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Parental Attachment Styles of Late Adolescents: Qualities of Attachment Relationships and Consequences for Adjustment

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Lack of a self-report measure of late adolescent parental attachment style has threatened to hinder expansion of the empirical basis of attachment theory. Two studies were undertaken that provided evidence of validity for a new classification of parental attachment style from patterns of scores on the Inventory of Parent and Peer Attachment (G. C. Armsden & M. T. Greenberg, 1987). Discriminant function analyses differentiated among secure, ambivalent, and avoidant attachment with 2 empirically derived dimensions, which paralleled the essential attachment functions theorized by M. D. S. Ainsworth (1989). Overall, insecurely attached late adolescents reported greater depression, anxiety, and worry than their securely attached counterparts. For women but not for men, insecure attachment was associated with diminished college adjustment and lower intimacy development. These results portend the promise of investigations of parental attachment style to elucidate contributions of parental attachment to late adolescent development and adjustment.

John Bowlby's (1969, 1973) attachment theory has provided a theoretical paradigm from which to investigate the complexities of development throughout life. The necessity of secure parental ties for successful late adolescent development is a fundamental extension of Bowlby's (1969) original formulations, in which the infant's ability to explore the world is predicated on use of the parent as a "secure base" (Ainsworth, Blehar, Waters, & Wall, 1978). Recent research has affirmed the importance of secure parental attachment for successful late adolescent development, as manifest in such challenges as adjusting to the demands of college life (Larose & Boivin, 1998; Rice, FitzGerald, Whaley, & Gibbs, 1995), becoming assertive in interpersonal relationships (Kenny, 1987, 1990), and committing to career goals (Blustein, Walbridge, Friedlander, & Palladino, 1991). Realization of the potential of attachment theory that these studies portend requires expansion of existing assessment techniques (Kenny & Rice, 1995). This article presents two studies that provide evidence for the validity of a new means to classify parental attachment style from self-report data, thereby addressing a recognized lacuna in counseling measurement and facilitating expansion of the empirical basis of late adolescent attachment theory.

Attachment Theory Foundations

Bowlby (1969) elucidated the lifelong importance of the attachment system, developed within the infant's earliest relationships, for normative development. Genetically derived to assure survival of the helpless infant, the attachment system regulates proximity of infant to parent to effect a balance of security, derived through parental contact, and independence developed over increasing distance. Under conditions of threat or distress, the attachment system is activated, and the infant uses attachment behaviors to bring the parent close, thereby restoring a feeling of security; in the absence of distress, deactivation of the attachment system affords the child comfortable distance from the parent in which to explore the world. The two essential interrelated functions of the attachment system, then, are to provide security in times of distress and to facilitate independent exploration (Ainsworth, 1989).

The infant's characteristic way of meeting attachment needs or *attachment style* (Ainsworth et al., 1978) develops through interactions with parental figures. An infant whose parent responds appropriately and consistently to expressions of need becomes confident that those needs will be met. Free of attachment-related concerns, the *secure* infant can explore the world, investing resources in self-development. In contrast, when parents are chronically unreliable or inconsistent, infants must divert energies from development to minimize distressing interactions with parents and to manage frustration that is due to unmet needs. The *avoidant* infant, whose parent tends to be intrusive and insensitive or rejecting, avoids rather than seeks proximity (Isabella & Belsky, 1991); limiting requests for nurturance, the child adopts a stance of pseudo-self-reliance and explores the world alone. The *ambivalent* infant, whose parent tends both to neglect dependency needs and to interfere with independence, derives security from neither attachment nor avoidance; unable to find a comfortable distance from the parent, the infant's attachment needs are simultaneously evoked and frustrated (Cassidy & Berlin, 1994). Thus, differences in attachment style reflect an individual's ability to use the attachment relationship for each of the essential attachment functions, security and independent functioning.

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Attachment Security and Attachment Style

Of the two attachment functions, counseling psychology researchers have focused on the security function and have developed several self-report measures of parental attachment security with solid psychometric properties (Lopez & Grover, 1993); among the most widely used are the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) and the Parental Attachment Questionnaire (PAQ; Kenny, 1990). The empirical foundation of late adolescent attachment theory has been built on these measures. For instance, recent research with college students (reviewed in Kenny & Rice, 1995) has linked low attachment security with diverse adjustment difficulties. However, construct validity of the attachment security measures has been questioned. Heiss, Berman & Sperling (1996) have concluded that these measures assess the general affective quality of late adolescents' parental relationships, a construct related to but distinct from attachment. They have underscored the need for greater conceptual and measurement specificity, especially assessment of parental attachment style, crucial for research and program development.

In contrast to the plethora of parental attachment security measures, there are no published self-report measures of parental attachment style. A few investigators of late adolescent parental attachment (e.g., Allen & Hauser, 1996; Kobak & Sceery, 1988) have effectively utilized the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985); however, this clinical-interview technique requires extensive training and expertise to administer and to code. Alternately, researchers of *adult attachment,* or attachment to peers and romantic partners in adulthood, have amassed an impressive ken using brief self-classification measures, such as Bartholomew and Horowitz's (1991) widely used extension of Hazan and Shaver's (1987) adult attachment style measure. Bartholomew and Horowitz (1991) have conceptualized four adult attachment styles as composed of one's view of self and view of others, which may be either positive or negative; these schemas are considered to be primarily conscious and independent of one another. However, two problems arise with adaptation of this brief self-classification technique to assess parental attachment style. First, this technique may not be sufficiently sensitive to enable individuals to discriminate among the insecure parental attachment styles (Greenberger & McLaughlin, 1998). More important, considering parental attachment from a developmental perspective (e.g., Bowlby, 1973), view of self and view of other are not independent. A true (as opposed to defensive) positive view of self does not develop within a context of negative experiences with parental figures; although not necessarily accessible to consciousness, a negative self-view underlies insecure attachment to parents. A self-report measure of attachment style that is based on the three-category system of Ainsworth, consistent with developmental theory and research, would assist counseling psychology researchers who are interested in the continuity of parental attachment across the lifespan (see Kenny, 1990).

Parental Attachment Style and the IPPA

The IPPA, an attachment security measure, promises to fill the need for a self-report measure of parental attachment style. In their original report on the IPPA, Armsden and Greenberg (1987) presented logical rules for coding secure attachment, or "high security," and insecure attachment, or "low security," from scores on the three IPPA subscales: Trust, Communication, and Alienation. College students who described parental relationships characterized by respect (Trust) and involvement (Communication) with minimal anger or detachment (Alienation) were designated high security; students whose parental relationships were marked by lack of trust and involvement in the presence of anger and detachment were designated low security. Armsden and Greenberg found that high security students reported higher self-satisfaction, greater likelihood to seek support from others, and less distress in response to negative life events. In the only other published study to use the IPPA classification, Rice et al. (1995) found that high security students reported better college adjustment in multiple realms than low security students.

Results of these studies suggest that patterns of IPPA subscale scores distinguish late adolescents with secure and insecure parental attachments. Furthermore, although the original classification did not discriminate among types of insecure attachment, the IPPA subscales provide information about the degree and quality of involvement with parents, which connotes discrimination of Ainsworth's three attachment styles. The secure style is marked by trusting, respectful involvement with parents that affords room for development (Ainsworth et al., 1978), characteristics captured by Armsden and Greenberg's high security classification. The avoidant style is characterized by lack of trust, which leads to anger and avoidance of parents rather than engagement (Isabella & Belsky, 1991); on the IPPA, avoidant individuals would evidence higher Alienation than Trust and Communication scores. The ambivalent style is characterized by active engagement with parents, which, because of diminished trust, does not provide a sense of security (Cassidy & Berlin, 1994); on the IPPA, ambivalent individuals would manifest lower Trust than Communication or Alienation scores.

For the present studies, Armsden and Greenberg's high and low security classification was revised to distinguish Ainsworth's three attachment styles: secure, ambivalent, and avoidant. Coding parental attachment style from patterns of responses to a structured instrument such as the IPPA is analogous to inferring attachment style from infant behavior in the structured *strange situation.* Compared to the brief self-classification technique, an inferential procedure that is based on multiple dimensions of parental relationships may be more likely to bypass defensive processes (Heiss et al., 1996) and to discriminate among the insecure parental attachment styles.

Study 1

The purpose of Study 1 was to assess evidence for the validity of the new attachment style classification that is based on IPPA subscale scores; both the extent to which the secure and insecure styles could be differentiated and the degree to which the insecure styles (i.e., avoidant and ambivalent) could be discriminated from one another were examined. Measures of attachment and theoretically related constructs (i.e., worry, depression, and anxiety) provided a basis for evaluating evidence for the construct validity of the attachment style classification.

The new classification should demonstrate predicted relationships with other attachment measures. Like the IPPA, the PAQ (Kenny, 1990) is based on Ainsworth's conceptualization of at-

tachment and assesses the extent to which parents provide a secure base for late adolescent development, which affords comfort and facilitates autonomy. The three PAQ subscales (Affective Quality of Attachment, Fostering of Autonomy, and Emotional Support) provide a basis on which to discriminate among attachment styles. Secure attachment is characterized by higher scores on all PAQ subscales than insecure attachment (Kenny, 1990). Avoidant individuals, who expect parental rejection of their attachment needs (Isabella & Belsky, 1991) and are less likely than ambivalent individuals to perceive parents as supportive (Kobak & Sceery, 1988), were expected to evidence lower Affective Quality of Attachment and Emotional Support than ambivalent individuals. Conversely, ambivalent individuals anticipate parental interference with their autonomy (Cassidy & Berlin, 1994) and were expected to report less Fostering of Autonomy than avoidant individuals. Sex differences in PAQ scores have been reported in some studies; nevertheless, PAQ attachment dimensions were expected to be similarly associated with attachment style for women and men.

In the strange situation, the ambivalent infant simultaneously clings to and resists the mother on reunion (Ainsworth et al., 1978); preoccupation with attachment figures, a kind of mental clinging, is the legacy of infantile behavioral ambivalence and signifies ambivalent attachment in late adolescence (Allen & Hauser, 1996; Berman & Sperling, 1991; Kobak & Sceery, 1988). In the psychoanalytic literature, worry has been similarly conceived as a mental state with which a young person holds parents ambivalently in mind (Vivona, 2000). Worrying reflects conflicting desires for dependency and autonomy which, although normative, are most prominent and inhibiting for late adolescents who are ambivalently attached. Here, worry was considered an indicator of attachment-related preoccupation. Because securely attached individuals are relatively free of attachment-related conflicts, secure participants were expected to report less worry than insecure participants. Ambivalent participants were expected to evidence higher levels of worry than avoidant participants. Studies of sex differences in worry are few and contradictory (Molina & Borkovec, 1994). It was anticipated that worry would be similarly associated with ambivalent attachment regardless of sex.

Relationships of parental attachment with depression and anxiety have been investigated repeatedly (e.g., Berman & Sperling, 1991; Kobak, Sudler, & Gamble, 1991). Both avoidant and ambivalent individuals are theorized to have experienced noncontingent parenting, which yields a view of oneself as unworthy of sensitive care and empathy (Bowlby, 1973), a foundation for subsequent development of depression. Furthermore, anxiety in late adolescence, as in infancy (Ainsworth et al., 1978), heralds attachment insecurity; however, investigations of insecurely attached late adolescents have yielded contradictory findings. For example, Kobak and Sceery (1988) found that preoccupied (i.e., ambivalent) late adolescents were more anxious than their secure and dismissing (i.e., avoidant) counterparts, yet Heiss et al. (1996) found manifest anxiety to be unrelated to insecure attachment. For this study, secure students were expected to report less depression and anxiety than insecure students. Avoidant and ambivalent students were expected to manifest similarly elevated levels of depression and anxiety.

Finally, it was hypothesized that parental attachment style would be predictable from parental attachment functions as measured by the PAQ, worry, anxiety, and depression. The dimensions along which the attachment styles differ, and the specific predictors that comprise those dimensions, were determined empirically by using discriminant function analysis.

Method

Participants

Participants were 173 undergraduates at a small selective state college in the Northeast. Participants ranged in age from 18 to 49 years. To eliminate superfluous age effects, participants over age 23 were excluded from the analyses, leaving 159 participants with a mean age of 19.98 years (SD = 1.18). The majority of these participants were women (79%) and heterosexual (96%). Seventeen percent were first-year students, 33% were sophomores, 25% were juniors, and 25% were seniors. Ethnicity was reported as 83% White (not Hispanic), 5% African American, 4% Hispanic or Latino, 4% Asian American, and 4% multiracial or other. Most (70%) participants' parents were married. The majority (85%) of the participants resided away from their families at school. Family income ranged from $10,000 to $160,000, with a mean of $68,790 ($SD$ = $29,688); however, only 67% of participants reported family income.

Measures

Standardized self-report measures of parental attachment, worry, depression, and anxiety were administered. Spurious associations among dependent variables and between dependent variables and attachment style classification were minimized by assuring that self-report measures were conceptually distinct from one another.

IPPA. The IPPA (Armsden & Greenberg, 1987) is a 53-item scale designed to assess affective and cognitive dimensions of relationships with parents and close friends. For this study, only the 28-item parent scale was used. Each item is rated on a 5-point Likert scale. Internal consistency of the three subscales, Trust, Communication, and Alienation, ranged from .86 to .91, and average retest reliability over a 3-week period was .93. Construct validity was evidenced by correlations with measures of family conflict, support, and cohesion (Armsden & Greenberg, 1987). Sex differences were found in only one of five studies reviewed by Kenny and Rice (1995). For the present study, participants were instructed to provide a single rating for both parents unless they had "very different relationships" with their parents, in which case they were asked to respond with regard to the parent who had "most influenced" them. Thus, participants' most secure attachment relationship was assessed.

Parental attachment style was designated using the new IPPA classification rules. Following Armsden and Greenberg (1987), score distributions for the three IPPA subscales were divided into lowest, middle, and highest third and a rating of "low," "medium," or "high" was assigned for each subscale. Scores falling at the cut points were designated medium to create maximally discriminating low and high ratings. Armsden and Greenberg's rules for high security were retained for the present secure style classification. That is, the secure style was designated for participants who indicated at least medium Trust or Communication and low or medium Alienation; because of the theoretical importance of trust in the attachment figure (Bowlby, 1969), the secure style was not assigned if Trust was not high and Alienation was not low. The avoidant style was assigned if Trust and Communication were both low and Alienation was at least medium, or if Communication was low, Trust was medium, and Alienation was high. These rules are similar to Armsden and Greenberg's rules for low security, except that the avoidant style was not designated if Communication was higher than Trust, a pattern of scores more indicative of ambivalent than avoidant attachment. The ambivalent style was designated if Communication and Alienation were at least medium, Communication was higher than Trust, and Alienation was not lower than Trust. With the original classi-

fication, these participants would have been designated low security or they would have been unclassified.

PAQ. The PAQ (Kenny, 1990) is a 55-item measure that assesses late adolescents' perceptions of parental availability, understanding, and support, as well as extent of help seeking from parents and satisfaction with help received. The PAQ comprises three factor-analytically derived scales: Affective Quality of Attachment, Fostering of Autonomy, and Emotional Support. Items are rated on a 5-point Likert scale. Internal consistency (Cronbach's alpha) for the three subscales ranged from .88 to .96 (Kenny, 1990; Kenny & Donaldson, 1991). Retest reliability over a 2-week period was reported as .92, with subscale estimates ranging from .82 to .91 (Kenny, 1987). Evidence for validity comes from several studies with college students (i.e., Kenny, 1990, 1994; Kenny & Donaldson, 1991, 1992). Results regarding sex differences have been mixed; women have received higher PAQ scores than men in some studies.

Penn State Worry Questionnaire (PSWQ). The PSWQ (Meyer, Miller, Metzger, & Borkovec, 1990) is a 16-item measure of frequency and intensity of worry. Items are rated on a 5-point Likert scale. The PSWQ has high internal consistency (.94) and good retest reliability over 2-week (.75) and 4-week (.74) periods. Evidence for concurrent validity has come from correlations with measures of trait anxiety, state anxiety, and depression (Meyer et al., 1990; Molina & Borkovec, 1994). Regarding sex differences, some investigators have found higher scores for women than men (Molina & Borkovec, 1994).

Beck Depression Inventory (BDI). The BDI (Beck, Rush, Shaw, & Emery, 1979) is a widely used self-report measure of adolescent and adult depression with proven psychometric properties. It comprises 21 items, rated on a 4-point scale, which tap affective, cognitive, and behavioral symptoms of depression experienced within the past week. Higher scores indicate greater depression. For nonpatient samples, the mean internal consistency estimate was .81, and retest reliability ranged from .60 to .83. Evidence for construct, concurrent, and discriminant validity was impressive (Beck, Steer, & Garbin, 1988). Regarding sex differences, some investigators have found higher BDI scores among women (Beck et al., 1988). Because the BDI measures discrete depressive symptoms, as opposed to associated features of personality or interpersonal relationships, it has little conceptual intersection with the attachment measures.

Beck Anxiety Inventory (BAI). The BAI (Beck, Brown, Epstein, & Steer, 1988) consists of 21 items, rated on a 4-point Likert scale, which assess affective and somatic symptoms of anxiety over the past week, such as nervousness, sweating, indigestion, and breathing difficulty; higher scores reflect greater anxiety. Numerous studies with the BAI have provided evidence of high internal consistency (.94), adequate retest reliability over an 11-day period (.67), good convergent validity with other measures of anxiety (Beck, Brown, et al., 1988), and divergent validity with respect to depression (Fydrich, Dowdall, & Chambless, 1992). Because the BAI is largely a measure of somatic anxiety, it is conceptually distinct from measures of both worry (Zebb & Beck, 1998) and attachment. Sex differences have not been documented.

Procedure

Questionnaire packets were distributed in psychology department courses during the Spring 1998 semester. Packets contained a consent form, a brief demographic questionnaire, and the five standardized self-report measures. Interested students completed questionnaires outside of class time, and most students received extra credit for their participation.

Plan for Data Analysis

Data were screened according to recommendations of Tabachnick and Fidell (1996). In cases of missing PSWQ, BDI, or BAI scores, the cell mean was used if no more than one score was missing for a participant. Univariate outliers were indicated by standard scores greater than ± 3 *SD*, $p < .001$; multivariate outliers were indicated by significant Mahalanobis distance, $p < .001$. Univariate normality was assumed if skew and kurtosis were within the range ± 1 and error degrees of freedom were at least 20. The univariate homogeneity of variance assumption was satisfied given unequal cell sizes if Box's *M*, an overly sensitive test, was not significant at $p < .001$. The same criterion was used to assess multivariate homogeneity of dispersion matrices.

A two-factor (attachment style and sex) analysis of variance (ANOVA) was performed to test attachment style differences in PAQ, PSWQ, BDI, and BAI scores. Two planned orthogonal contrasts were used to identify sources of significant variation. The first contrast compared the secure group with the combined avoidant and ambivalent groups, and the second contrast compared the avoidant group with the ambivalent group. Because two contrasts were examined for each dependent variable, Bonferroni correction of Type I error rate was used. Each contrast was considered significant at $p = .05/2 = .03$. Robust to violations of assumptions and unequal cell sizes, Pillais's *V* was the criterion of statistical significance for a multivariate analysis of variance (MANOVA) based on unique sum of squares (Tabachnick & Fidell, 1996).

Stepwise discriminant function analysis of PAQ, PSWQ, BDI, and BAI scores was used to identify the combination of variables that predicted attachment style. Discriminant function analysis affords derivation and interpretation of dimensions on which groups differ and is appropriate for use with unequal cell sizes resulting from different population base rates (Tabachnick & Fidell, 1996). Probability to enter criterion was set at .15 to assure inclusion of important predictors (Costanza & Afifi, 1979). For each significant function, ANOVA of function scores followed by three pairwise comparisons were performed to identify sources of significant variation among the attachment style groups. Cross-validation of the discriminant functions with a second sample was performed to assess the stability of the discriminant solution.

Preliminary Data Screening

Ten participants who omitted PAQ or IPPA items were excluded from subsequent analyses because nonsignificant *t* tests of continuous variables and Fisher's exact tests of categorical variables suggested that these data were missing at random. In addition, one outlier was dropped from subsequent analyses, leaving 148 participants. The sex ratio of the sample reflected the greater proportion of women than men enrolled in psychology department courses. Chi-square and *t* tests or Fisher's exact tests revealed no sex differences with respect to any other demographic characteristic. Tabachnick and Fidell (1996) have suggested that correlations above .70 indicate redundant dependent variables that should not be included in the same multivariate analyses. None of the correlations between PAQ, PSWQ, BDI, and BAI scores exceeded this maximum. The correlation matrix is available on request from the author.

Results

Separate *t* tests indicated no significant differences between the IPPA scores of the 32 men (Trust, $M = 40.91$, $SD = 8.32$; Communication, $M = 34.75$, $SD = 8.93$; Alienation, $M = 17.38$, $SD = 6.58$) and the 116 women (Trust, $M = 40.80$, $SD = 7.16$, $t(146) = 0.07$, *ns;* Communication, $M = 36.83$, $SD = 8.63$, $t(146) = -1.20$, *ns;* Alienation, $M = 17.93$, $SD = 6.45$, $t(146) = -0.43$, *ns*). Therefore, a single set of cut points was used to determine attachment style from IPPA scores. Using the new classification rules, attachment style was determinable for 125 (84%) of the 148 participants. Of these participants, 39 (31%) were designated avoidant, 24 (19%) were designated ambivalent, and 62 (50%) were designated secure. As expected, the overall classification rate was greater than that of Armsden and Greenberg

(1987), who classified 66% of their sample. Nonsignificant ANOVA and chi-square or Fisher's exact tests revealed no demographic differences among the attachment style groups.

Descriptive statistics for PAQ, BDI, BAI, and PSWQ scores are reported in Table 1. A MANOVA of the three PAQ scales by attachment style and sex revealed significant multivariate effects for attachment style, $F(6, 236) = 19.45$, $p = 0$), and not for sex, $F(3, 117) = 1.59$, *ns,* or sex by attachment style interaction, $F(6, 236) = 1.13$, *ns.* Results of the first planned contrast revealed that the secure group received higher scores than the insecure groups on each PAQ scale. According to the second planned contrast, the avoidant group scored lower than the ambivalent group on Affective Quality of Attachment and Emotional Support. Contrary to prediction, the avoidant and ambivalent groups did not differ on Fostering of Autonomy.

ANOVA of PSWQ scores by attachment style and sex revealed significant effects for attachment style, $F(2, 119) = 4.17$, $p = .02$, and sex, $F(1, 119) = 6.27$, $p = .01$, but not interaction, $F(2, 119) = 0.06$, *ns.* The first contrast indicated that secure participants worried less than insecure participants. The second contrast was not significant; ambivalent students did not worry more than avoidant students. Regarding sex differences, women worried more than men. MANOVA of BDI and BAI scores by attachment style and sex revealed significant multivariate effects for attachment style, $F(4, 238) = 3.52$, $p = .01$, and sex, $F(2, 118) = 3.38$, $p = .04$, but not interaction, $F(4, 238) = 0.80$, *ns.* Results of the first contrast indicated that the secure group reported less anxiety and depression than the insecure groups. The second contrast revealed no differences between the avoidant and ambivalent groups. A significant univariate ANOVA for anxiety, $F(1, 119) = 6.39$, $p = .01$, indicated that women reported greater anxiety than men.

Stepwise discriminant function analysis was performed to identify the combination of variables that differentiated among the attachment style groups. Predictor variables were scores from the PAQ, BDI, BAI, and PSWQ; because of significant sex differences in PSWQ and BAI scores, sex was included as a predictor. In the absence of significant Sex × Attachment Style interactions, men and women were combined for this analysis, and the grouping variable was parental attachment style (see Tabachnick & Fidell, 1996).

A model utilizing four variables predicted parental attachment style: Affective Quality of Attachment, Fostering of Autonomy, Emotional Support, and worry (see Table 2). According to the guidelines of Comrey and Lee (1992) for interpreting factor loadings, Affective Quality of Attachment and Emotional Support were excellent predictors of the first discriminant function and Fostering of Autonomy was a very good predictor. This function reflected parental provision of a secure base, as theorized by Ainsworth (1989) and assessed by the PAQ. An ANOVA of discriminant function scores by attachment group was significant, $F(2, 122) = 118.55$, $p = 0$. Three pairwise contrasts revealed that this function discriminated among all three groups. The secure group scored higher than the ambivalent group, $t(122) = -6.51$, $p = 0$, and the ambivalent group scored higher than the avoidant group, $t(122) = -6.03$, $p = 0$.

Loadings for the second discriminant function indicated that Emotional Support was a very good predictor and Fostering of Autonomy (negative) and worry were good predictors. This func-

Table 1
Means and Standard Deviations of Study 1 Variables by Attachment Style and Sex With Results of Planned Contrasts

Variable	Avoidant				Ambivalent				Secure				Contrast results[a]	
	Men (n = 9)		Women (n = 30)		Men (n = 5)		Women (n = 19)		Men (n = 15)		Women (n = 47)			
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	Secure vs. insecure	Avoidant vs. ambivalent
PAQ Affective Quality of Attachment	83.00	20.06	87.13	15.93	94.40	13.97	105.88	12.13	121.67	7.11	120.00	10.62	10.09***	3.70***
PAQ Fostering of Autonomy	44.22	12.59	44.03	9.63	46.60	3.97	47.32	8.33	59.07	4.79	58.71	6.20	7.85***	1.14
PAQ Emotional Support	36.78	6.61	36.53	7.81	43.60	7.09	48.89	5.72	48.00	5.21	51.34	4.89	6.26***	5.01***
Worry (PSWQ)	50.11	12.94	57.37	13.77	51.00	15.78	61.26	12.05	41.93	17.85	49.77	14.91	−2.89***	0.52
Anxiety (BAI)	11.67	9.23	13.13	8.19	8.00	4.47	16.89	7.75	5.87	6.01	8.96	7.60	−3.03**	0.02
Depression (BDI)	12.11	7.85	12.10	8.33	9.60	7.27	11.53	6.96	5.13	6.51	7.17	6.98	−3.26**	−0.67

Note. PAQ = Parental Attachment Questionnaire; PSWQ = Penn State Worry Questionnaire; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory.
[a] Degrees of freedom for contrasts = 119.
** $p < .005$. *** $p < .001$.

Table 2
Results of Discriminant Function Analysis of Attachment Style for Study 1 and Study 2

Predictor	Significant discriminant functions							
	Study 1				Study 2			
	Function 1		Function 2		Function 1		Function 2	
	Coeff	*r*	Coeff	*r*	Coeff	*r*	Coeff	*r*
PAQ Affective Quality of Attachment	.5244	.8415	−.1020	.0146	.4459	.8274	.6678	.2135
PAQ Fostering of Autonomy	.3567	.6213	−.6054	−.5149	.3805	.7931	−1.1277	−.5315
PAQ Emotional Support	.4247	.7033	.7667	.6443	.4100	.6776	.5185	.4675
Worry (PSWQ)	−.2095	−.1836	.4203	.4658	−.3264	−.1576	.0603	.2594
Canonical *r*	.8126		.3897		.7502		.4287	
Wilks's Λ	.2881 (p = .00)		.8481 (p = .00)		.368 (p = .00)		.8162 (p = .00)	

Classification results Actual group	Predicted group[a]			Predicted group[a]		
	Avoidant	Ambivalent	Secure	Avoidant	Ambivalent	Secure
Avoidant						
A	31 (80)	5 (13)	3 (8)	29 (78)	2 (5)	6 (16)
B	26 (70)	5 (14)	6 (16)	28 (72)	7 (18)	4 (10)
Ambivalent						
A	6 (25)	13 (54)	5 (21)	7 (30)	13 (57)	3 (13)
B	6 (26)	11 (48)	6 (26)	9 (38)	11 (46)	4 (17)
Secure						
A	1 (2)	3 (5)	58 (94)	3 (6)	2 (4)	47 (90)
B	5 (10)	0 (0)	47 (90)	1 (2)	4 (7)	57 (92)
	Total correctly classified: 82% of A; 75% of B			Total correctly classified: 79% of A; 77% of B		

Note. Coeff = Standardized canonical discriminant function coefficient; PAQ = Parental Attachment Questionnaire; PSWQ = Penn State Worry Questionnaire; A = Original sample; B = Cross-validation sample.
[a] Percentages appear in parentheses.

tion reflected parental support for dependence rather than independence and was associated with preoccupation. An ANOVA of discriminant scores by attachment group was significant, $F(2, 122) = 10.92$, $p = 0$. Three pairwise comparisons revealed that this function discriminated the ambivalent group from both the secure, $t(122) = 4.24$, $p = 0$, and the avoidant groups, $t(122) = -4.30$, $p = 0$. The secure and avoidant groups did not differ, $t(122) = -0.48$, *ns*.

Predicted classification was used as an additional indication of the model's effectiveness. Because the covariance matrices of the canonical discriminant functions differed, Box's $M = 31.68$, $F(6, 59271.2) = 5.13$, $p = 0$, the classification procedure used separate covariance matrices. Overall, the model correctly classified 82% of the 125 participants. Cross-validation with a second sample (see Study 2 for sample description) was conducted to test the stability of the discriminant functions; 75% of Study 2 participants were correctly classified with Study 1 discriminant functions. These classification rates are greater than the rates expected by chance for discriminating among the three unequal groups.

Discussion

Study 1 provided support for the new parental attachment style classification. Discrimination between securely attached and insecurely attached college students was established with demonstration of reliable group differences across three dimensions of parental attachment as measured by the PAQ as well as worry, anxiety, and depression. Discriminant function analysis yielded highly successful prediction of the secure attachment style for the original and cross-validation samples. Distinctions between types of insecurely attached late adolescents were less pervasive. Ambivalent students differed from avoidant students in terms of attachment-related affect and utilization of parental support but not in terms of parental support for autonomy or worry. Nonetheless, all variables expected to differentiate among the parental attachment styles contributed to the discriminant function analysis, and both avoidant and ambivalent attachment were predicted at greater than chance rates in the original and the cross-validation samples.

Furthermore, concordance of the empirically derived discriminant functions with the two attachment functions theorized by Ainsworth (1989) provided evidence for the construct validity of the new attachment style classification. The first discriminant function was strongly associated with PAQ attachment dimensions and captured the extent to which parents were perceived as providing a dependable and salutary secure base, greater among secure participants than among ambivalent participants and greater among ambivalent participants than among avoidant participants. This function corresponds to the general affective quality dimension identified by Heiss et al. (1996) to underlie self-report measures of parental attachment security. Although those authors questioned the construct validity of such measures, the present

results suggest that the PAQ as typically used, with higher subscale scores indicative of greater attachment security, does capture the secure base function. The second discriminant function, composed of PAQ scales and worry, reflected the extent to which students perceived parents as fostering dependence rather than independence, a sign of difficulty moving off the parental secure base that uniquely characterized the ambivalent participants. Thus, PAQ scores were complexly, rather than linearly, related to attachment style. Use of PAQ scores as simple continuous measures of parental attachment may obscure qualitative differences in attachment, potentially hindering detection of significant relationships.

Contrary to prediction, the PAQ Fostering of Autonomy scale by itself did not differentiate ambivalent from avoidant students. The Fostering of Autonomy scale comprises items that tap parental interference with autonomy (e.g., "My parents restrict my freedom or independence."), associated with ambivalent attachment, as well as parental insensitivity to needs for autonomy (e.g., "My parents give me advice whether I want it or not."), associated with avoidant attachment. Nevertheless, the pattern of PAQ scale loadings on the second discriminant function revealed an important difference between the insecurely attached students in terms of perceptions of parental support. Ambivalent students perceived their parents as generally warm and supportive but unsupportive of autonomy in particular. In contrast, avoidant students perceived their parents as generally unsupportive, including unsupportive of autonomy. Because avoidant late adolescents are more likely than ambivalent late adolescents to manage challenges independently (Kobak & Sceery, 1988), autonomy per se, rather than parental support for autonomy, may distinguish ambivalent from avoidant late adolescents.

Given that women have reported higher parental attachment security than men in several studies (see Kenny & Rice, 1995), it is noteworthy that women's and men's descriptions of parental relationships were similar across six dimensions assessed by the IPPA and PAQ. Furthermore, the same proportion of men and women composed each attachment style group, corroborating similar results of a study of attachment style classification on the basis of interview data (Allen & Hauser, 1996; but cf. Kobak & Sceery, 1988), and relationships of PAQ dimensions to attachment styles did not interact with sex such that qualities of parental relationships similarly constituted the three attachment styles for women and men. These results support Bowlby's (1969) contention that boys and girls are equally likely to develop secure attachments; however, he noted a prevalence of anxious attachment among girls and avoidant attachment among boys.

Evidence for worry as an indicator of attachment-related preoccupation was mixed, perhaps because the PSWQ, a measure of intensity and frequency of worry, captures myriad worries; consequently, content differences in the worries of ambivalent and avoidant students may have been obscured. Attachment-related preoccupation derives from simultaneous uncertainty regarding the availability of others and lack of confidence to manage challenges independently. Worries about relationships and lack of confidence might be most reflective of attachment-related preoccupation. If so, then examination of worry content would be more likely to reveal hypothesized attachment-related differences in worry than examination of worry intensity.

Study 2

The primary objectives of Study 2 were to replicate the results of Study 1 and to assess additional dependent variables (i.e., worry content and autonomy) that may enhance discrimination of the insecure parental attachment styles. In addition, examination of attachment style differences in college adjustment and ego development was undertaken to assess evidence for concurrent validity of the new attachment style classification.

In an effort to explore further the utility of worry as an indicator of attachment-related preoccupation, an examination of worry content in the domains of relationships and self-confidence was undertaken. It was expected that secure participants would report less worry about relationships and self-confidence than insecure participants. Ambivalent participants were expected to report greater worry than avoidant participants in these domains. Sex differences were not anticipated.

Establishing autonomy is a crucial task of late adolescent development (Bloom, 1987). Autonomy has been shown to be greater among securely attached than insecurely attached late adolescents (e.g., Kenny & Donaldson, 1991, 1992; but cf. Rice et al., 1995) and greater among avoidant than ambivalent late adolescents (Kobak & Sceery, 1988). Investigations of autonomy have been hindered by a limitation of measures of independence from parents, the conflation of autonomy with disengagement (Ryan & Lynch, 1989). The autonomy scale used in Study 2 was designed to overcome this limitation by assessment of self-reliance, self-awareness, and other-awareness within the context of interpersonal relationships. In this study, securely attached students were expected to manifest higher autonomy in all three realms than insecurely attached students. Avoidant students, who are more likely to shun close relationships, to manage challenges independently, and to deny attachment needs, were expected to manifest higher self-reliance, lower self-awareness, and lower other-awareness than ambivalent students. Women were expected to report greater other-awareness than men (Bekker, 1993).

Evidence for the concurrent validity of the new attachment style classification may come from revelation of attachment style differences in late adolescent adjustment and development. Several researchers (reviewed in Kenny & Rice, 1995) have demonstrated that secure parental attachment promotes late adolescent development and adjustment. However, some investigators have found that women reap greater or more consistent benefits from secure parental attachment than men (e.g., Kenny & Donaldson, 1991; Rice & Whaley, 1994; Schultheiss & Blustein, 1994a); whereas, other investigators have reported greater attachment effects for men than women (Berman & Sperling, 1991; Schultheiss & Blustein, 1994b). Bowlby (1988) presumed that secure and insecure parental attachments exert similar effects on women's and men's development and adjustment. Investigation of attachment style, which affords greater precision of analysis with simultaneous consideration of the two essential attachment functions, may elucidate the observed sex differences in consequences of attachment security. In Study 2, examination of college adjustment in multiple realms, potentially more sensitive to attachment style differences in a general student population than the focal symptom measures used in Study 1, was undertaken. In addition, effects of attachment style on ego development were examined. Development vis-à-vis Erikson's (1950) intimacy versus isolation stage, which involves

establishing intimate and sustaining extrafamilial relationships, is influenced by the expectations of the interpersonal world that underlie attachment style. Securely attached students were expected to manifest more successful college adjustment and intimacy development than insecurely attached students. Interactions of sex and the insecure attachment styles were examined to determine whether effects of insecure attachment style differed by sex.

Method

Participants

Participants were 170 first-year students at a small selective state college in the Northeast who took part in a larger study of attachment and adjustment during the college transition. Participants ranged in age from 16 to 20 years with a mean age of 18.12 years (SD = 0.51). The majority of participants were women (65%) and heterosexual (97%). Reported ethnicity was: 78% White (not Hispanic), 9% African American, 4% Hispanic or Latino, 8% Asian American, and 1% multiracial or other. Most (75%) participants' parents were married. The majority (94%) of participants had moved away from their families to attend school. Family income ranged from $0 to $275,000, with a mean of $77,114.43, SD = $47,927.19; however, 43% of participants did not report family income.

Measures

The IPPA, PAQ, PSWQ, BDI, and BAI, described under Study 1, were administered. Four additional measures used in Study 2 are described here.

Worry Domains Questionnaire (WDQ). The WDQ (Tallis, Eysenck, & Matthews, 1992) is a 25-item questionnaire that measures extent of worry in five domains. In this study, only the Relationships and Lack of Confidence domains were used. Items are rated on a scale of 0 to 4. The WDQ has demonstrated acceptable internal consistency, with a coefficient alpha of .92. Evidence for concurrent validity was provided with correlations with other measures of worry, including the PSWQ (Tallis, Davey, & Bond, 1994). Worry content as measured by the WDQ is distinct from worry intensity or frequency as measured by the PSWQ (Zebb & Beck, 1998). Neither retest reliability nor sex differences have been documented.

Autonomy Scale (AS). The AS (Bekker, 1993) is a 42-item questionnaire that integrates feminist psychoanalytic theory of female identity development as based in interpersonal relatedness (e.g., Chodorow, 1978) with the traditional conception of autonomy as independence from others. The AS enables assessment of autonomy along three factor-analytically derived dimensions. The Self-Awareness scale assesses awareness of and capacity to express personal opinions and needs without undue influence from others. The Capacity to Manage New Situations scale, an indicator of self-reliance, captures comfort, flexibility, and openness in new situations. These two subscales demonstrated no sex differences in validation studies (Bekker, 1993). The Sensitivity to Others scale taps awareness of and compliance with the feelings and wishes of others, a unique aspect of women's relationship development. Women tend to score higher than men on this scale (Bekker, 1993). Internal consistency estimates for the subscales were adequate, ranging from .80 to .85. Evidence for construct validity, demonstrated through correlations with other measures of autonomy and personality, was deemed satisfactory.

Student Adaptation to College Questionnaire (SACQ). The SACQ (Baker & Siryk, 1989) is a widely used measure of college adjustment in four realms, with higher scores indicative of more successful adjustment. The Academic Adjustment scale captures how well a student manages academic demands, such as course work and exams. The Emotional Adjustment scale assesses degree of psychological and somatic distress. The Social Adjustment scale provides a measure of involvement in social activities with peers. The Institutional Attachment scale measures feelings of affiliation to the academic institution. This scale was not used in the present study because it shares several items with the Social Adjustment scale. All items are rated on a 9-point Likert scale. Internal consistency for the SACQ subscales ranged from .77 to .95. Evidence for construct and criterion-related validity, such as correlations with grade point average, attrition, participation in social events, and presentation for counseling, is impressive. In some studies, men have evidenced higher Emotional Adjustment and lower Social Adjustment than women (Baker & Siryk, 1989).

Inventory of Psychosocial Development (IPD). The IPD (Constantinople, 1969) assesses resolution of Erikson's (1950) first six stages of psychosocial development. Each stage is measured by five items for successful resolution and five items for unsuccessful resolution, and each item is rated on a 7-point Likert scale. For this study, only the Intimacy and Isolation items were used. The Intimacy items assess extent of openness and comfort in interpersonal relationships. The Isolation items tap lack of involvement in relationships with others. The Intimacy minus Isolation difference score is used as a measure of intimacy development; difference scores can range from −30 to 30, with higher scores indicating more successful stage resolution. One-week retest reliabilities ranged from .71 to .89 and average internal consistency was estimated at .72; evidence for construct and discriminant validity was considered modest (Waterman & Whitbourne, 1981). Small sex differences favoring women have been reported (Whitbourne, Zuschlag, Elliot, & Waterman, 1992).

Procedure

Questionnaire packets were distributed to interested first-year students through college classes and dormitories during mid-November of the Fall 1998 semester. Packets contained a consent form, a brief demographic questionnaire, and the nine standardized self-report measures. Students enrolled in psychology department courses received extra credit for their participation.

Plan for Data Analysis and Preliminary Data Screening

To replicate results of Study 1, the same data analytic strategy was used in Study 2 to examine the four Study 1 hypotheses. In addition, Study 2 hypotheses regarding WDQ, AS, SACQ, and IPD, scores were assessed by using a two-factor (attachment style and sex) MANOVA or ANOVA followed by two planned orthogonal contrasts to test main effects of attachment style. The same two orthogonal contrasts were used to examine sex by attachment style interaction effects for SACQ and IPD scores. Contrasts are described under Study 1.

Fifteen participants did not complete the PAQ or IPPA. Nonsignificant t tests and Fisher's exact tests suggested that the data were missing at random. These 15 participants, as well as 3 identified outliers, were excluded from subsequent analyses. The greater proportion of women than men in Study 2 reflected the sex ratio of the first-year class. Fisher's exact tests and t tests revealed no sex differences in sample composition with respect to any other demographic characteristic. The pattern of correlations between PAQ, PSWQ, BDI, and BAI scores was the same as obtained in Study 1; however, the correlation of .74 between PAQ Affective Quality of Attachment and Fostering of Autonomy scales exceeded the suggested maximum of .70. Because replication of Study 1 was a primary goal and statistical problems created by multicollinearity occur when bivariate correlations exceed .90 (Tabachnick & Fidell, 1996), the Study 1 data analytic strategy was retained. The correlation matrix is available on request from the author.

Results

Separate t tests indicated that IPPA scores of the 52 men (Trust: M = 41.47, SD = 7.05; Communication: M = 35.51, SD = 7.87; Alienation: M = 17.00, SD = 5.25) did not differ from the scores of the 100 women (Trust, M = 41.99, SD = 7.05, $t(150) = -0.47$,

ns; Communication, $M = 37.50$, $SD = 6.95$, $t(150) = -1.60$, *ns;* Alienation, $M = 17.89$, $SD = 5.90$, $t(150) = -0.91$, *ns*). Using the same logical rules and cut points as in Study 1, attachment style was determinable for 112 (74%) of the 152 participants; of these participants, 37 (33%) were Avoidant, 23 (21%) were Ambivalent, and 52 (46%) were Secure. Classification rates were similar to those obtained in Study 1. The ANOVA and chi-square or Fisher's exact tests indicated that the attachment style groups were similar with respect to all demographic characteristics.

Descriptive statistics for PAQ, PSWQ, BDI, and BAI scores are reported in Table 3. The MANOVA of PAQ scores by attachment style and sex indicated significant effects for attachment style, $F(6, 210) = 18.68$, $p = 0$, and not sex, $F(3, 104) = .65$, *ns,* or interaction, $F(6, 210) = .29$, *ns.* The first contrast indicated that the secure group received higher scores than the insecure groups on all three PAQ scales. Per the second contrast, the ambivalent group received higher scores than the avoidant group on Affective Quality of Attachment and Emotional Support. These results were identical to those of Study 1.

The ANOVA of PSWQ scores by attachment style and sex revealed significant effects for sex, $F(1, 106) = 14.60$, $p = 0$, but not attachment style, $F(2, 106) = 1.67$, *ns,* or interaction, $F(2, 106) = 0.53$, *ns.* Neither of the contrasts was significant; worry was not greater among insecure than secure participants or greater among ambivalent than avoidant participants. The Study 1 finding that insecure students worried more than secure students was not replicated. As in Study 1, women worried more than men. The MANOVA of BDI and BAI scores by attachment style and sex revealed significant effects for attachment style, $F(4, 212) = 4.56$, $p = 0$, and not sex, $F(2, 105) = 2.41$, *ns,* or interaction, $F(4, 212) = 1.50$, *ns.* The first contrast indicated that the secure group reported less anxiety and depression than the insecure groups. The second contrast was not significant, the avoidant and ambivalent groups did not differ with respect to anxiety and depression. Univariate ANOVA for BDI, $F(1, 106) = 3.26$, $p = .04$, suggested that women reported greater depression than men. With the exception of suggested sex differences for depression and not anxiety, these findings replicated those obtained in Study 1.

To replicate the Study 1 prediction of attachment style, the same stepwise discriminant function analysis was performed (see Table 2). A model utilizing the same four variables predicted attachment style in Study 2: Affective Quality of Attachment, Fostering of Autonomy, Emotional Support, and worry. As in Study 1, the first significant discriminant function reflected the degree to which parents were perceived as providing an attachment secure base. Affective Quality of Attachment and Fostering of Autonomy were excellent predictors, and Emotional Support was a very good predictor of this function. The ANOVA of function scores by attachment style was significant, $F(2, 109) = 70.15$, $p = 0$. Three pairwise comparisons revealed that the secure group received higher scores than the ambivalent group, $t(109) = -6.92$, $p = 0$, and the ambivalent group received higher scores than the avoidant group, $t(109) = -2.75$, $p = .01$.

Fostering of Autonomy (negative) was a very good predictor of the second significant discriminant function and Emotional Support was a fair predictor. The correlation of worry with the second function was $r = .26$. As in Study 1, this function reflected parental encouragement of dependence rather than independence and was associated with preoccupation. An ANOVA of function

Table 3
Means and Standard Deviations of Study 2 Replication Variables by Attachment Style and Sex With Results of Planned Contrasts

Variable	Avoidant				Ambivalent				Secure				Contrast results[a]	
	Men ($n = 13$)		Women ($n = 24$)		Men ($n = 7$)		Women ($n = 16$)		Men ($n = 19$)		Women ($n = 33$)		Secure vs. insecure	Avoidant vs. ambivalent
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*		
PAQ Affective Quality of Attachment	89.80	13.20	94.59	17.65	104.9	14.60	104.71	16.08	118.53	12.19	122.80	8.69	8.07***	3.27***
PAQ Fostering of Autonomy	46.62	9.04	46.67	8.86	45.00	5.29	46.37	7.85	58.00	5.44	59.83	4.86	9.02***	−0.48
PAQ Emotional Support	38.85	4.96	40.17	4.33	45.29	8.14	46.56	4.53	48.79	7.07	51.22	6.59	6.08***	3.81***
Worry (PSWQ)	45.08	13.84	58.54	9.81	48.29	15.33	60.75	14.81	44.42	15.37	51.96	14.28	−1.79	0.69
Anxiety (BAI)	7.62	6.71	13.33	7.39	7.29	7.09	9.00	5.39	5.56	3.89	5.97	5.24	−3.30***	0.64
Depression (BDI)	7.54	6.17	14.88	9.52	12.71	13.78	12.38	6.63	6.21	4.22	7.70	5.85	−2.97**	−1.39

Note. PAQ = Parental Attachment Questionnaire; PSWQ = Penn State Worry Questionnaire; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory.
[a] Degrees of freedom for contrasts = 106.
** $p < .005$. *** $p < .001$.

scores by attachment style was significant, $F(2, 109) = 12.27$, $p = 0$. Three pairwise comparisons revealed that the second function discriminated the ambivalent group from both the avoidant group, $t(109) = -4.82$, $p = 0$, and the secure group, $t(109) = 4.02$, $p = 0$. Scores for the avoidant and secure groups did not differ, $t(109) = -1.27$, *ns*.

Because the covariance matrices of the canonical discriminant functions differed, Box's $M = 17.59$, $F(6, 60{,}059.5) = 2.84$, $p = .01$, predicted classification utilized separate covariance matrices. Overall, the model correctly classified 79% of the 112 participants included in the analysis. Reverse cross-validation of Study 2 discriminant functions with the Study 1 sample provided evidence for the stability of the solution; 77% of the 125 Study 1 participants were correctly classified using the Study 2 discriminant functions. The classification rates were similar to those found in Study 1.

Descriptive statistics for WDQ, AS, SACQ, and IPD scores are reported in Table 4. The MANOVA of WDQ scores by attachment style and sex indicated significant effects for attachment style, $F(4, 212) = 5.47$, $p = 0$, and sex, $F(2, 105) = 3.91$, $p = .02$, but not interaction, $F(4, 212) = .92$, *ns*. According to the first contrast, the secure group reported fewer worries in the Relationships and Lack of Confidence domains than the insecure groups. The nonsignificant second contrast revealed that the ambivalent group did not worry more than the avoidant group in either domain; in fact, ambivalent group means were lower than avoidant group means. Compared to men, women reported greater worry about Relationships, $F(1, 106) = 6.78$, $p = .01$, and Lack of Confidence, $F(1, 106) = 6.24$, $p = .01$. Thus, degree of attachment-related worry differed by sex and not attachment style.

The MANOVA of AS scores by attachment style and sex revealed effects for sex, $F(3, 100) = 6.23$, $p = 0$, but not attachment style, $F(6, 202) = 0.96$, *ns*, or interaction, $F(6, 202) = 0.59$, *ns*. As predicted, women received higher Sensitivity to Others scores than men, $F(1, 102) = 14.83$, $p = 0$. In addition, men received higher scores for Self-Awareness, $F(1, 102) = 8.28$, $p = .01$, and Capacity to Manage New Situations, $F(1, 102) = 5.00$, $p = .03$. Thus, predicted attachment style differences in autonomy were disconfirmed.

The MANOVA of SACQ scales by attachment style and sex indicated significant effects for attachment style, $F(6, 210) = 3.98$, $p = 0$, and sex, $F(3, 104) = 3.43$, $p = .02$; interaction effects were suggested, $F(6, 210) = 2.15$, $p = .05$, *ns*. The first contrast indicated that the secure group manifested higher academic, emotional, and social adjustment than the insecure groups. The second contrast was not significant. However, the univariate sex by attachment style interaction was significant for Academic adjustment, $F(2, 106) = 5.63$, $p = .01$. Examination of SACQ scale means suggested that significant main effects for attachment style reflected differences in women's scores. By comparison, men's scores across the attachment style groups were similar. Low power likely hindered detection of the interaction effects for Emotional and Social adjustment; power for these tests was below .40. Separate post hoc MANOVAs of SACQ scores by sex were conducted to examine the possibility that attachment style exerted sex differential effects on college adjustment. The MANOVA of men's SACQ scores was not significant, $F(6, 70) = 0.77$, *ns*. In contrast, the MANOVA of women's SACQ scores was significant, $F(6, 138) = 5.82$, $p = 0$. The first contrast revealed that secure

Table 4
Means and Standard Deviations of Study 2 Additional Variables by Attachment Style and Sex With Results of Planned Contrasts

Variable	Avoidant				Ambivalent				Secure				Contrast results[a]	
	Men ($n = 13$)		Women ($n = 24$)		Men ($n = 7$)		Women ($n = 16$)		Men ($n = 19$)		Women ($n = 33$)		Secure vs. insecure	Avoidant vs. ambivalent
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*		
WDQ Relationships	6.38	3.15	9.33	4.80	5.00	3.46	7.88	3.95	3.79	3.15	4.12	3.17	−4.26***	−1.35
WDQ Lack of Confidence	6.92	4.35	10.50	4.65	5.71	3.20	7.88	4.69	4.21	3.87	5.52	4.63	−3.23***	−1.52
AS Self-Awareness	60.08	11.55	49.43	12.51	60.17	10.03	55.94	9.28	62.32	9.51	56.00	11.69	1.19	1.00
AS Sensitivity to Others	88.12	10.15	97.26	13.92	89.00	13.48	102.57	10.76	90.58	9.77	98.68	12.79	0.16	0.86
AS Capacity to Manage New Situations	35.17	5.15	29.39	6.59	33.83	5.74	31.31	6.38	33.47	8.38	31.53	7.12	0.05	0.14
SACQ Academic Adjustment	146.38	13.29	125.17	24.14	146.43	17.07	136.94	23.18	143.11	26.24	154.48	20.89	2.25*	0.94
SACQ Emotional Adjustment	89.15	17.99	70.04	15.36	90.00	19.67	81.56	16.17	99.21	16.47	94.12	15.84	4.21***	1.33
SACQ Social Adjustment	127.08	19.06	114.54	21.33	135.71	19.82	124.13	20.65	135.16	20.12	135.82	20.40	2.45*	1.57
IPD Intimacy	10.56	7.62	7.92	4.71	10.14	8.25	15.31	4.74	15.37	6.37	15.53	6.30	3.60***	2.91*

Note. WDQ = Worry Domains Questionnaire; AS = Autonomy Scale; SACQ = Student Adaptation to College Questionnaire; IPD = Inventory of Psychosocial Development.
[a] Degrees of freedom for contrasts = 106.
* $p < .03$. *** $p < .001$.

women received higher scores than insecure women for Academic, $t(70) = 4.39$, $p = 0$; Emotional, $t(70) = 4.90$, $p = 0$; and Social, $t(70) = 3.34$, $p = 0$, adjustment. The second contrast indicated that ambivalent women reported higher Emotional adjustment than avoidant women, $t(70) = 2.27$, $p = .03$. Men received higher Emotional adjustment scores than women, $F(1, 106) = 9.75$, $p = 0$.

The ANOVA of IPD difference scores by attachment style and sex indicated significant effects for attachment style, $F(2, 105) = 10.23$, $p = 0$, but not sex, $F(1, 105) = .48$, *ns*, or interaction, $F(2, 105) = 2.53$, *ns*. The first contrast revealed that intimacy development was greater for the secure students than for the insecure students. The second contrast revealed a significant interaction among the insecure groups, $t(105) = -2.25$, $p = .03$. Separate ANOVAs of intimacy development by sex were undertaken to investigate the interaction. The ANOVA of IPD difference scores for women was significant, $F(2, 69) = 15.11$, $p = 0$; both contrasts were significant, indicating that secure women manifested higher intimacy development than insecure women, $t(69) = 4.17$, $p = 0$, and ambivalent women manifested higher intimacy development than avoidant women, $t(69) = 2.98$, $p = 0$. The ANOVA for men was not significant, $F(2, 36) = 2.35$, *ns*, indicating that men's intimacy development did not differ as a function of attachment style.

Discussion

Replicating results of Study 1, Study 2 provided additional evidence for the validity of the new parental attachment style classification. In particular, the second discriminant function analysis was highly consistent with the first, with a small but notable difference. In Study 2, Fostering of Autonomy made a stronger contribution to the discriminant functions than did Emotional Support, whereas the opposite was true in Study 1. In contrast with the general college sample of Study 1, Study 2 participants were first-year students, most of whom had been away from home at school for just 8 weeks. The first college semester is a time of dramatic change during which students attempt to establish greater independence from parents (Medalie, 1981) as well as to use parents as a secure base to meet the challenges of a new "strange situation" (Kenny, 1987). Thus, needs for both attachment and autonomy are likely to be heightened. In this developmental context, it appears that perceptions of parents as facilitating one's expanding independence both imbue the secure base and facilitate autonomous functioning; support for autonomy may supercede general emotional support as a crucial quality of the parental secure base. This finding, in line with the link between sensitive parental responsiveness and secure attachment (Isabella & Belsky, 1991), suggests that relevant qualities of the secure base may vary with contextual, including developmental, demands—an unstudied hypothesis which warrants investigation. Here, activation of attachment needs during the college transition was assumed but not assessed. Experimental manipulation would facilitate investigation of antecedents and effects of attachment system activation. Furthermore, the degree of concordance between student perceptions and parent behaviors cannot be determined from the present data, which came exclusively from student self-report. Parent reports and observations of parent–student interactions are needed to uncover attachment stylistic differences in parents' responses to late adolescents' evolving needs.

The expectation that worry would uniquely characterize ambivalent attachment did not receive consistent support. Recent theorizing in the psychoanalytic literature suggested that, poised at the threshold of adulthood, late adolescents' worry expresses conflict over establishing independence from parents (Vivona, 2000). On the basis of interviews with college students, Shilkret and Nigrosh (1997) concluded that worrying is a common concomitant of college students' desires to transform parental relationships to encompass greater autonomy. Perhaps worry is evoked by normative pressures of late adolescent development and is not reliably associated with a particular parental attachment style. That results for worry were weaker in Study 2 than Study 1 supports this proposition. Alternately, sex differences may have hindered detection of attachment style differences for worry; power for these attachment style tests in Study 2 was below .35. Inclusion of a greater proportion of men in the samples may have facilitated detection of subtle yet meaningful attachment style effects, especially within the insecure groups.

Relatedly, although insecurely attached students reported attenuated parental facilitation of autonomy, they did not evidence attenuated autonomy. Despite the theoretical importance of secure parental attachment for independent functioning throughout life, empirical support for this relationship in late adolescence has been mixed (see Kenny & Rice, 1995), with some researchers finding that attachment and autonomy contribute independently to late adolescent adjustment (Holmbeck & Wandrei, 1993; Kenny & Donaldson, 1992). Many students describe the experience of leaving home for college as a powerful catalyst for autonomy development (Mather & Winston, 1998). This shared contextual factor may have overshadowed individual differences attributable to attachment style. Furthermore, the Autonomy Scale, a measure of general personality characteristics as opposed to specific features of late adolescents' relationships with parents, may not be sufficiently sensitive to detect autonomy differences among first-year college students.

Attachment style effects on college adjustment and intimacy development were confirmed for women and disconfirmed for men. For women, the effects of Ainsworth's (1989) two attachment functions were essentially additive. In each realm of college adjustment and intimacy development, secure women, who perceived their parents as providing both attachment functions, evidenced highest functioning; avoidant women, who perceived their parents as providing neither function, evidenced lowest functioning; and ambivalent women, who perceived their parents as providing only the security function, evidenced intermediate functioning. The finding of poorest adjustment and development among avoidant women has not been reported previously. Perhaps women who eschew intimacy as a way of managing distress have more difficulty forming same-sex peer relationships than do ambivalent or securely attached women. Especially during the first college semester when parent and peer relationships are in flux, avoidant women may find themselves without sustaining interpersonal bonds that are a source of self-esteem, satisfaction, and protection from distress for other women. Alternately, the direction of causality may be reversed. Psychological distress and adjustment difficulties may precipitate students' negative portrayals of relationships with their parents. Longitudinal studies are needed to

address causal questions implicit in examinations of concurrent associations between attachment and adjustment.

In contrast, differences in men's scores for college adjustment and intimacy development across the attachment style groups were small. This sex difference in the consequences of attachment style is particularly striking because the parental attachment styles of men and women differed in neither quantitative nor qualitative respects and the focal symptom measures indicated similarly elevated levels of anxiety, depression, and worry among insecurely attached men and women. Some researchers (e.g., Holmbeck & Wandrei, 1993) have interpreted such sex differences in light of gender identity socialization; that is, greater emphasis on interpersonal relationships for female identity development and on independence and personal achievement for male identity development (Chodorow, 1978; Gilligan, 1982). During the first college semester, when establishment of greater autonomy is an explicit developmental goal, men may be more likely than women to suppress attachment needs and to face challenges independently. Although gender identity has been invoked to explain sex differences, to date, only one group of researchers, Haigler, Day, and Marshall (1995), has examined parental attachment and gender identity explicitly, revealing that endorsement of feminine qualities, more than female sex, was associated with greater attachment security. Relatedly, Shaver et al. (1996) examined gender identity and adult attachment style and found feminine qualities to be associated with comfort with dependency and masculine qualities to be associated with comfort with autonomy. In light of the present findings of sex differences in the consequences of parental attachment styles, this may suggest that the benefits of the attachment security function are moderated by gender rather than sex. Investigations of the support for autonomy function, and the confluence of the attachment functions as attachment style, may illuminate contributions of attachment for individuals who endorse masculine characteristics.

In addition, the method of attachment assessment in the present studies may have simultaneously highlighted attachment effects for women and obscured effects for men. Versions of the IPPA and PAQ used in these studies yield a combined score for parental attachment. When maternal and paternal attachments have been considered separately, paternal attachment has emerged as the more influential relationship for men's adjustment (e.g., Blustein et al., 1991; Larose & Boivin, 1998; Rice & Whaley, 1994; but cf. Holmbeck & Wandrei, 1993). Furthermore, Rice and Cummings (1996) have suggested that extant attachment security measures may capture qualities of optimal maternal rather than paternal relationships. If so, then these sex differences favoring women may be the consequence of failure to investigate the relevant attachment relationship and dimensions for men.

Implications of these results for counseling applications warrant mention; attachment style can serve as a useful guide for counseling program development. The association of the insecure parental attachment styles with psychological distress and, among women, college adjustment difficulties and diminished intimacy development, suggests the utility of addressing attachment issues as part of programmatic efforts to facilitate successful and enriching college experiences. Results of these studies suggest that helping students discover ways to meet attachment needs for both security and autonomy is likely to enhance adjustment and satisfaction. For example, first-year orientation programs might include a forum for students to learn about normative pressures associated with leaving home and to engage in discussions, perhaps led by older students, of ways to obtain emotional support and comfort from parents, as well as other attachment figures, without foregoing independence or becoming detached from parents.

Conclusions

Lack of a convenient measure of late adolescent parental attachment style has threatened to hinder expansion of the empirical basis of attachment theory. Two studies were undertaken to assess evidence for the validity of a new classification of parental attachment style from patterns of IPPA subscale scores. Results of these studies supported the utility of the new technique to classify parental attachment styles as secure, ambivalent, and avoidant. Evidence for construct validity came from discriminant function analyses that accurately differentiated among the three attachment styles based on two empirically derived dimensions with clear links to attachment theory (Ainsworth, 1989): security derived from the parental secure base and parental support for independence. Attachment style prediction was highly accurate for original and cross-validation samples in both studies. Securely attached late adolescents manifested uniformly positive attachment and low levels of anxiety, depression, and worry, compared to insecurely attached late adolescents. Qualities of attachment relationships and attachment-related preoccupation differentiated avoidant from ambivalent late adolescents in the discriminant function analyses; however, predicted differences between ambivalent and avoidant late adolescents for attachment-related preoccupation, perceived parental support for autonomy, and autonomy development were disconfirmed. For women but not for men, insecure attachment, especially the avoidant style, was associated with diminished college adjustment and lower intimacy development. These results suggest that college student programming aimed at supporting students' needs for both security and autonomy may enhance student adjustment and satisfaction, and that future investigations of parental attachment style may illuminate contributions of parental attachment to late adolescent development and adjustment.

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