediction of targets' depressive symptomatology. Higher levels of depression are expected for targets who are described as highly vulnerable by both themselves and their best friends, and for target participants who both rated themselves – and were rated by their best friends – as high in Immature defense.

## METHOD

### PARTICIPANTS

Initially, 200 target/best-friend pairs (Israeli community sample) responded to an advertisement for volunteers to take part in a study on “best-friend perceptions.” Participants were contacted initially through advertisements in

workplaces. Participants were young Israeli adults who had been released from their service in the Israeli army and who were in the process of making the transition back to civilian life and some of whom were attending university.

Potential participants were met and told that they would be required to bring with them their same-sex best friend, who should not be their roommate. Of this pool of potential participants, 82.5% participated in the study. The remaining 16.5% (13 pairs) did not participate, for the following reasons: (a) one or both members of the pair withdrew (3.5%, 7 pairs), or (b) one of the members of the pair did not appear at the scheduled time to complete the questionnaires (3%, 6 pairs). Thus, the final sample included 187 pairs who were eligible to participate and who completed the current study questionnaires.<sup>1</sup> See the Results section for additional information about the characteristics of the sample.

## MEASURES

*The Depressive Experiences Questionnaire (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 (PCA) with Varimax rotation. The first two factors assess patterns of experiences that contain predispositions to depressive states, and are therefore appropriate for use with a nonclinical sample. 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.”) Internal consistency and test-retest reliability for the DEQ are 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 were in the mean of .91 (Priel, Besser, & Shahar, 1998).

In this study, two versions of the DEQ were used: target individuals completed the original self-report assessments and their best friends completed a version in which they evaluated the best friend on the 66 items of the DEQ. In this recently adapted version of the DEQ (see Besser & Priel, 2003a), items assess the observer’s perception of the target personality’s vulnerability and Efficacy. For example, Item 1 of the DEQ was formulated as “My friend sets his/her personal

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<sup>1</sup> Since pairs who did not participate were dropped from further consideration prior to completing the questionnaires, comparisons with participants who completed the study could not be made.

goals and standards as high as possible.” For the current sample the  $\alpha$  internal consistency reliability coefficients were .90 and .88 for targets’ self-report and best-friend report respectively.<sup>2</sup>

***The Center for Epidemiological Studies Depression Scale (CES-D)*** The CES-D (Radloff, 1977) was used to measure depressive symptoms. This 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). This scale has been shown to be valid and reliable in many different samples, including in pregnancy and postpartum research (see, e.g., Besser & Priel, 2003a, 2003b; Besser, Priel, & Wiznitzer, 2002; Priel & Besser, 1999, 2000, 2002). Although the scale is typically used as a continuous measure, a score of 16 or higher is regarded as the clinical cutoff point for at least a mild case of depression (Radloff). In the present study, two versions were used: the original CES-D for targets’ self-reports, and a version in which each best friend evaluated the target friend on 20 items adapted from the original CES-D (see Besser & Priel, 2003a) in order to assess the perception of the best friend regarding the target friend’s depressive symptomatology. For example, Item 1 was formulated as “My friend was bothered by things that usually do not bother him/her.” For the current sample the  $\alpha$  internal consistency reliability coefficients were .86 and .85 for self-reports and best-friend reports respectively.

***The Defense Style Questionnaire (DSQ)*** The Defense Style Questionnaire (DSQ-40) is a 40-item self-report inventory that measures specific defense mechanisms in terms of the *Diagnostic and statistical manual of mental disorders, 3rd edition* (DSM-III-R: Andrews, Singh, & Bond, 1993). In this study, the short version consisting of 36 items, which are allocated to 17 defense mechanisms (Muris & Merckelbach, 1996) was used. The following defenses are assessed: sublimation, humor, anticipation, suppression, undoing, idealization, reaction formation, projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, splitting, rationalization, and somatization. Each item has a 9-point scale (1-*Strongly Disagree* to 9-*Strongly Agree*). The defense mechanism score is obtained by summing the scores of the relevant items. Since each defense mechanism score is composed of two items, Cronbach’s  $\alpha$ s were not calculated. Nevertheless, Andrews et al. showed that the DSQ possesses reasonable psychometric properties.

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<sup>2</sup> According to Blatt and colleagues (1976) the standardized scores of each of the 66 items 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. Thus, internal consistency reliability coefficients are reported only for the entire DEQ questionnaires.

Muris and Merckelbach's (1996) factor analysis on the short form of the DSQ demonstrated that 14 of the 17 defense mechanisms are loaded on three factors: Immature defense (acting out, undoing, somatization, projection, devaluation, and autistic fantasy), Mature defense (humor, anticipation, sublimation, suppression, and rationalization), and Emotion-avoiding defense (denial, isolation and splitting). In the present study, two versions of the DSQ were used: the original DSQ for target individuals' self-reports, and a version in which the target individual's best friend evaluated his/her friend on 36 items adapted from the original DSQ. For example, in this version, the first DSQ item was formulated as "My friend gets satisfaction from helping others and if this were taken away from him/her he/she would get depressed." For the current sample the  $\alpha$  internal consistency reliability coefficients were .91 (.90, .87 and .88 for Immature, Mature and Emotion-avoiding respectively) and .87 (.84, .86 and .83 for Immature, Mature and Emotion-avoiding respectively) for self-reports and best-friend reports respectively.

## PROCEDURE

After the first contact with the participants, the members of each eligible pair of friends were invited at the same time. Upon arrival, each pair member was randomly assigned to serve as target or best friend. The target and the best friend completed the questionnaire package while seated in separate rooms. After each pair member completed the background questionnaire, the target participant completed the self-report CES-D, DSQ, and DEQ and the best-friend participant completed the report about the target on the CES-D, DSQ, and DEQ. These will be referred to as *target reports* (i.e., self-reports) and *best-friend reports* (i.e., the best friend's report of the target's Self-criticism, Dependency, Efficacy, defense styles, and depressive symptoms), respectively. The within- and between-pairs order of presentation of the questionnaires was randomized.

## RESULTS

After preliminary analyses of sample characteristics, background variables, and self- and best-friend reports, four main sets of analyses were conducted. First, mean differences and correlations were computed to determine the extent of agreement between target and best-friend reports. Second, correlations and regressions were computed to examine the relations between Dependency and Self-criticism and the three measures of defense mechanisms (Mature, Immature, and Emotion-avoiding). Third, a hierarchical multiple regression (HMR) analysis was performed to examine the effects of personality and defense mechanisms (as measured by self- and other reports), as well as the effects of interactions between personality and defense mechanisms, on self-reported depression levels. Fourth,

structural equation modeling (SEM) was used to test the effects of self-reported variables on best-friend reports.

### SAMPLE CHARACTERISTICS AND PRELIMINARY ANALYSES

Participants were a community sample of 91 male pairs and 96 female pairs of young, un-married adults in their mid-twenties (overall  $M = 23.54$ ,  $SD = 3.14$ , with  $M = 23.51$ ,  $SD = 3.20$  for targets and  $M = 23.57$ ,  $SD = 3.10$  for best friends); target/best-friend pairs had been known to each other for approximately 7 years ( $M = 7.10$ ,  $SD = 4.9$ ). Participants had, on average, more than 12 years of formal education (overall  $M = 12.45$ ,  $SD = 1.08$ , with  $M = 12.51$ ,  $SD = 1.11$  for targets and  $M = 12.48$ ,  $SD = 1.06$  for best friends). No significant differences were obtained for targets and their friends in terms of age or years of formal education.

**TABLE 1**  
CORRELATIONS AND DIFFERENCES BETWEEN TARGET AND BEST-FRIEND REPORTS OF DEQ  
FACTORS, DEFENSE FACTORS, AND DEPRESSION

	Correlations between target and best-friend reports	Target reports		Best-friend reports		$F[1,372]$
		$M$	$SD$	$M$	$SD$	
		<hr/>				
<b>Personality factors</b>						
Self-criticism	.23***	-.70	.91	-.86	.87	2.737 <i>ns</i>
Dependency	.47***	-.78	.86	-1.08	.86	11.967***
Efficacy	.10 <i>ns</i>	.16	1.07	-.45	1.20	27.086***
<b>Defense factors</b>						
Immature <sup>a</sup>	.26***	47.17	13.31	49.05	13.03	1.908 <i>ns</i>
Mature <sup>b</sup>	.18 <i>ns</i>	55.48	10.63	52.1	10.24	9.837***
Emotion-avoiding <sup>c</sup>	.22***	21.23	8.18	22.80	8.24	3.334 <i>ns</i>
<b>Depression</b>						
CES-D	.32***	21.31	7.51	21.08	7.67	.086 <i>ns</i>

*Notes:*

1.  $N = 374$ ; 187 targets and their best friends.

2. To ensure that the overall chance of making a Type I error was still less than .05 a full Bonferroni correction was applied.

<sup>a</sup> The Immature defense factor comprises: Acting out, Undoing, Somatization, Projection; Devaluation, and Autistic fantasy.

<sup>b</sup> The Mature defense factor comprises: Humor, Anticipation, Sublimation, Suppression, and Rationalization.

<sup>c</sup> The Emotion-avoiding defense factor comprises: Denial, Isolation, and Splitting.

\*\*\* $p < .01$ , two-tailed

Table 1 presents means and standard deviations for target and best-friend DEQ, DSQ, and CES-D scores. In a preliminary MANOVA analysis, no significant

Gender x Rater (target vs. best-friend reports) interaction effects were obtained. The significances of the differences between the scores obtained from target reports and best-friend reports (across gender) on the DEQ, DSQ, and CES-D scales were calculated using MANOVA. The results revealed significant source differences for Dependency, Efficacy and for the Mature defense factor scores. Targets evaluated themselves as more dependent, higher on Efficacy and on the Mature defense factor as compared to the levels attributed to them on these variables by their best friends. There was no significant difference involving CES-D scores, but there were indications that, as a whole, the sample was characterized by relatively high levels of distress. A score of 16 or higher on the CES-D constitutes at least mild depression, and 115 participants (61.5%) had scores of 16 or more, both in terms of self-reports and informant ratings (i.e., best-friend reports). Elevated depressive symptoms could reflect several contributing factors including the participants' developmental stage and life transitions, uncertainty about their individual futures, economic difficulties, and physical-safety concerns.

#### **AGREEMENT BETWEEN SELF- AND BEST-FRIEND REPORTS: CORRELATION ANALYSES**

Preliminary correlational analyses revealed that the correlations for males and females were very similar; thus, in all subsequent analyses, the results are presented for the combined sample of men and women ( $N = 372$ , 187 pairs).

Table 1 also presents the zero-order correlations among the variables for target and best-friend reports. Positive significant correlations were found between target reports and their best friends' perceptions of their depressive symptomatology (CES-D scores), personality vulnerability (Dependency and Self-criticism DEQ factors), and defense styles factors (DSQ Immature and Emotion-avoiding defense factors). As can be seen in Table 1, the most robust correlation between target and best-friend scores was obtained for the Dependency factor of the DEQ,  $r(187) = .47, p < .0001$ . Moderate correlations were also found between the following factors: target and best-friend reports of depression,  $r(187) = .32, p < .0001$ ; Immature defense style,  $r(187) = .26, p < .0001$ ; Self-criticism,  $r(187) = .23, p < .0001$ ; and the Emotion-avoiding factor of the defense style,  $r(187) = .22, p < .0001$ . The weakest correlations between the respondents were obtained for the DEQ Efficacy factor,  $r(187) = .10, ns$ , and for the Mature defenses factor,  $r(187) = .18, ns$ . Moreover, as can be seen in Table 1, target and best-friend reports on the DEQ factors are correlated in the same direction and magnitude as their reports of the CES-D and DSQ scores.

**VULNERABILITY DIMENSIONS, DEFENSE STYLES AND DEPRESSION:  
CORRELATION AND REGRESSION ANALYSES**

As shown in Table 2, according to both raters, Efficacy was the only DEQ factor that was associated with the Mature defense factor. In addition, Efficacy scores were not correlated with depression scores. In contrast, Self-criticism and Dependency were significantly associated with the Immature defense factor and with depression scores; in addition, Self-criticism – but not Dependency – was found to correlate significantly with the Emotion-avoiding factor scores. Immature and Emotion-avoiding scores were found to correlate significantly with depression scores.

**TABLE 2**  
**CORRELATIONS OF DEQ FACTORS WITH DEFENSE FACTORS AND DEPRESSION: TARGET AND BEST-FRIEND REPORTS**

	Self-criticism	Dependency	Efficacy	Depression
Immature <sup>a</sup>	.56*** (.57***)	.21*** (.22***)	.18 (-.05)	.54*** (.53***)
Mature <sup>b</sup>	.11 (-.00)	-.05 (-.02)	.43*** (.42***)	.15 (-.02)
Emotion-avoiding <sup>c</sup>	.43*** (.52***)	-.03 (-.17)	.14 (-.11)	.29*** (.28***)
Depression	.48*** (.51***)	.25*** (.22**)	.09 (-.12)	-----

*Notes:*

1.  $N = 374$ ; 187 targets and their best friends.

2. To ensure that the overall chance of making a Type I error was still less than .05 a full Bonferroni correction was applied.

3. Correlations among best-friend reports are in parentheses.

<sup>a</sup> The Immature defense factor comprises: Acting out, Undoing, Somatization, Projection; Devaluation, and Autistic fantasy.

<sup>b</sup> The Mature defense factor comprises: Humor, Anticipation, Sublimation, Suppression, and Rationalization.

<sup>c</sup> The Emotion-avoiding defense factor comprises: Denial, Isolation, and Splitting.

\*\*\*  $p < .01$ , two-tailed

A set of analyses assessed differences in the magnitudes of correlations between Dependency and the DSQ and CES-D scores on one hand, and between Self-criticism and the DSQ and CES-D scores on the other hand. In particular, of the defense factors, significant differences were found between the magnitudes of the correlations of Dependency and of Self-criticism with Immature defense. According to both raters, Self-criticism was significantly more strongly correlated with Immature defense (.56 for target reports and .57 for best-friend reports) and CES-D scores (.48 for target reports and .51 for best-friend reports) than Dependency scores were with Immature defense (.21 for target reports and

.22 for best-friend reports) and CES-D scores (.25 for target reports and .22 for best-friend reports);  $Z = 4.2, p < .0001$  (target reports) and  $Z = 4.3, p < .0001$  (best-friend reports) for Immature defense, and  $Z = 2.6, p < .01$  (target reports) and  $Z = 3.4, p < .001$  (best-friend reports) for CES-D.

Finally, Immature and Emotion-avoiding scores were significantly different in the magnitude of their correlations with CES-D scores. According to both raters, Immature defense was more strongly associated than was Emotion-avoiding defense with depression scores (.54 vs. .29 for target reports and .53 vs. .28 for best-friend reports;  $Z = 3.0, p < .004$  and  $Z = 3.0, p < .004$ , respectively).

In order to estimate the association between the DEQ factors and the DSQ factors while controlling for their associations (i.e., the shared variance) with CES-D scores, three separate regression analyses were conducted. In these analyses, Self-criticism, Dependency and Efficacy served as the criterion variables. The set of predictors included the three defense factors (Mature, Immature and Emotion-avoiding); these were entered as a second block after CES-D scores were entered in the first step. Regressions were performed twice: first with the targets' self-reports and then with the best-friend reports as criterion variables. Results indicated that the correlations presented in Table 2 are stable and not affected by depressive symptoms scores.

### TESTING FOR INTERACTIONS: HIERARCHICAL MULTIPLE REGRESSION ANALYSES (HMRS)

The current investigation analyzed interactions involving the vulnerability and defense variables, controlling for targets' depression levels as reported by best friends. This analytic strategy allowed us to detect the specific effects of the personality and defense variables on targets' depressive symptomatology, beyond the known effects of the common variance related to the self-reported method. The HMR analyses focused primarily on the following three issues: (a) the relative contribution of defense styles and personality vulnerability variables (as assessed by means of target reports and best-friend reports) to the prediction of the targets' depression; (b) the contribution of best-friend reports of defense styles and personality variables to the prediction of depression by targets' self-reported defense styles and personality variables; and (c) the interaction between defense style variables (as assessed by means of target reports and best-friend reports) and targets' self-reported personality variables in terms of their effects on depression.

#### *Analytical Strategy*

To explore the three issues just outlined, two HMRS with interaction terms (Cohen & Cohen, 1983) were computed, separately for each of the two defense factors found to be associated with depression: Immature and Emotion-avoiding defenses. The criterion was self-reported depressive symptomatology. In the first

step of the HMR, best-friend-reported CES-D<sup>3</sup> was controlled. In the next two steps, the target- and best-friend-reported DSQ factors and target- and best-friend-reported Self-criticism and Dependency were entered. These two steps permitted us to test the study's main hypothesis after controlling for the shared variance between the target reports and best-friend reports for Self-criticism, Dependency dimensions and defense factors, and their associations with the criterion variable. The two steps also permitted us to control for the variables forming the interactions before testing the interactions (Cohen, 1978). Next, the target and best-friend report interactions for each construct were entered (Funder, 1995, 1999; Funder & West, 1993). Finally, after controlling for covariations and main effects, the moderating (interaction)<sup>4</sup> effects were tested by entering the interactions between each of the target-reported DEQ factors and each of the target-reported and best-friend-reported DSQ factors.

### ***Predicting Targets' Self-Reported Depressive Symptomatology***

Table 3a presents the HMR for the prediction of target-reported depressive symptomatology with the Immature defense factor as the moderator. As can be seen, best-friend reports of depressive symptomatology explained a significant 10% of the variance of targets' self-reported depressive symptomatology. Among the reports for Immature defenses, only target-reported Immature defense scores were associated positively with target-reported depressive symptoms. These contributed an additional 23% to the explanation of the variance of targets' self-reported depressive symptoms. In the next step, the personality variables were entered and it was found that target-reported Self-criticism, but not Dependency, was significantly associated with targets' depressive symptoms. High levels of Self-criticism were positively associated with high depressive symptom scores; this step added a significant additional 7% to the prediction of the variance of depressive symptomatology. In the subsequent steps (Step 4 and Step 5), a total of 7 interactions were entered: three in Step 4, representing the target report  $\times$  best-friend report interactions for the Self-criticism, Dependency, and Immature defense variables, and four in Step 5, representing the moderating effect of the target and best-friend reports of Immature defense variables on the association between target and best-friend reports of personality variables and depression. Significant interactions were plotted according to the recommendation of Cohen and Cohen (1983, p. 323 and p. 419).

<sup>3</sup> By entering best-friend-reported CES-D, the variance common to self-reported CES-D and the other ratings obtained from the friend was controlled. Moreover, the criterion became the difference between the level of depression expressed by target and that expressed by the friend. This residual score might be thought to reflect a more reliable criterion for targets' depression because it is measured by two sources. However, all regressions presented were performed without entering friend-reported CES-D; the obtained significant results remained essentially the same.

<sup>4</sup> In line with Baron and Kenny (1986), the term *moderator* is used to refer to a variable Z (e.g., Immature defense) that qualifies the effect of a predictor variable X (e.g. personality) on a criterion variable Y (e.g., depression).

**TABLE 3A**  
**HIERARCHICAL MULTIPLE REGRESSION OF TARGET-REPORTED DEPRESSIVE SYMPTOMATOLOGY:**  
**THE ROLE OF IMMATURE DEFENSE**

Predictors	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>Overall F</i>	<i>F</i>	<i>df</i>	$\beta$
					<i>Change</i>		
<b>Step 1: Depressive symptoms - best-friend report</b> CES-D	.32	.10		21.03***	21.03***	1,185	.32***
<b>Step 2: Immature defense</b> Immature - target report	.58	.33	+ .23	30.46***	31.69***	3,183	.50***
Immature - best-friend report							-.08 <i>ns</i>
<b>Step 3: Personality</b> Self-criticism - target report	.64	.40	+ .07	17.34***	5.34***	7,179	.29***
Dependency - target report							.09 <i>ns</i>
Self-criticism - best-friend report							-.02
Dependency - best-friend report							.10 <i>ns</i>
<b>Step 4: Target and best-friend reports interaction</b> Self-criticism - target report × Self-criticism - best-friend report	.66	.43	+ .03	12.87***	2.51*	10,176	.09 <i>ns</i>
Dependency - target report × Dependency - best-friend report							.22*
Immature -target report × Immature - best-friend report							.10 <i>ns</i>
<b>Step 5: Moderating effects of Immature defense</b> Self-criticism - target report × Immature - target report	.68	.46	+ .03	10.11***	2.63*	14,172	.49*
Dependency - target report × Immature - target report							-.48*
Self-criticism - target report × Immature - best-friend report							.26 <i>ns</i>
Dependency - target report × Immature - best-friend report							.33 <i>ns</i>

*Notes:*

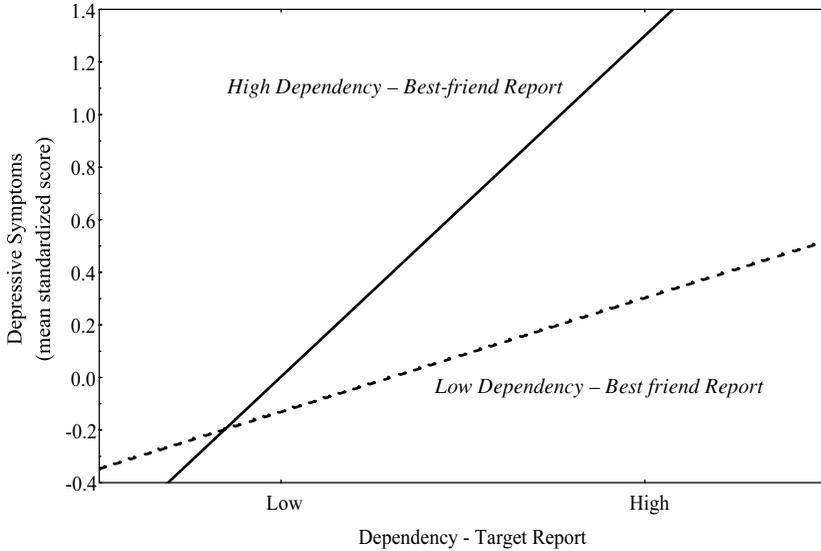
1. *N* = 374; 187 targets and their best friends.

\**p* < .05; \*\**p* < .01; \*\*\**p* < .0001, two-tailed

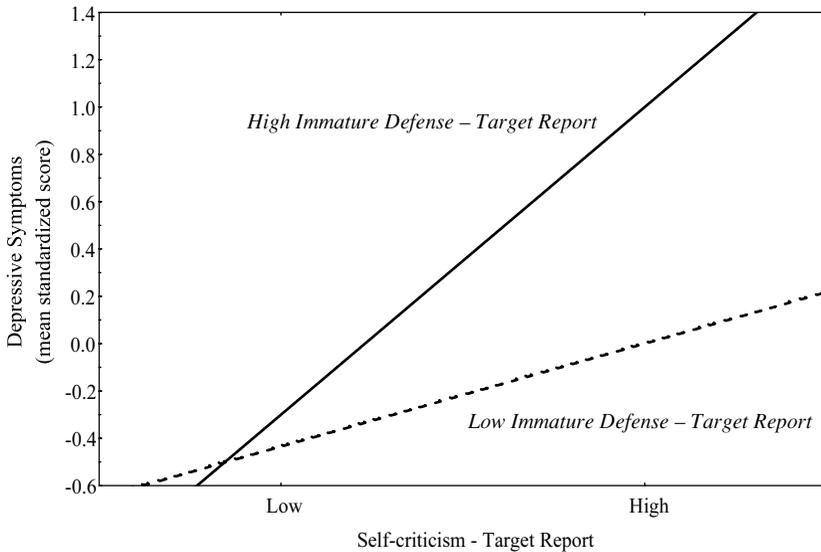
2. Variables were centered prior to regression analyses

In Step 4 of this HMR, the target report × best-friend report interactions added a significant 3% to the explanation of the variance of target-reported depressive symptomatology. In this step, a significant interaction was obtained between target and best-friend reports only for Dependency ratings (see Figure 1). As can be seen in Figure 1, when both friend and target rate the target as more dependent, the target is more likely to rate him/herself as depressed.

In the final step (Step 5) of the HMR, the interactions between Immature defense and personality vulnerability variables were entered in order to investigate the moderating effect of Immature defenses on the association between personality variables and depression. As can be seen in Table 3a, these interactions added a significant 3% to the prediction of the variance of target-reported depressive symptomatology. In this step, two significant interactions were obtained: (a) target-reported Self-criticism × target-reported Immature



**Figure 1.** The relationship among high and low levels of target-reported Dependency and depressive symptomatology, for high and low levels of best-friend reports of Dependency.

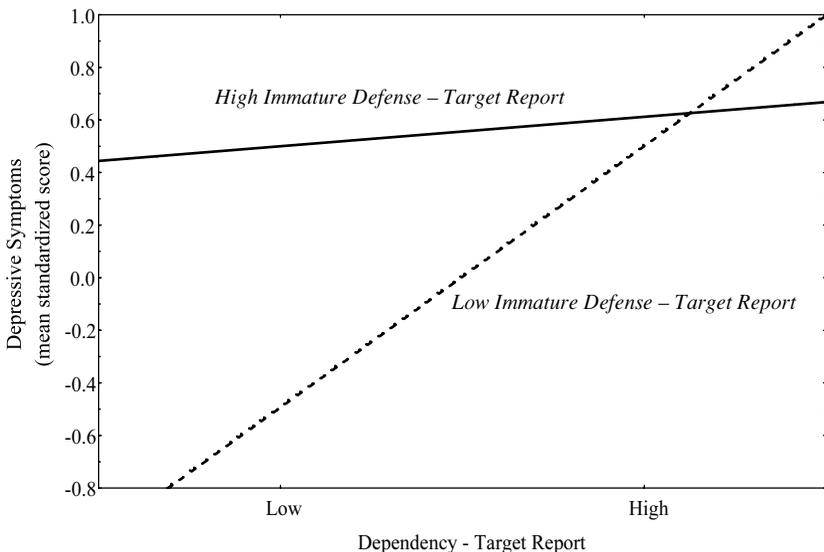


**Figure 2.** The relationship among high and low levels of target-reported Self-criticism and depressive symptomatology, for high and low levels of target-reported Immature defense

defense, and (b) target-reported Dependency  $\times$  target-reported Immature defense (see Figures 2 and 3).

As can be seen in Figure 2, high target-reported Self-criticism was more strongly and positively associated with depressive symptomatology when targets reported themselves to be high than when they reported themselves to be low on Immature defense. Targets who reported themselves as high on both Self-criticism and Immature defense were significantly more depressed.

Figure 3 shows that under high levels of Immature defense, there is no association between targets' Dependency and depression. This interaction and a close look at the pattern of the HMR results (see Table 3a Step 3, where the Dependency beta becomes nonsignificant and approaches zero) suggest a possible *mediational*<sup>5</sup> effect for Immature defense in the association between Dependency and depression. To be sure that the decrease in this effect did not occur due to the best-friend reports of CES-D scores or due to the association between best-friend and target reports of Dependency scores, the effect of targets' reported Dependency on depressive symptoms was estimated while controlling for best-friend-reported depression and Dependency. The direct effect of Dependency on depression was found to remain significant ( $\beta = .20, t = 2.60,$



**Figure 3.** The relationship among high and low levels of target-reported Dependency and depressive symptomatology, for high and low levels of target-reported Immature defense.

<sup>5</sup> In line with Baron and Kenny (1986), the term *mediator* is used to refer to a variable Z (e.g., Immature defense) that accounts for the effect of a predictor variable X (e.g. Dependency) on a criterion variable Y (e.g. depression).

$p = .009$ ). Then the Immature factor was entered; it was found that the effect of Dependency on depression decreased and became nonsignificant ( $\beta = -.09$ ,  $t = 1.2$ ,  $p = .20$ ). Dependency was found to be associated with Immature defense ( $\beta = .23$ ,  $t = 2.96$ ,  $p = .003$ ), which in turn was found to be associated with depression ( $\beta = .48$ ,  $t = 7.58$ ,  $p = .0001$ ).

Mediation occurs when the indirect effect of a predictor through a mediator significantly reduces the predictor's direct effect (Baron & Kenny, 1986). In the above analysis, the direct effect of Dependency on depression while controlling for best-friend-reported CES-D and Dependency scores was significant ( $\beta = .20$ ,  $t = 2.60$ ,  $p = .009$ ). In the next step, however, this effect approached zero ( $\beta = -.09$ ,  $t = 1.2$ ,  $p = .20$ ). The decrease in the coefficients of the direct effect of Dependency on depression, once the mediator – Immature defense factor – was controlled, was significant according to Sobel's test (Baron & Kenny,  $Z = 2.78$ ,  $p < .005$ ). Thus, target-reported Immature defense (beyond best-friend reports) is an almost complete, though not necessarily exclusive, mediator of the association between Dependency and high depression scores.

Overall, the complete HMR model explained 46% of the variance in depressive symptom scores. Beyond the effects of best-friend ratings of depressive symptoms, the Immature defense factor and personality variables added 36% to the explanation of the variance of depressive symptomatology.

Table 3b presents the HMR for the prediction of self-reported depressive symptomatology with the Emotion-avoiding defense factor as the moderator. As can be seen in Step 1, best-friend reports of depressive symptomatology explained a significant 10% of the variance of target-reported depressive symptomatology. Among the Emotion-avoiding reports, only target-reported Emotion-avoiding scores were associated positively with target-reported depressive symptoms; these contributed an additional 6% to the explanation of the variance of target-reported depressive symptoms (see Step 2). In Step 3, the personality variables were entered and it was found that target-reported Self-criticism, but not Dependency, was significantly associated with targets' depressive symptoms. High levels of Self-criticism were positively associated with high depressive symptoms. This step added a significant additional 18% to the prediction of the variance of depressive symptomatology. In the subsequent steps (Steps 4 and 5), a total of 7 interactions were entered: three in Step 4, representing the target report  $\times$  best-friend report of each of the personality and Emotion-avoiding defense variables, and four in Step 5, representing the moderating effect of the target report and best-friend report of Emotion-avoiding variables on the association between target and best-friend report of personality variables and depression. Significant interactions were plotted according to the recommendation of Cohen and Cohen (1983, p. 323; p. 419).

**TABLE 3B**  
**HIERARCHICAL MULTIPLE REGRESSION OF TARGET-REPORTED DEPRESSIVE SYMPTOMATOLOGY:**  
**THE ROLE OF EMOTION-AVOIDING DEFENSE**

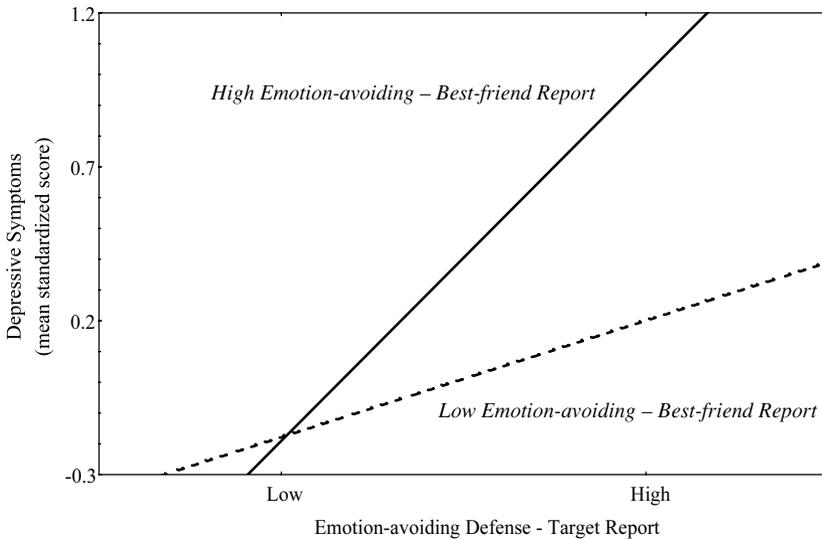
Predictors	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>Overall F</i>	<i>F</i>	<i>df</i>	$\beta$
<b>Step 1: Depressive symptoms - best-friend report</b>	.32	.10		21.03***	21.03***	1,185	
CES-D							.32***
<b>Step 2: Emotion-avoiding defense</b>	.40	.16	+ .06	11.87***	6.7**	3,183	
Emotion-avoiding - target report							.25***
Emotion-avoiding - best-friend report							-.03 <i>ns</i>
<b>Step 3: Personality</b>	.59	.35	+ .18	13.47***	12.44***	7,179	
Self-criticism - target report							.42***
Dependency - target report							.16 <i>ns</i>
Self-criticism - best-friend report							-.07 <i>ns</i>
Dependency - best-friend report							.09 <i>ns</i>
<b>Step 4: Target and best-friend reports interaction</b>	.63	.39	+ .04	11.11***	4.01**	10,176	
Self-criticism - target report $\times$ Self-criticism - best-friend report							.02 <i>ns</i>
Dependency - target report $\times$ Dependency - best friend report							.23*
Emotion-avoiding - target report $\times$ Emotion-avoiding - best-friend report							.65**
<b>Step 5: Moderating Emotion-avoiding effects of defense</b>	.63	.40	+ .01	8.07***	.68 <i>ns</i>	14,172	
Self-criticism - target report $\times$ Emotion-avoiding - target report							.18 <i>ns</i>
Dependency - target report $\times$ Emotion-avoiding - target report							-.22 <i>ns</i>
Self-criticism - target report $\times$ Emotion-avoiding - best-friend report							.11 <i>ns</i>
Dependency - target report $\times$ Emotion-avoiding - best-friend report							.06 <i>ns</i>

*Notes:*

1.  $N = 374$ ; 187 targets and their best friends.  
\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .0001$ , two-tailed
2. Variables were centered prior to regression analyses.

In Step 4 of this HMR, the target report  $\times$  best-friend report interactions added a significant 4% to the explanation of the variance of target-reported depressive symptomatology. In this step, as in the previous regression, a significant interaction was obtained between target and best-friend reports of Dependency ratings (see Figure 1), indicating the stability of this interaction beyond the effects of the two defense factors. In addition, a significant interaction was obtained between target report and best-friend report of the Emotion-avoiding defense factor (see Figure 4).

As can be seen in Figure 4, high Emotion-avoiding defense scores were found to be positively associated with depressive symptomatology when both targets and best friends reported that targets had high levels of Emotion-avoiding defense. Target participants who reported themselves as high on Emotion-avoiding, but who were perceived by their best friends as low on Emotion-avoiding, reported lower levels of depression.



**Figure 4.** The relationship among high and low levels of target-reported Emotion-avoiding defense and depressive symptomatology, for high and low levels of best-friend reports of Emotion-avoiding defense.

In the final step (Step 5) of the HMR, the interactions between Emotion-avoiding defense and personality vulnerability variables were entered in order to investigate the moderating effect of Emotion-avoiding defense on the association between personality variables and depression; this step yielded no significant interaction effects. Overall, the complete regression model explained 40% of the variance in depressive symptom scores. Beyond the effects of best-friend ratings of depressive-symptoms, the Emotion-avoiding defense factor and the personality vulnerability variables added 30% to the explanation of the variance of depressive symptomatology.

Overall, the HMR results indicate significant interactions for the target and best-friend reports for Dependency, as well as for their reports of Emotion-avoiding defenses, but not for the reports of Self-criticism or Immature-defenses. Targets' Immature defense scores were found to interact with personality vulnerability: low Immature scores were found to moderate targets' reports of Self-criticism on depression, and high Immature scores were found to mediate the effect of Dependency on depression.

#### **ACCURACY AND BIASES OF BEST-FRIEND PERCEPTIONS: PATH ANALYSIS**

In the final stage of the analyses, a path analysis model was explored to test the sequence between target and best-friend reports of Self-criticism, defense factors

and depression. The current investigation combined analytic strategies (HMR and the path models) and took into account the elements of accuracy and bias (e.g., Kenny & Acitelli, 2001) elements in the best-friend perceptions of targets' personality vulnerability, defense factors and depressive mood.

The correlational and HRM models did not address the possibility of a causal sequence among target- and best-friend-reported Self-criticism, Immature defense, Emotion-avoiding defense, and depression. It may be argued, for instance, that depressed targets lead their best friends to perceive them as more self-critical or as high on Immature and Emotion-avoiding defenses, and/or that self-critical targets lead their best friends to perceive them as more depressed or as high on Immature and Emotion-avoiding defenses. In addition, targets high on Immature and Emotion-avoiding defenses might lead their best friends to perceive them as more depressed or self-critical. One could also assume that self-critical and/or depressed targets lead their best friends to perceive them as high on Immature and/or Emotion-avoiding defenses.

In order to evaluate these possibilities, while at the same time assessing measurement errors in the dependent and independent variables, two path models – both using SEM (Hoyle & Smith, 1994) – were performed. Using AMOS 4.0 software based on the variance-covariance matrix (Arbuckle, 1999), the fit of the models was tested using maximum likelihood estimation. These models were evaluated separately with both the Immature defense and the Emotion-avoiding defense factors. In each model, the shared variance of Self-criticism, defense factor and depression within target-reports and best-friend reports was controlled (i.e., controlled for their association relating to the same source of report).

### PATH MODELS <sup>6</sup>

Two models were explored: the “Bias” model and the “Accuracy” model (see, for example, Besser & Priel, 2003a; Kenny & Acitelli, 2001).

***The Bias model*** According to the Bias model, depressed targets lead their best

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<sup>6</sup> In evaluating the overall goodness-of-fit for the path models, the following criteria were used: (a) the chi-square ( $\chi^2$ ), for which a  $p$ -value greater than .05 indicates that there are no statistically significant discrepancies between the observed data and the hypothesized model, and the chi-square/ $df$  ratio; (b) the Adjusted Goodness-of-Fit Index (AGFI; Bentler & Bonett, 1980), which specifies the amount of covariation in the data that is accounted for by the hypothesized model relative to a null model that assumes independence among variables; (c) the Robust Comparative Fit Index (CFI; Bentler, 1990) and the Goodness-of-Fit Index (GFI; Jöreskog & Sörbom, 1985), which are indices that adjust for the sample size (for the CFI, GFI, and AGFI, a cutoff of 0.90 is generally accepted as indicating a good fit and 1.0 indicates a perfect fit); and (d) the Root Mean Square Error of Approximation (RMSEA, Browne & Cudeck, 1993), which should be less than 0.05. The current investigation has chosen to accept a model in which the chi-square/ $df$  ration is  $\leq 2$  or in which the CFI, GFI, and AGFI are all greater than 0.90. These moderately stringent acceptance criteria will clearly reject inadequate or poorly specified models while accepting for consideration models that meet real-world criteria for reasonable fit and representation of the data (Kelloway, 1998).

friends to perceive them as more self-critical, and/or self-critical targets lead their best friends to perceive them as more depressed. The current investigation delineated the effect of target-reported depression on best-friend – reported Self-criticism and the effect of target-reported Self-criticism on best-friend-reported depression. Moreover, the effect of target-reported Immature or Emotion-avoiding defenses on best-friend-reported Self-criticism and the effect of target-reported Self-criticism on best-friend – reported Immature or Emotion – avoiding defenses were also delineated. These two paths represent a bias: targets who are high on Immature or Emotion-avoiding defense may lead their best friends to perceive them as more self-critical, and/or self-critical targets may lead their best friends to perceive them as higher on Immature or Emotion-avoiding defenses. Finally, the effect of target-reported depression on best-friend-reported Immature or Emotion-avoiding defenses and the effect of targets' self-reported Immature or Emotion-avoiding defenses on best-friend-reported depression were delineated. As can be seen, these two paths also represent a bias: depressed targets lead their best friends to perceive them as being higher on Immature or Emotion-avoiding defenses, and/or targets who are high on Immature or Emotion-avoiding defenses lead their best friends to perceive them as more depressed.

The Bias models specified resulted in nonacceptable indices of fit:  $RMSEA = .22$ ;  $\chi^2[3, N = 187] = 30.21$ ;  $\chi^2/df = 10.01$ ;  $p < .0001$  for the model with the Immature defense factor, and  $RMSEA = .23$ ;  $\chi^2 [3, N = 187] = 31.83$ ;  $\chi^2/df = 10.61$ ;  $p < .0001$  for the model with the Emotion-avoiding factor. Targets' levels of Self-criticism did not affect their best friends' perception of them as more depressed ( $\beta = .00$ , *ns*); similarly, targets' levels of depression did not affect their best friends' perceptions of them as highly self-critical ( $\beta = .00$ , *ns*). In addition, targets' levels of Immature defense or Emotion-avoiding defense did not affect their best friends' perception of them as highly self-critical ( $\beta = .12$ , *ns* and  $\beta = .01$ , *ns*, respectively). Also similarly, targets' levels of Self-criticism did not affect their best friends' perceptions of them as using a higher level of Immature or Emotion-avoiding defense styles ( $\beta = .06$ , *ns* and  $\beta = .07$ , *ns*, respectively). Finally, targets' levels of Immature or Emotion-avoiding defense did not affect their best friends' perceptions of them as highly depressed ( $\beta = .06$ , *ns* and  $\beta = .07$ , *ns*, respectively). Similarly, targets' levels of depression did not affect their best friends' perceptions of them as using a higher level of Immature defense style ( $\beta = .02$ , *ns* and  $\beta = .00$ , *ns*, respectively).

**The Accuracy model** In this model, target and best-friend reports are assumed to be congruent. The current investigation delineated the following effects: (a) the effects of target-reported depression on best-friend reports of target depression, (b) the effects of target-reported Self-criticism on best-friend reports of target Self-criticism, and (c) the effects of target-reported defense factors on best-friend reports of target defense factors. These three paths convey accuracy, since

depressed targets are perceived by their best friends as more depressed, and/or self-critical targets are perceived by their best friends as more self-critical, and/or targets who are high on Immature or Emotion-avoiding defense factors are perceived as high on these factors. The model specified resulted in the following acceptable indices of fit:  $RMSEA = .000$ ;  $\chi^2 [6, N = 187] = 2.65$ ;  $\chi^2/df = .44$ ;  $p > .85$ ;  $GFI = .1.0$ ;  $AGFI = .98$ ;  $CFI = 1.0$  for the model with the Immature factor, and  $RMSEA = .000$ ;  $\chi^2 [6, N = 187] = 2.99$ ;  $\chi^2/df = .49$ ;  $p > .81$ ;  $GFI = .1.0$ ;  $AGFI = .98$ ;  $CFI = 1.0$  for the model with the Emotion-avoiding factor.

In both models, targets' levels of Self-criticism affected their best friends' perceptions of them as highly self-critical ( $\beta = .18, t = 3.07, p < .002$  and  $\beta = .19, t = 3.29, p < .001$ , respectively). Targets' levels of depression affected their best friends' perceptions of them as highly depressive ( $\beta = .29, t = 4.60, p < .0001$  and  $\beta = .28, t = 4.69, p < .0001$ ), and targets' high levels of Emotion-avoiding defenses affected their best friends' perceptions of them as high on this factor ( $\beta = .20, t = 3.20, p < .001$  and  $\beta = .21, t = 3.58, p < .0001$ ).

The above findings of the path models (see Figure 5 for the combined model)<sup>7,8</sup>, indicate that significant but modest relationships exist between target and best-friend reports of similar variables (convergent validity), but no relationships exist across different variables (divergent validity). This suggests that the levels of Self-criticism reported by best friends are not simply a symptom of targets' depression or of their levels of defense styles (as would be the case if the Bias model were correct); nor are the levels of defense reported by best friends a response to targets' depression levels or levels of Self-criticism. Moreover, the levels of depression reported by best friends are not simply a reflection of targets' personality vulnerability, nor are they a reflection of targets' levels of defense styles.

## SUMMARY OF RESULTS

**Correlational analyses** These analyses revealed, as expected, different patterns of associations among adaptive and maladaptive defenses and the vulnerability and resilience factors. According to both raters, ratings on Immature and Emotion-avoiding factors were significantly correlated with both Self-criticism and depression, while the Mature defense factor was associated with the Efficacy

<sup>7</sup> A combined model estimating the simultaneous Bias and Accuracy paths yielded identical results, that is, no significant effects were found for any of the biased paths and significant effects were found for all of the accuracy ones. However this model had zero degrees of freedom, so fit indices could not be estimated.

<sup>8</sup> It should be noted that the models estimated are highly conservative, because the accuracy paths were estimated with the high correlations among the CES-D, DEQ, and DSQ variables within reporter being simultaneously controlled (i.e., controlled for their associations relating to the same report source). The unit of analysis (Kenny, 2003; Kenny & Judd, 1986) was the two sources of information ( $n = 187$  pairs).



factor only. The associations between the DEQ factors and the defense factors were not altered when depression levels and the correlations among the defense factors were controlled. The associations between Dependency and the Immature and Emotion-avoiding defense factors on the one hand, and between Dependency and depression on the other, were found to be significantly lower than the correlations between Self-criticism and these variables.

***HMR analyses*** These analyses revealed that beyond best friends' perceptions of the targets' depression, targets' reports of Immature and Emotion-avoiding defense factors and Self-criticism are all significant predictors of targets' depression. The best friends' reports of Immature and Emotion-avoiding defense factors and Self-criticism did not predict depression. In addition, significant interactions were obtained for the targets' and best friends' reports of Dependency and Emotion-avoiding defenses. Finally, Immature defense levels, but not Emotion-avoiding defense levels, as reported by the targets but not by the best friends, were found to interact with personality vulnerability. Specifically, targets who reported a high level of Self-criticism but a low Immature defense score were also found to report low depression scores. Finally, high Immature scores were found to mediate the effect of Dependency on depression.

***Path model analyses*** These analyses demonstrated that levels of Self-criticism reported by best friends are not simply a reflection of targets' depression or defense levels. In addition, the levels of defense reported by best friends do not seem to be significantly biased by targets' depression levels or by their levels of Self-criticism. Furthermore, neither the targets' personality vulnerability nor their levels of defense seem to significantly bias the levels of depression reported by their best friends.

## DISCUSSION

To the best of my knowledge, the current study is the first to examine personality vulnerabilities and depression with data provided both by the self and by informants familiar with the target individuals in a community sample of participants and their same-sex best friends. The current investigation is also unique since it explored the untested association between personality vulnerabilities and defense styles in a community sample. The results of the present study underscore a conceptualization of personality vulnerability, Immature defense mechanisms, and depressive mood as three related but distinct constructs. Using a multisource design, the present study explored the patterns of relations among self-reported and best-friend-reported Self-criticism, Dependency, and defense factors, as well as the contribution of the latter to the prediction of depression.

### SELF- AND BEST-FRIEND REPORTS

Significant differences between self-reported and best-friend-reported mean assessments were found for the Dependency, Efficacy, and Mature defense factors, with targets reporting themselves as more dependent, higher on Efficacy and on the Mature defense factor scores than the levels attributed to them on these variables by their best friends. No mean differences were found for the other variables studied.

The finding that self-reported assessments of Mature defenses and Efficacy are higher than those reported by a significant other in the proximal social environment suggests the possibility, already mentioned in the existing research literature, that biases of self-reports may reveal aspects of the specific traits assessed, as well as the relevance of these traits in terms of producing biases (e.g., Efficacy and Mature defenses might represent desirability - a desire to appear desirable/positively on the scale), which could increase the tendency for "positive illusion". It seems plausible that higher self-evaluations of Mature defenses and Efficacy can be part of a target's more optimistic approach, leading to greater self-confidence and resilience. These findings are reminiscent of the effects of positive illusions of competence for the prevention of depressive mood (Alloy & Abramson, 1979). Similarly, higher self-evaluations of Dependency may be constitutive of dependent individuals' focus on connecting with others. These results are also congruent with Besser and Priel's (2003a) findings regarding self-reported Dependency in the context of married couples.

Similar self-reported and best-friend-reported means were obtained for assessments of Self-criticism, the Immature and Emotion-avoiding defense factors, and for depressive symptomatology ratings. In line with a systems perspective on the interpersonal process involved in vulnerability to depression (e.g., Coyne, 1976; Sacco, 1999; Sacco & Phares, 2001), one speculative implication of these findings might be that targets' high levels of Self-criticism, Immature and Emotion-avoiding defense factors, and high depression scores are evident in interpersonal relationships, detected by the proximal social environment, having a strong, probably negative, impact on these relationships.

Additional correlational results indicated that there was substantially more agreement between self-reports and informant ratings in terms of levels of Dependency rather than in levels of Self-criticism; in fact, the concordance for Self-criticism was quite low ( $r = .23$ ). This is not entirely surprising given that Dependency is a construct that is quite probably visible to observers (i.e., involving outward expressions of dependent behavior), while it is recognized that Self-criticism, as assessed by the DEQ, is covert and often takes the form of internalized self-talk; it only sometimes that Self-criticism is overt and public (see Powers, Zuroff, & Topciu, 2004).

**PERSONALITY VULNERABILITY, DEFENSE STYLES, AND DEPRESSION**

The findings of the present study contribute to the understanding that the quantity and intensity of defense mechanisms used by an individual constitute a basic dimension that differentiates between vulnerability and nonvulnerability personality traits, as well as between different configurations of vulnerability to depression. A robust finding of this study, after controlling for depression and taking into account two data sources, is that Mature defenses are reported and perceived as associated with personality resilience only. This finding corroborates the basic model of vulnerability and resilience proposed by Blatt and colleagues. Although Efficacy was not found to be negatively correlated with depression, Efficacy might imply resilience to other maladaptive outcomes through the use of adaptive defensive strategies. While it may be argued that Efficacy is the result of the use of adaptive defenses, the direction of this causality should be explored longitudinally. Moreover, this study's results suggest that the use of Immature defense mechanisms defines a main aspect of personality vulnerability to depression.

The findings of the present study also contribute to the understanding of a basic difference between Dependency and self-critical vulnerabilities. Vulnerability aspects of high Self-criticism have been amply documented (Besser, Flett, & Davis, 2003; Besser & Priel, 2003a, 2003b; Priel & Besser, 1999, 2000), and links between Self-criticism and negative interpersonal outcomes have been reported (Fichman et al., 1999; Mongrain, Vettese, Shuster, & Kendal 1998; Mongrain & Zuroff, 1995; Santor, Pringle, & Israeli, 2000; Santor & Zuroff, 1997; Thompson & Zuroff, 1999; Vettese & Mongrain, 2000; Zuroff, 1994; Zuroff & Fitzpatrick, 1995). Studies with different populations have reiterated the complex characteristics of Dependency vulnerability (e.g., Aube & Whiffen, 1996; Besser, Flett, & Davis, 2003; Besser & Priel, 2003a, 2003b; Blatt et al., 1995; Bornstein, 1992; Mongrain, 1998; Mongrain & Zuroff, 1995; Priel & Besser, 1999, 2000; Santor & Zuroff, 1997; Zuroff, 1994; Zuroff & Fitzpatrick, 1995). The findings of the present study corroborate this extensive body of research, characterizing the differences between Dependency and Self-criticism in relation to the use of defense mechanisms. A main finding of this study is the difference in the magnitude of the associations between Dependency and less adaptive defense mechanisms on the one hand, and between Self-criticism and less adaptive defense mechanisms on the other. According to both self- and best-friend reports, Self-criticism is associated with Emotion-avoidance defenses, while Dependency is not, and both vulnerability configurations are associated with the Immature defense factor and with depression, but these associations were found to be significantly lower for Dependency than for Self-criticism. These associations between the DEQ factors and the defense factors were stable

even when controlling for depression levels and the correlations among the defense factors. Self-criticism's associations with maladaptive defense styles might suggest more biased perceptions of reality and interpersonal relationships that may constitute a basic aspect of this vulnerability.

### **SELF-OTHER INTERACTIONS AND THE MODERATION EFFECT OF DEFENSE STYLES**

The findings of this study suggest that the appraisals we make of significant others with whom we interact in close interpersonal relationships make a unique contribution to the prediction of depression in such relationships. Interactions between self-reported and best-friend perceptions of Dependency and Emotion-avoiding variables seem to constitute an important indicator of psychological distress. Specifically, best-friend-reported variables moderate the effect of targets' high self-reported Emotion-avoiding defenses and Dependency on target self-reported depression. More particularly, more positive appraisals on the part of best friends buffer the effects of self-reported Dependency and Emotion-avoiding defenses variables on target participants' depressive symptoms; more severe vulnerability was found when targets both rated themselves and were rated by their best friends as higher on Dependency and/or on Emotion-avoiding defenses.

The present study findings also showed that when self- and best-friend assessments are congruent (i.e., when both are positive or both are negative), they both contribute to the explanation of vulnerability and resilience to depression. However, the distress of self-critical individuals appears to be related to their own subjective perceptions only. Self-criticism seems impervious to the effects of best-friend reports, reinforcing the self-critical person's tendency to distort or ignore important aspects of the interpersonal reality. The findings regarding the relations between self- and best-friend reports seem to indicate specific aspects of the interpersonal mechanisms active in the maintenance of depression among self-critical people, as well as the previously found distinct protective aspects included in target individuals' Dependency tendencies (Priel & Shahar, 2000).

### **ACCURACY AND BIAS IN SELF-OTHER PERCEPTIONS**

The basic accuracy found in best-friend assessments corroborates the validity of the vulnerability factors used in this research. The findings of the current study show that the levels of Self-criticism reported by best friends are not simply a reflection of targets' depression levels or levels of defense. In addition, the levels of defense reported by best friends do not seem to be biased by targets' depression levels or by their levels of Self-criticism. Furthermore, targets' personality vulnerability or levels of defense styles do not bias the levels of depression observed by best friends. These findings also strongly support an

interpersonal perspective on vulnerability to depression. Best friends' perceptions of targets' personalities fulfill an important role as a buffer against targets' vulnerability to depression.

This study's findings also suggest that defense factors, personality factors, and depressive mood may all be accurately detected in close interpersonal relationships through their impact on others close to the individual. Beyond the methodological implications of multisource data, this design allows an empirical approach to a perspective on depression as an interpersonal process (Coyne, 1976; Sacco, 1999).

The findings about the relationship between target and best-friend assessments highlight the importance of the specific interpersonal context studied. The importance of the specific interpersonal context becomes evident after comparing the results of this study with Besser and Priel's (2003a) study on vulnerability to depression as assessed using self- and spouses' reports in long-term, close, romantic interpersonal relationships. Partners' ratings of targets' Self-criticism and Dependency have been found to have both additive and interactive effects on the prediction of target depression. In the current study, however, only self-reported personality variables had predictive effects. Moreover, while the ratings of the moderator variable by spouses significantly moderated targets' ratings, best friends' ratings on the moderator variable in the present study – defense mechanisms – did not. These findings suggest the importance of the specific relationship between target individuals and additional reporters. In addition, although both studies investigated relatively long-term naturalistic relationships, in the study involving spouses (Besser & Priel, 2003a), the moderator was the “romantic attachment” construct, that is, an interpersonal variable. In the current study of friends, the moderator – defense mechanisms – may be considered a more intrapersonal or intrapsychic variable. In married couples, the higher predictive power of partner ratings as well as their moderating role could possibly be attributed to the closer and more intimate kind of interpersonal relationship investigated and to the fact that the moderator investigated there was an interpersonal one.

#### **THE ROLE OF DEFENSES IN DEPENDENCY AND SELF-CRITICAL VULNERABILITIES**

The results indicate that the Immature defense factor interacts with personality vulnerabilities when reported by targets, but not by best friends. The Emotion-avoiding defense factor did not interact with personality vulnerabilities either when reported by targets or when reported by best friends. Specifically, low Immature scores were found to moderate targets' reports of Self-criticism on depression and high Immature scores were found to mediate the effect of Dependency on depression. Furthermore, it would seem that a higher level of Immature defense increases the vulnerability to depression of self-critical

individuals. These findings are congruent with previous results on the effects of coping mechanisms in the vulnerability-depression association. In a longitudinal study of pregnant women, Self-criticism was found to correlate positively with high emotional-avoidance and low approach coping strategies (Besser & Priel, 2003b); moreover, higher scores on the approach coping style moderated the self-critical vulnerability to depression. These findings and the findings of the present study suggest a buffering role of high adaptive conscious (coping) mechanisms as well as of low maladaptive unconscious (defenses) strategies in self-critical vulnerability. The different patterns of interactions between maladaptive defenses and vulnerability factors suggest that while the Dependency trait might lead to depression because it is associated with Immature defense, and might not constitute a vulnerability trait if more adaptive defenses are used, Self-criticism makes a specific contribution to depression levels that may be exacerbated by the use of Immature defense.

#### IMPLICATIONS OF THE CURRENT FINDINGS

Collectively, the results of this study have several implications, not only in terms of methodological and conceptual issues, but also in terms of practical issues involving treatments and interventions designed for self-critics and dependent individuals. First, in terms of methodological implications, the findings illustrate clearly the value of supplementing self-reports with observer ratings, not only in future research on Self-criticism and Dependency but also when assessing the levels of various dimensions of personality vulnerabilities in counseling and clinical contexts. In this study, most of the findings that emerged from the self-reports were replicated in the analyses of informant ratings, but this may not necessarily be the case in future investigations and in other contexts.

As for theoretical implications, at the conceptual level the current results provided general support for models of Self-criticism and Dependency, stress, and coping, including models that link Self-criticism, Dependency, maladaptive coping, and depression (see Besser & Priel, 2003b). The results constitute additional evidence for the usefulness of attempting to identify factors that may exacerbate or underscore the link between certain dimensions of personality vulnerability and psychological distress and well-being. Finally, at the practical level, it is evident from the results that individuals characterized by elevated levels of Self-criticism should benefit from therapeutic interventions designed to help them to develop a more mature or less maladaptive defense style. Research by Blatt and Zuroff and associates has shown that Self-criticism is relatively difficult to treat and is best suited to long-term interventions and that, as a result, direct efforts to reduce Self-criticism might not be appropriate (for a recent extensive review see Blatt, 2004). Perhaps, then, it is more advisable, at least in the initial stages of treatment, to focus counseling interventions on the

maladaptive defense styles and facilitate an orientation comprised of more mature defenses, and then, subsequently, focus directly on reducing levels of Self-criticism. However, the development of mature defenses is likely to be no easy task. Vaillant (1994) observed that attempts to challenge irritating but partly adaptive, immature defenses can cause substantial anxiety and may rupture the therapeutic alliance. Other authors have also observed that negative reactions may ensue from direct attempts to challenge maladaptive defenses and it may be preferable to facilitate the development of flexible coping skills (Ihilevich & Gleser, 1993; Mahalik, Cournoyer, DeFranc, Cherry, & Napolitano, 1998). Vaillant (1994) cautioned that therapeutic efforts are best attempted with individuals who perceive, or who actually have available, high levels of social support. This is an important suggestion for the treatment of Dependency, given other evidence that social support mediates the link between Dependency and psychological distress (Priel & Besser, 2000).

Another potentially useful suggestion stems from research indicating that children who experience failure tend to rely on maladaptive and immature defenses, while children who experience success tend to utilize more mature defenses (Cramer & Block, 1988). Accordingly, given that self-critics are generally intolerant of failure and have elevated fears of failure (e.g., Blatt, 1991; Blatt, 2004), it follows that attempts to develop a more mature defense style among self-critics will be more effective if these individuals begin to experience successful outcomes and develop a heightened sense of self-efficacy.

### **LIMITATIONS OF THE CURRENT RESEARCH**

Certain limitations of the current study should be noted. First, the study was based on a cross-sectional design and longitudinal research is needed. Accordingly, causal statements involving the variables are not warranted.

Second, some concerns have been expressed about whether best friends will be entirely truthful in research of this nature (see Klonsky, Oltmanns, & Turkheimer, 2002). Perhaps best friends were not entirely truthful, even though members of the dyad completed the questionnaires in separate locations.

Third, in order to get a more accurate assessment of depression, subsequent research should include multiple measures of depression. Similarly, because measures of anxiety and other forms of negative affectivity were not included, it is not possible to determine whether the current findings are specific to depression or apply to psychological distress in general.

Finally, the results of this study may apply only to the measure of defense styles used in this research. Further research, using comprehensive assessments of defense mechanisms such as semistructured interviews or projective techniques (Cramer, 1998b), and/or using person and situational variables obtained from multiple sources (as was done by, e.g., Davidson & MacGregor,

1998), and/or using external assessments of behavior, may prove useful in advancing the study of personality and defenses. Further research could also implement the present study's multisource interactional model using a longitudinal design that controls for baseline levels of depression and personality variables.

In summary, despite some limitations, the current study represents a first attempt to examine the role played by defense mechanisms in the association between personality vulnerabilities and resilience on one hand, and between personality vulnerabilities and depression on the other hand, using a multisource approach. The findings obtained point to multifaceted relationships among personality vulnerability factors, defense mechanisms, and depressive symptoms, as well as the plausible impact of interpersonal relationships. The association between self-ratings and best-friend ratings of the Self-criticism and Dependency personality vulnerability traits, which goes beyond depression and defense styles, demonstrates the usefulness of multisource data collection as a method for the study of personality.

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