

# Adult Attachment, Depressive Symptoms, and Validation From Self Versus Others

Meifen Wei  
Iowa State University

Brent Mallinckrodt  
University of Missouri—Columbia

Lisa M. Larson and Robyn A. Zakalik  
Iowa State University

Attachment working models of self and others may govern adults' preferences for internal vs. external sources of reassurance, which, if unavailable, lead to depressive symptoms. This study examined a model in which the link between depressive symptoms and attachment anxiety is mediated by (a) capacity for self-reinforcement and (b) need for reassurance from others, whereas the link between depressive symptoms and attachment avoidance is mediated only by the capacity for self-reinforcement. Analysis of survey data from 425 undergraduates indicated that both capacity for self-reinforcement and need for reassurance from others partially mediated the link between attachment anxiety and depression. Capacity for self-reinforcement fully mediated the link between attachment avoidance and depression. Moreover, 54% of the variance in depressive symptoms was explained by attachment anxiety, self-reinforcement, and need for reassurance from others.

A growing body of research suggests a strong link between depressive symptoms and adult attachment insecurity (e.g., Besser & Priel, 2003; Carnelley, Pietromonaco, & Jaffe, 1994; Roberts, Gotlib, & Kassel, 1996; Wei, Heppner, & Mallinckrodt, 2003; Wei, Mallinckrodt, Russell, & Abraham, 2004). Attachment insecurity in many recent studies has been operationalized according to the two relatively orthogonal dimensions identified by Brennan, Clark, and Shaver (1998). In their study, over 300 items drawn from 14 self-report inventories were administered to over 1,000 college students. Of the two dimensions that emerged from this factor analysis, adult attachment *anxiety* is characterized by a fear of abandonment and a preoccupation with one's partner, whereas adult attachment *avoidance* involves fears of intimacy and reluctance to rely on others for interpersonal needs (Brennan et al., 1998). Generally, the positive associations with depressive symptoms or other symptoms of psychological distress tend to be stronger for attachment anxiety than for attachment avoidance, although statistically significant direct effects for both types of insecure attachment have been reported (Mallinckrodt & Wei, 2005; Wei et al., 2003, 2004).

Recently, increased attention has been focused on attempts to identify variables that mediate links between insecure attachment and various types of distress. Among the significant mediators

examined thus far are (a) dysfunctional attitudes and low self-esteem (Roberts et al., 1996), (b) problem coping styles or perceived coping effectiveness (Lopez, Mauricio, Gormley, Simko, & Berger, 2001; Wei et al., 2003), (c) self-splitting and self-concealment (Lopez, Mitchell, & Gormley, 2002), (d) social self-efficacy and emotional awareness (Mallinckrodt & Wei, 2005), (e) affect regulation (Wei, Vogel, Ku, & Zakalik, 2005), and (f) maladaptive perfectionism (Wei et al., 2004). Some research has attempted to identify particular mediators that are more helpful in connection with one dimension of attachment insecurity than another. For example, Wei et al. (2005) found that the link between attachment anxiety and negative mood was mediated only by emotional reactivity but not emotional cutoff (e.g., suppression), whereas the link between attachment avoidance and negative mood was mediated only by emotional cutoff but not emotional reactivity. Findings from studies of this type could contribute to a better understanding of how specific patterns of adult attachment lead to vulnerabilities for particular types of maladaptive functioning and help to formulate suggestions for developing appropriate counseling interventions. Therefore, it is important to continue the search for attachment-specific mediators in connection with specific symptoms. The general purpose of the present study was to explore two potential mediators for the link between adult attachment insecurity (avoidance or anxiety) and depressive symptoms: (a) the need for reassurance or validation from others and (b) the capacity for self-reinforcement.

According to attachment theory, children develop internal working models of self and others on the basis of the responsiveness of their caregivers (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Bowlby, 1973, 1979; Pietromonaco & Feldman Barrett, 2000). In general, inconsistent parental responsiveness in childhood is believed to foster a negative working model of self in adulthood. These adults, therefore, tend to see themselves as unworthy of care from others, doubt their value as relationship

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Meifen Wei, Lisa M. Larson, and Robyn A. Zakalik, Department of Psychology, Iowa State University; Brent Mallinckrodt, Department of Educational, School, and Counseling Psychology, University of Missouri—Columbia.

We thank Shanna Behrendsen, Anne Giusto, and Mike McGregor for their assistance with data collection.

Correspondence concerning this article should be addressed to Meifen Wei, Department of Psychology, W112 Lagomarcino Hall, Iowa State University, Ames, IA 50011-3180. E-mail: wei@iastate.edu

partners, fear abandonment, and experience considerable attachment anxiety (Brennan et al., 1998; Lopez & Brennan, 2000; Mallinckrodt, 2000; Pietromonaco & Feldman Barrett, 2000). In contrast, consistent nonresponsiveness of parents in childhood is believed to foster the development of adults who retain a negative working model of others, tend to remain on guard for interpersonal disappointment, and distrust potential close relationship partners. These individuals may minimize their need for relationships, fear intimacy, emphasize self-reliance (Fraley, Davis, & Shaver, 1998), and may protect themselves by not relying on others—whom they believe would be unlikely to provide comfort (Cassidy & Kobak, 1988).

These postulates of attachment theory are paralleled by aspects of both interpersonal theory (e.g., Sullivan, 1953) and object relations theory (e.g., Greenberg & Mitchell, 1983), which hold that a child's perception of the degree to which she or he is valued and esteemed by caregivers is introjected to form the basis for a developing sense of self-esteem. Thus, attachment, interpersonal, and object relations theories, each beginning from a somewhat different perspective, converge in emphasizing that young children are dependent on responsiveness, reassurance, and validation from caregivers. If all goes well as the child matures, these external sources of affirmation promote an increasingly positive self-appraisal and a growing capacity in older children and adolescents to validate and reinforce themselves. In adults, the need for occasional external reassurance is never completely lost and may become especially great in stressful situations that prompt an individual to seek social support (Cutrona & Russell, 1990). However, except in these cases of stressful life circumstances, optimal childhood development is expected to produce healthy, well-adjusted adults who do not have excessive needs for reassurance and validation from others. It is important to note that this model of adjustment is based on individualistic cultural values dominant in the United States and may not apply to cultures with more collectivistic values (e.g., Japan, see Rothbaum, Weisz, Pott, Miyake, & Morelli, 2000; or Taiwan, see Wang & Mallinckrodt, 2004).

Adults in individualistic cultures with high attachment anxiety emerge from childhood with negative working models of themselves. These individuals often have a limited ability to draw on internal resources for reassurance or validation and are then compelled to search for validation and reassurance from others. In contrast, adults in individualistic cultures with high attachment avoidance are loath to rely on others for affirmation. Because of their generally negative views of others and fear of intimacy and dependence, they are compelled to rely more or less exclusively on internal sources of validation and reinforcement. Persons with relatively secure attachment have positive working models of self and others and presumably are able to easily mobilize both internal and external sources of affirmation as their circumstances require (Mallinckrodt, 2000, 2001). Results of the small number of relevant empirical studies appear to support this conceptualization. For example, Davila (2001) found a positive association between attachment anxiety and excessive reassurance seeking. Similarly, Lopez (2001) found that the need for social approval was positively associated with attachment anxiety. That study also reported that the need for social approval explained unique variance in the tendency to use splitting of others as a psychological defense, above and beyond the variance accounted for by the quality of the

attachment. It appears that attachment anxiety is positively and moderately associated with a need for reassurance from others. Conversely, two studies reported only nominal associations between attachment avoidance and excessive reassurance seeking (Davila) or need for social approval (Lopez). Two other studies found that individuals with attachment avoidance were less likely to seek positive feedback from others (e.g., Brennan & Bosson, 1998; Brennan & Morris, 1997). It seems that previous studies provide some empirical evidence that attachment anxiety (but not attachment avoidance) is moderately related to the need for reassurance from others.

In addition to the need for reassurance, the other mediator examined in this study is the capacity for self-reinforcement. Roberts et al. (1996) provided evidence that attachment anxiety is significantly related to low self-esteem. Given the link between self-esteem and self-reinforcement (Heaton & Duerfeldt, 1973), attachment anxiety may be negatively associated with the capacity for self-reinforcement. Similarly, Roberts et al. found that attachment avoidance was also significantly related to low self-esteem. However, attachment theory holds that individuals with attachment avoidance tend to compulsively rely only on themselves for validation because of their negative views of others. We reasoned that persons with high attachment avoidance tend to rely only on self-validation for their sense of reassurance because they avoid relying on others for reassurance.

The capacity to draw validation and reinforcement from at least one of these two sources (i.e., self vs. others) may be the critical link between attachment and vulnerability to depressive symptoms. Lewinsohn (1974) argued that depression is caused primarily by a lack of positive self-reinforcement and by a limited capacity for internal validation. According to Beck (1967), depression is caused by excessive negative self-appraisal. There is also a body of empirical evidence to support the view that lower levels of self-reinforcement or validation are associated with higher levels of depressive symptoms (e.g., Bandura, 1971; Wilkinson, 1997). Studies have shown that frequency of self-reinforcement predicts depression for adults (Heiby & Staats, 1990) and college students (Heiby, 1981, 1983b). Furthermore, training in self-reinforcement skills has been shown to be effective as a way to reduce depressive mood (Fuchs & Rehm, 1977; Rehm, 1977). An excessive need for seeking reassurance from others (at least in Western cultures) may stem from a diminished capacity to reinforce or validate oneself. Interpersonal theories of depression (Joiner, Coyne, & Blalock, 1999) hold that an intensifying cycle begins when moderate depression leads to excessive reassurance seeking in one's close relationships. These demands eventually frustrate one's family and friends, driving them away and leading to the experience of loss that magnifies both depressed mood and the need for reassurance from one's diminishing circle of support. Several studies—all from Western cultures—have suggested a positive link between depressive symptoms and seeking validation from others (e.g., Davila, 2001; Joiner & Metalsky, 2001; Potthoff, Holahan, & Joiner, 1995). This link was found to remain significant even after controlling for anxiety (Joiner & Schmidt, 1998).

Persons who must rely primarily on others for validation instead of themselves are subject to vicissitudes in the supportiveness of these relationships. Therefore, we believe that most people socialized with individualistic cultural values perceive internal resources for affirmation (i.e., themselves) as generally more reliable than

external sources (i.e., others). This difference may explain, in part, why persons with anxiety about the dissolution of their attachments have been found to be more vulnerable to depressive symptoms than persons with attachment avoidance (Mallinckrodt & Wei, 2005; Wei et al., 2004). However, it should be noted that individuals with attachment avoidance are believed to underreport their depressive symptoms (Dozier & Kobak, 1992). Thus, because persons with attachment anxiety may have difficulty with self-reinforcement or validation, they are compelled to seek reassurance from others. Because persons with attachment avoidance are reluctant to rely on others for affirmation, they compulsively rely on themselves. However, our review of literature did not identify a previous study that examined all these variables together. If the link between adult attachment and depressive symptoms is mediated by the capacity for self-reinforcement and the need for reassurance from others, then the finding would have important implications for counseling intervention and theories of depressive symptoms that combine developmental experience with cognitive factors.

Our review of the research and theory suggested the proposed links shown in Figure 1 between attachment, depressive symptoms, the capacity for self-reinforcement, and the need for reassurance from others. The purpose of this study was to test four hypotheses derived from this model: (a) Attachment anxiety would be negatively associated with the capacity for self-reinforcement and positively associated with the need for reassurance from others; (b) both the capacity for self-reinforcement and the need for reassurance from others would be significant mediators of the link between attachment anxiety and depressive symptoms; (c) attachment avoidance would be positively associated with the capacity for self-reinforcement, but not significantly associated with the need for reassurance from others; and, consequently, (d) the capacity for self-reinforcement, but not the need for reassur-

ance from others, would be a significant mediator of the link between attachment avoidance and depressive symptoms.

Note that only one significant mediator (i.e., capacity for self-reinforcement) is proposed for attachment avoidance because of the presumed reluctance of these individuals to rely on others for reassurance. However, both the capacity for self-reinforcement and the need for reassurance from others are proposed as mediators of the link between attachment anxiety and depressive symptoms. We reasoned that at increasingly higher levels of attachment anxiety, individuals are compelled to have increasingly higher needs for reassurance from others. These higher needs, in turn, increase vulnerability to depressive symptoms because of the inherent uncertain reliability and relative ineffectiveness that external reassurance has for persons with high attachment anxiety. Therefore, whereas the capacity for self-reinforcement is proposed as a positive (“good” or “ameliorative”) mediator, the need for reassurance from others is proposed as a negative (“bad” or “exacerbating”) mediator, because when increasing attachment anxiety is associated with increasingly greater reliance on others for reassurance, a greater vulnerability to depressive symptoms is expected to result.

This last postulate reflects a crucial operational definition of the constructs in this study. We assessed the increasing need for reassurance from others as distinguished from the perception of actual reassurance from others. A large body of literature suggests that the perception of actual validation from others (i.e., perceived social support) ameliorates symptoms of depression. In this study, we chose to measure a heightened perception of need for reassurance from others instead of actual perceived amount of reassurance received because (a) perceived need for reassurance has been studied much less than perceived social support and (b) future studies may show that perceived need for reassurance from others may be more amenable to counseling interventions than perceived

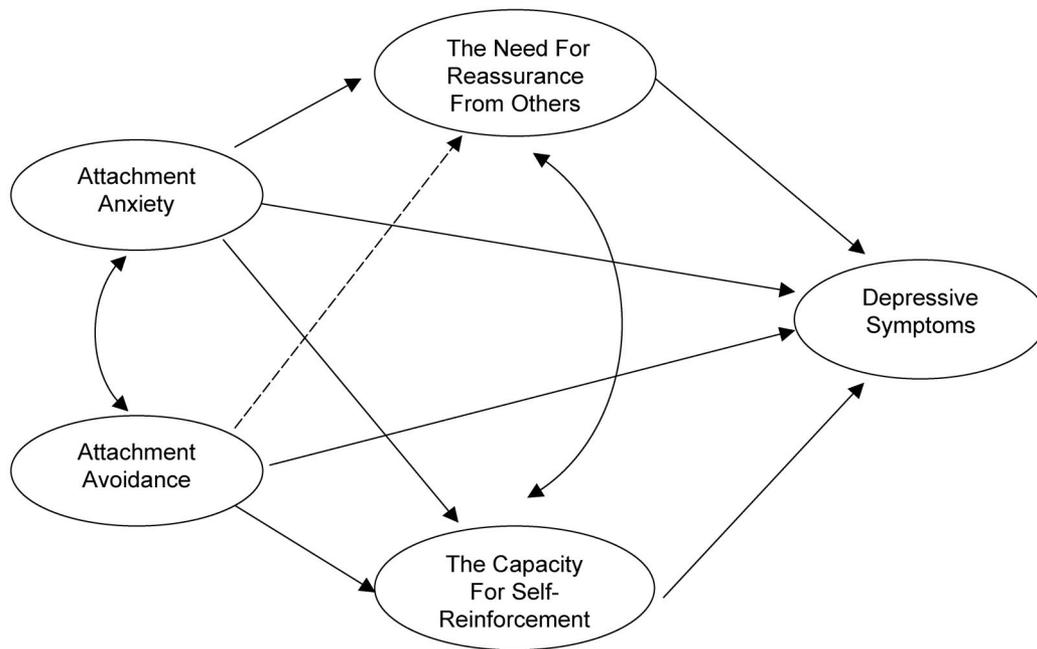


Figure 1. The theoretical model. The dashed line indicates that the path was not expected to be significant.

social support. We hope the findings of this study will lay the groundwork for counseling interventions that assist clients by increasing their capacity for self-reinforcement while simultaneously lessening their dependence on validation from others.

## Method

### Participants

Students who were enrolled in introductory psychology courses at a large Midwestern state university were solicited for participation. The participants were told that the present study involved "close relationship preferences, personal need preference, self-empowerment, and mood regulation in college students." The sample included 261 women (61%), 160 men (38%), and 4 students who did not report their sex. Students ranged from 18 to 36 years old ( $M = 19.38$ ,  $SD = 1.59$ ). About half the participants were freshmen (50.6%), followed by sophomores (29.9%), juniors (13.2%), seniors (5.9%), and other (0.5%). Participants identified their racial/ethnic background as Caucasian (90%), African American (1.4%), Asian American (2.6%), Hispanic American (1.2%), multiracial American (1.2%), non-U.S. citizen (2.6%), and other (0.9%). Most of the participants (75.8%) indicated that they were single, followed by cohabited (14.4%), divorced or separated (0.5%), and other (9.4%).

### Instruments

*Experiences in Close Relationships Scale (ECRS; Brennan et al., 1998).* The ECRS is a 36-item self-report measure of adult attachment, derived from a comprehensive factor analysis of the major attachment measures used through 1998. Responses are given on a 7-point Likert scale ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). The ECRS directs respondents to rate how they generally experience romantic relationships, not what may be happening in a current relationship. The Anxiety subscale (18 items) assesses fear of abandonment, preoccupation with one's romantic partner, and fear of rejection. The Avoidance subscale (18 items) assesses avoidance of intimacy, discomfort with closeness, and self-reliance. Brennan et al. reported that the coefficient alphas for the Anxiety and Avoidance subscales were .91 and .94, respectively. In the present study, corresponding coefficient alphas were .93 and .94. Brennan et al. also found that the subscales were correlated in the expected directions with measures of touch aversion and emotions in sexual situations. Test-retest reliabilities (3-week interval) were .70 for each subscale (Brennan, Shaver, & Clark, 2000).

*Frequency of Self-Reinforcement Questionnaire (FSRQ; Heiby, 1983a).* The FSRQ is a 30-item self-report measure of participants' abilities to encourage, support, and value themselves (e.g., "The way I keep up my confidence is by acknowledging any success I have"). The items use a true-false format. The scores range from 0 to 30, with higher scores indicating a greater frequency of self-reinforcement. The reliability of the FSRQ has shown good internal consistency, with a coefficient alpha of .87. The coefficient alpha for the present study was .79. Construct validity has been supported by negative correlations with the Beck Depression Inventory (Heiby, 1983b).

*Revised Martin-Larsen Approval Motivation scale (RMLAM; Martin, 1984).* The RMLAM is a 20-item instrument, assessing the desire to receive positive evaluations and social approval as well as the need to avoid negative evaluation and social criticism (e.g., "In order to get along and be liked, I tend to be what people expect me to be"). Items are rated on a 5-point scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). Scores range from 20 to 100, with higher scores indicating a greater need for social approval. Martin reported a coefficient alpha of .75. The coefficient alpha was also .75 in the present study. The concurrent validity of RMLAM was supported with a positive association with the Marlowe-Crowne Social Desirability Scale (Martin).

*Excessive Reassurance Seeking (ERS; Joiner & Metalsky, 2001).* The ERS is a 4-item scale that measures a tendency to repeatedly and persistently seek reassurance, even if reassurance has already been provided (e.g., "In general, do you frequently seek reassurance from the people you feel close to as to whether they really care about you?"). Items were rated on a 7-point scale ranging from 1 (*not at all*) to 7 (*very much*). The total score can range from 4 to 28, with higher scores corresponding to greater reassurance seeking. A coefficient alpha of .88 was reported by the original developers and is .89 in the present study. In addition, Joiner and Metalsky found positive associations between the ERS and Beck Depression Inventory.

*Brief Fear of Negative Evaluation (BFNE; Leary, 1983).* The BFNE is a 12-item measure of the degree to which people are concerned about being perceived and evaluated negatively by others (e.g., "When I am talking to someone, I worry about what they may be thinking about me"). Items are rated on a 5-point Likert scale ranging from 1 (*not at all characteristic for me*) to 5 (*extremely characteristic of me*). Scores ranged from 12 to 60, with higher scores indicating a greater fear of negative evaluation from others. The BFNE scale has adequate internal consistency, with a coefficient alpha of .90 (Leary). In the present study, the coefficient alpha was .91. The BFNE has demonstrated concurrent validity through positive correlations with social anxiety, depressive symptoms, and public self-consciousness and a negative association of the BFNE with self-reinforcement and self-esteem (Endler & Kocovski, 2000).

*Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977).* The CES-D is a 20-item scale that measures current levels of depressive symptoms. Items are rated on a 4-point Likert scale ranging from 0 (*rarely or none of the time* [less than 1 day]) to 3 (*most or all of the time* [5-7 days]), based on the frequency with which participants have experienced that item during the past week (e.g., "I feel depressed"). Scores range between 0 and 60, with higher scores indicating higher levels of depressive mood and symptoms. Good internal consistency has been shown, with a coefficient alpha of .85 in a nonclinical sample. In the present study, the coefficient alpha was .90. Convergent validity has been established through positive correlations with other measures of depressive symptoms.

*Self-Rating Depression Scale (SRDS; Zung, 1965).* The SRDS is a 20-item measure assessing three basic facets of depressive symptoms: pervasive affect, physiological features, and psychological concomitants. The measure consists of two sets of items (10 questions each) that are either symptomatically positive or symptomatically negative (e.g., "I have trouble sleeping through the night"). Participants are asked to rate how often they experience each item on a 4-point Likert scale ranging from 1 (*some or a little of the time*) to 4 (*most or all of the time*). Scores can range from 20 to 80, with higher scores indicating more depressive symptoms. A coefficient alpha of .84 was reported by Passik et al. (2001). In the present study, the coefficient alpha was .82. The measure has demonstrated convergent validity through positive correlations with other measures of depressive symptoms such as the Beck Depression Inventory (Zung).

### Procedure

The survey packets were administered to three large groups of more than 100 students, each in one of three data collection sections. Participants completed the surveys on answer sheets that were optically scanned to facilitate data entry. Participants were guaranteed anonymity of their responses and confidentiality of the data. Completing the packet of instruments typically required 25-40 min. After students returned the signed informed consent documents and completed survey separately to a member of the research team, they were given a card with researchers' signatures that could be redeemed for course credit as a reward for their participation. The value of actual credit toward their course grade varied, depending on their particular section of the course.

Results

*Preliminary Analyses*

In order to create the latent variables of attachment anxiety and attachment avoidance, we followed recommendations of Russell, Kahn, Spoth, and Altmaier (1998) to create three observed indicators (parcels) for each latent variable. First, exploratory factor analyses using the maximum likelihood method were conducted for the two factors (attachment anxiety and attachment avoidance), separately. Then, the items based on the magnitude of the factor loadings were rank ordered from higher to lower loadings. Pairs of items with the highest and lowest loadings were assigned successively to each parcel to equalize the average loadings of each parcel on its respective factor. We followed the same procedure to create three observed indicators (item parcels) for the latent variable capacity for self-reinforcement from the 30 items of the FSRQ.

Means, standard deviations, and zero-order correlations for the 14 measured variables and item parcels are shown in Table 1. The multivariate normality test was used to examine whether the data met the normality assumptions underlying the maximum likelihood procedure used to test the models in the present study. The result of the multivariate normality test indicated that the data were not multivariate normal,  $\chi^2(2, N = 425) = 225.12, p < .001$ . Therefore, the scaled chi-square statistics for adjusting the impact of nonnormality, developed by Satorra and Bentler (1988), was used in the present study.

*Measurement Model*

Before a structural model is tested, Anderson and Gerbing (1988) suggested using the confirmatory factor analysis to examine whether a measurement model is an acceptable fit to the data. Once an acceptable measurement model is developed, the struc-

tural model can be tested. In this study, the measurement model was estimated using the maximum likelihood method in the LISREL 8.54 program (Jöreskog & Sörbom, 2003). As suggested by Hu and Bentler (1999), three indices were used to assess goodness of fit for the models: the comparative fit index (CFI; values of .95 or greater), the root-mean-square error approximation (RMSEA; values of .06 or less), and the standardized root-mean-square residual (SRMR; values of .08 or less). Satorra and Bentler's (1988) scaled chi-square was reported for adjusting the impact of nonnormality. Finally, the corrected scaled chi-square difference test (Satorra & Bentler, 2001) was used to compare the nested models.

An initial test of the measurement model resulted in relatively good fit to the data, scaled  $\chi^2(67, N = 425) = 206.05$ ; CFI = .98; RMSEA = .07 (90% confidence interval [CI]: .06, .08); SRMR = .05. All of the loadings of the measured variables on the latent variables were statistically significant ( $p < .001$ ). Therefore, all of the latent variables appear to have been adequately measured by their respective indicators. In addition, the correlations among the independent latent variables (i.e., attachment anxiety and attachment avoidance), the mediator latent variables (i.e., the capacity for self-reinforcement and the need for validation from others), and dependent latent variable (i.e., depressive symptoms) were statistically significant ( $p < .001$ ; see Table 2).

*Structural Model for Testing Mediated Effects*

The structural model was tested using the maximum likelihood method in the LISREL 8.54 program (Jöreskog & Sörbom, 2003). The result showed a good fit of the model to the data, scaled  $\chi^2(67, N = 425) = 206.05$ ; CFI = .98; RMSEA = .07 (90% CI: .06, .08); SRMR = .05. All the structural paths were significant except the paths from attachment avoidance to depressive symptoms and from attachment avoidance to the need for validation from others.

Table 1  
Means, Standard Deviations, and Zero-Order Correlations Among 14 Observed Variables

	<i>M</i>	<i>SD</i>	Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Anxiety 1	19.31	7.06	6-42	—	.78	.76	.30	.36	.37	-.37	-.30	-.28	.40	.42	.42	.40	.43
2. Anxiety 2	21.37	7.70	6-42		—	.76	.18	.23	.26	-.48	-.37	-.35	.45	.43	.47	.41	.44
3. Anxiety 3	21.17	6.98	6-42			—	.17	.23	.24	-.40	-.27	-.26	.42	.44	.39	.44	.41
4. Avoid 1	15.52	6.82	6-42				—	.84	.86	-.24	-.22	-.27	.20	-.05	.14	.19	.27
5. Avoid 2	16.53	6.72	6-42					—	.87	-.25	-.23	-.27	.19	-.02	.14	.20	.27
6. Avoid 3	16.09	7.01	6-42						—	-.28	-.23	-.27	.21	-.01	.19	.23	.28
7. FSRQ 1	6.87	1.94	0-10							—	.52	.52	-.45	-.39	-.48	-.50	-.52
8. FSRQ 2	7.12	1.83	0-10								—	.65	-.35	-.25	-.38	-.39	-.44
9. FSRQ 3	6.93	1.94	0-10									—	-.29	-.23	-.33	-.36	-.42
10. RMLAM	54.97	8.63	20-100										—	.41	.69	.42	.41
11. ERS	11.28	5.54	4-28											—	.46	.35	.33
12. BFNES	35.67	9.41	12-60												—	.44	.39
13. CES-D	13.78	9.66	0-60													—	.74
14. SRDS	35.31	7.58	20-80														—

Note.  $N = 425$ . Higher scores on Anxiety 1, 2, 3, and Avoid 1, 2, 3 indicate a higher level of attachment anxiety and attachment avoidance. Higher scores on FSRQ 1, 2, 3 indicate a greater frequency of self-reinforcement. Higher scores on the RMLAM, ERS, and BFNES indicate a greater need for social approval and reassurance seeking and a greater fear of negative evaluation from others. Higher scores on the CES-D and SRDS indicate a higher level of depressive symptoms. Absolute values of correlations greater than .14 were significant at  $p < .01$ . Anxiety 1, 2, 3 = three parcels from the Anxiety subscale of the Experiences in Close Relationships Scale; Avoid 1, 2, 3 = three parcels from the Avoidance subscale of the Experiences in Close Relationships Scale; FSRQ 1, 2, 3 = three parcels from the Frequency of Self-Reinforcement Questionnaire; RMLAM = Revised Martin-Larsen Approval Motivation; ERS = Excessive Reassurance Seeking; BFNES = Brief Fear of Negative Evaluation Scale; CES-D = Center for Epidemiological Studies-Depression; SRDS = Self-Rating Depression Scale.

Table 2  
Correlations Among Latent Variables for the Measurement Model

Latent variable	1	2	3	4	5
1. Attachment anxiety	—	.33***	-.52***	.62***	.56***
2. Attachment avoidance		—	-.36***	.21***	.31***
3. The need for reassurance from others			—	-.63***	-.68***
4. The capacity for self-reinforcement				—	.60***
5. Depressive symptoms					—

Note.  $N = 425$ .

\*\*\*  $p < .001$ .

These paths were near zero ( $\beta_s = .04$  and  $.00$ ,  $p_s > .05$ ).<sup>1</sup> The structural model (see Figure 2) was used to test the significance of indirect effects.

### Testing the Significant Levels of Indirect Effects

Recently, MacKinnon, Lockwood, Hoffman, West, and Sheets (2002) evaluated 14 methods of testing the significance of an indirect effect with regard to Type I error and statistical power. They found that the commonly used method recommended by Baron and Kenny (1986) had the lowest statistical power among the 14 methods examined. Instead, Shrout and Bolger (2002) suggested a bootstrap procedure to test the significant levels of indirect effects. In general, bootstrap methods offer an empirical method of determining the significance of statistical estimates (Efron & Tibshirani, 1993). After the structural models were examined with the LISREL program, the bootstrap procedure was used to test whether the indirect effects were statistically significant.

Following the recommendations of Shrout and Bolger (2002), we began the bootstrap procedure by creating 1,000 bootstrap samples from the original data set ( $N = 425$ ) by random sampling with replacement. Second, the structural model was estimated 1,000 times with these bootstrap samples, using the LISREL program to yield 1,000 estimations of each path coefficient. Third, saved LISREL output of the 1,000 estimations of each path coefficient was used to calculate the estimates of the indirect effect for attachment anxiety on depressive symptoms through the capacity for self-reinforcement and the need for validation from others. Thus, each indirect effect comprised two component paths. The bootstrap method continues by multiplying 1,000 pairs of path coefficients from (a) the independent variables (either attachment anxiety or avoidance) to the mediator variables (either capacity for self-reinforcement or the need for validation from others) with (b) the path from one of the mediators to depressive symptoms. Finally, CIs around point estimates of the indirect effects are constructed from these 1,000 values. If the 95% CI for the estimate of indirect effect does not include zero, then it can be concluded that the indirect effect is statistically significant at the .05 level. Table 3 shows that the 95% CI for each indirect effect did not include zero, except the path from attachment avoidance to depressive symptoms through the need for reassurance from others. Therefore, all the indirect effects are statistically significant except this path. As expected, Table 3 indicates that the relation of

attachment anxiety with depressive symptoms was significantly mediated by both the capacity for self-reinforcement and the need for reassurance from others, whereas the link between attachment avoidance and depressive symptoms was significantly mediated only by the capacity for self-reinforcement but not the need for reassurance from others.

Figure 2 also shows the results of these analyses. Note that 54% of the variance in depressive symptoms was explained by attachment anxiety, the capacity for self-reinforcement, and the need for reassurance from others. Figure 2 shows that, as expected by our first hypothesis, attachment anxiety was negatively associated with the capacity for self-reinforcement and positively associated with the need for reassurance from others. Table 3 shows that our second hypothesis was supported by findings suggesting that the link between attachment anxiety and depressive symptoms was significantly mediated by both the capacity for self-reinforcement and the need for reassurance from others. However, contrary to our third hypothesis, attachment avoidance was negatively (not positively) associated with the capacity for self-reinforcement. Consequently, our fourth hypothesis was also not supported. Although the link between attachment avoidance and depressive symptoms was significantly mediated by the capacity for self-reinforcement, the form of this relation was not what we had expected. Increasing attachment avoidance was related to a decreased (not increased) capacity to rely on oneself for reinforcement, which in turn was associated with higher depressive symptoms. In other words, the second component of the indirect effect (from the capacity for self-reinforcement to depressive symptoms) was as expected, but the first component (from attachment avoidance to the capacity for self-reinforcement) was not.

### Testing the Sex Difference

Because women are more vulnerable to depression than men (McGrath, Keita, Strickland, & Russo, 1990) and women prefer more positive feedback from others than men (Brennan & Bosson, 1998), we decided to explore whether the present structural model would be equivalent for men and women. A multiple-group analysis was conducted for this purpose as a follow-up analysis. First, the factor loadings were constrained to be equal to ensure that each latent variable was measuring the same latent construct in the sample of men and the sample of women. Next, the freely estimated model (which was allowed to estimate the structural paths without restriction) and the constrained model (which the path coefficients were set to be equal for the female and male groups) were compared. The result for the freely estimated model was, scaled  $\chi^2(143, N = 421) = 258.42$ ,  $p < .001$ ; CFI = .98; RMSEA = .06 (90% CI: .05, .07); SRMR = .06. The result for the constrained model was, scaled  $\chi^2(151, N = 421) = 268.92$ ,  $p < .001$ ; CFI = .98; RMSEA = .06 (90% CI: .05, .07); SRMR = .06. A nonsignificant corrected scaled chi-square difference,  $\Delta\chi^2(8,$

<sup>1</sup> It is important to note that the direct effects from attachment anxiety and avoidance to depression ( $\beta = .51$ ,  $p < .001$ ; and  $\beta = .14$ ,  $p < .05$ , respectively) were significant before the capacity for self-reinforcement and the need for reassurance from others were added into the model.

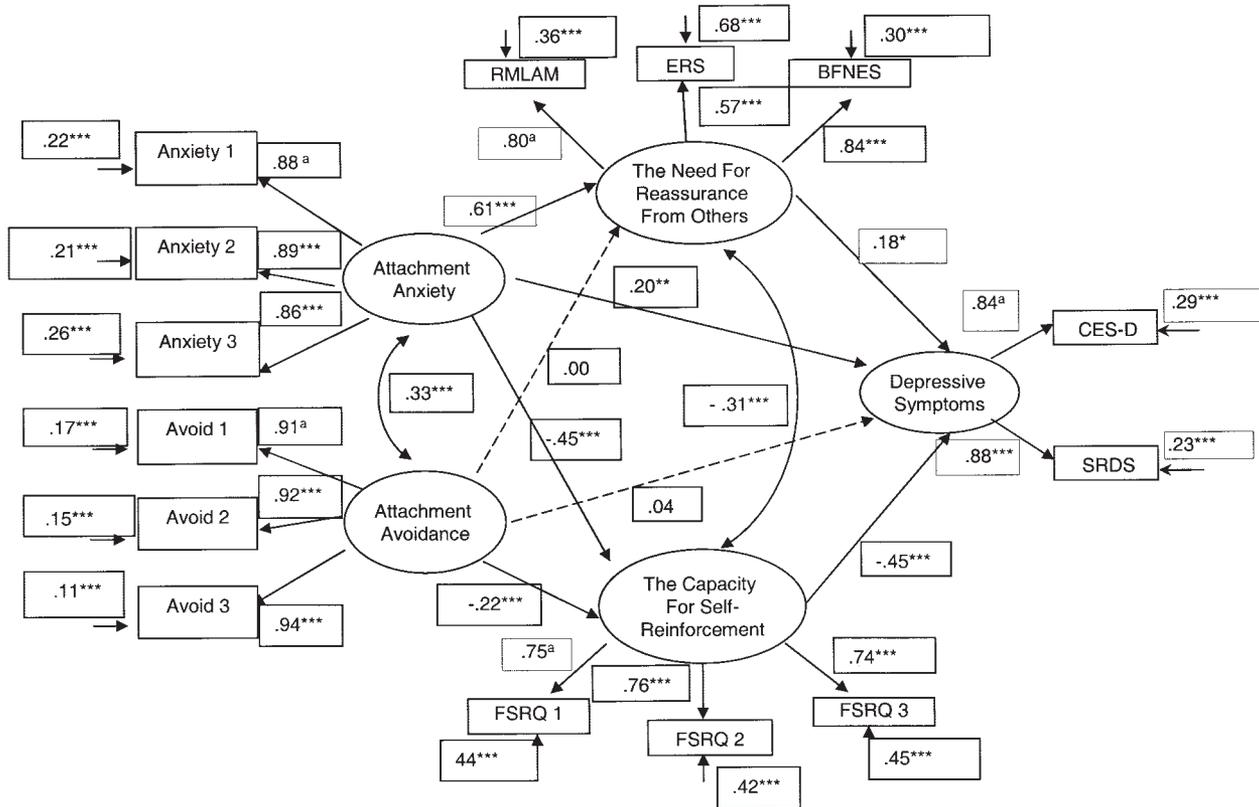


Figure 2. The structural model.  $N = 425$ . The dashed line indicates that the path was not significant. Anxiety 1, 2, 3 = three parcels from the Anxiety subscale of the Experiences in Close Relationships Scale; Avoid 1, 2, 3 = three parcels from the Avoidance subscale of the Experiences in Close Relationships Scale; FSRQ 1, 2, 3 = three parcels from the Frequency of Self-Reinforcement Questionnaire; RMLAM = Revised Martin-Larsen Approval Motivation; ERS = Excessive Reassurance Seeking; BFNES = Brief Fear of Negative Evaluation Scale; CES-D = Center for Epidemiological Studies-Depression; SRDS = Self-Rating Depression Scale.  
<sup>a</sup> The paths were fixed to one.  
 \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

$N = 421$ ) = 9.66,  $p = .29$ , indicated that the structural model was equivalent for both men and women.<sup>2</sup>

Discussion

Results of the present study indicated that attachment is associated with depressive symptoms in more complex ways than the direct relationships suggested in previous studies (e.g., Roberts et al., 1996; Wei et al., 2004). Our first two hypotheses received strong support in that both the need for reassurance from others and the capacity for self-reinforcement were significantly associated with attachment anxiety and served as mediators for the link between attachment anxiety and depressive symptoms. Specifically, the present results indicated that individuals with higher levels of attachment anxiety were more likely to report increased needs for reassurance from others, and, in turn, this increased need for others' reassurance increased their vulnerability to depressive symptoms. These results are consistent with previous research regarding the positive link between attachment anxiety and the need for reassurance from others (e.g., Davila, 2001) and the positive link between the need for reassurance from others and

depressive symptoms (e.g., Joiner & Metalsky, 2001). Conversely, the present results imply that individuals with lower levels of attachment anxiety were more likely to have an increased capacity for self-reinforcement, and, in turn, this increased capacity reduced their vulnerability to depressive symptoms. These findings are also consistent with previous research findings regarding the negative link between attachment anxiety and self-esteem (e.g., Roberts et al., 1996) and the negative link between the capacity for self-reinforcement and depressive symptoms (e.g., Heiby & Staats, 1990).

Results are consistent with attachment theory's assumptions that individuals with higher levels of attachment anxiety are more likely to view themselves negatively. Therefore, they have a limited pool of positive self-statements or beliefs to draw on for self-reinforcement and are more likely to search for external resources for reassurance. However, it makes intuitive sense that internal resources for validation may be generally perceived as more reliable than external resources,

<sup>2</sup> The sample size in the multiple-group comparison for sex difference was 421 instead of 425 because 4 participants did not report their sex.

Table 3  
*Bootstrap Analysis of Magnitude and Statistical Significance of Indirect Effects*

Independent variable	Mediator variable	Dependent variable	$\beta$ (standardized path coefficient and product)	Mean indirect effect (b) <sup>a</sup>	SE of mean <sup>a</sup>	95% confidence interval for mean indirect effect <sup>a</sup> (lower and upper)
Attachment anxiety →	Others →	Depression	$(.61) \times (.18) = .11$	0.1192	0.0588	0.0007, 0.2377
Attachment anxiety →	Self →	Depression	$(-.45) \times (-.45) = .20$	0.2182	0.0516	0.1280, 0.3275
Attachment avoidance →	Others →	Depression	$(.00) \times (.18) = .00$	0.0320	0.0634	-0.3501, 0.0676
Attachment avoidance →	Self →	Depression	$(-.22) \times (-.45) = .10$	0.1023	0.0360	0.0375, 0.1777

Note.  $N = 425$ . Others = the need for reassurance from others; Self = the capacity for self-reinforcement.

<sup>a</sup> These values are based on unstandardized path coefficients.

especially by persons with attachment anxiety who have strong fears of abandonment. Therefore, it seems that the need for reassurance from others serves as a negative mediator (i.e., if present, it increases distress) for the association between attachment anxiety and depressive symptoms. Of course, the need for reassurance from others is a basic and normal human need in the developmental process. However, the present results suggest that if college students with attachment anxiety have excessive needs for reassurance from others, then their levels of depressive symptoms will tend to be higher. Conversely, the capacity for self-reinforcement is a positive mediator (i.e., if present, it decreases distress) for the link between attachment anxiety and depressive symptoms. If college students with attachment anxiety are able to enhance their capacity for self-reinforcement, then it may protect them from depressive symptoms.

With regard to attachment avoidance, we reasoned that, because these persons have a negative working model of others and prefer not to rely on others for validation (e.g., Brennan & Bosson, 1998; Brennan & Morris, 1997), attachment avoidance would be positively associated with the capacity to rely on oneself for reassurance (our third hypothesis) and would be a positive mediator of the link between avoidance and depressive symptoms (our fourth hypothesis). These hypotheses were based on an underlying assumption that persons who cannot rely on others are compelled to rely on themselves for their sense of validation. The failure of the results of this study to support our hypothesis concerning attachment avoidance and self-reinforcement may best be explained by faulty logic in the latter assumption. Perhaps persons who cannot rely on others do not automatically rely on themselves for validation. Perhaps some individuals cannot obtain a sense of validation from either source. Because the dimensions of attachment avoidance and anxiety are conceived as theoretically orthogonal, high levels of attachment avoidance (with consequent negative working models of others) should be unrelated to attachment anxiety and positive working models of self. In practice, rather than being strictly orthogonal, attachment anxiety and avoidance were moderately positively correlated in this study. Thus, perhaps a significant proportion of persons with high attachment avoidance rely neither on others nor themselves for validation. This seems to be the most logical interpretation of our findings.

This explanation for why our third and fourth hypotheses were not supported is consistent with previous research findings regarding the negative link between attachment avoidance and self-esteem (Roberts et al., 1996). Attachment theorists have speculated that a combination of a negative working model of others and a positive model of self prompts both attachment avoidance and

strong needs to project an outward image of competence (Fraley et al., 1998). Perhaps the positive working model of self held by persons with attachment avoidance is fundamentally quite different from the positive model of self held by persons with secure attachment. In other words, avoidant persons tend to maintain a defensive positive model of self primarily as a means of warding off painful attachment-related memories and feelings (Fraley et al., 1998). Bartholomew (1990) and Bartholomew and Horowitz (1991) conceptualized two types of attachment avoidance—fearful avoidance (negative models of self and others) and dismissive avoidance (a positive model of self but a negative model of others). It is possible that dismissive-avoidant individuals are more capable of engaging in self-reinforcement than fearful-avoidant individuals. Our initial hypothesis was consistent only with Bartholomew and Horowitz's theoretical expectations for the dismissive-avoidant persons (having higher capacity for self-reinforcement). However, the results of this study are most consistent with the theoretical expectations for the fearful-avoidant persons (who presumably have more difficulties in their capacity for self-reinforcement). Thus, similar to attachment anxiety, this finding suggests that the capacity for self-reinforcement is a positive mediator for the link between attachment avoidance and depressive symptoms. If college students with attachment avoidance are able to enhance their capacity for self-reinforcement, then their depressive symptoms may be reduced.

There are a number of important methodological limitations in the present study. First, there were few ethnic minority participants in this sample, which consisted mostly of White college students, and limited the generalizability of findings to other ethnic populations. For example, the norm of needing reassurance from others for ethnic minorities may be different from the norm for Caucasian samples (e.g., Markus & Kitayama, 1991; Rothbaum et al., 2000). Second, the present study's results are based entirely on self-report measures. Replication with other methods of data collection (e.g., others' report or clinical interview) would be beneficial in future research. Third, the results from analyses of structural equation models are correlational in nature and do not provide conclusive evidence of causal relationships. There are alternatives to the model shown in Figure 1, which may explain the observed pattern of associations in the data equally well. For example, perhaps people develop depressive symptoms first, followed by a heightened need for reassurance from others or the lack of capacity for self-reinforcement. Future studies with broader samples that feature a longitudinal approach would provide more conclusive evidence of causal relationships and greater generalizability.

In terms of counseling implications of these findings, Bowlby (1988) suggested that one important role of the therapist is to disconfirm a client's usual maladaptive interpersonal pattern. In general, clinicians have a choice of either providing direct reassurance to their clients or emphasizing building their clients' own capacity for self-reinforcement. The present results suggested that the capacity for self-reinforcement is a helpful mediator for people with attachment avoidance and attachment anxiety. However, the need for reassurance from others may not be a helpful mediator for people with attachment anxiety. Tyrrell, Dozier, Teague, and Fal-lot (1999) found dissimilarity of client and clinician attachment on the deactivating (vs. hyperactivating) dimension tended to be associated with the best therapeutic outcome. Therefore, the present results may imply that although individuals with attachment anxiety tend to have excessive needs for reassurance from others (perhaps including a counselor), it may be better for counselors to challenge or disconfirm these clients' usual interpersonal patterns, for example, by encouraging self-reinforcement instead of providing too much direct reassurance in order to facilitate their growth.

In addition, clinicians may help college students with attachment insecurity make a connection with how their attachment patterns are associated with their lack of capacity for self-reinforcement and excessive need for reassurance from others, which in turn contributes to their depressive symptoms later on. For college students with lower levels of attachment anxiety, it may be enough to help them to be consciously aware of how their attachment patterns contribute to depressive symptoms through their tendency toward needing reassurance from others. For other college students with higher levels of attachment anxiety, increasing their awareness is not enough to stop their patterns and then decrease their depressive symptoms. They may need to learn alternative strategies regarding increasing their capacity for self-reinforcement in addition to lessening their habitual patterns of needing reassurance from others. In particular, most college students are experiencing their first long-term absence from home, coupled with the loss of support and validation systems from parents and high school friends. When significant others are not available to provide validation, results of this study suggest that it is helpful for college students with attachment anxiety to increase their capacity for self-reinforcement. Of course, the effectiveness of any intervention targeted at accomplishing this goal would need to be rigorously evaluated in future research.

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Received May 12, 2004

Revision received August 10, 2004

Accepted August 24, 2004 ■