

Attachment Style in College Students: Family Origins and Mental Health Correlates

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The ability of humans to form meaningful relationships with others is an essential aspect of our everyday lives. The relationships and bonds that form between family members and with peers is a common source of both happiness and support. This paper will provide a review of attachment theory, propose a method for measuring and categorizing various styles of attachment and attachment behaviors, and consider family factors that influence attachment style, and the mental health correlates that are related to an individual's attachment style.

Attachment Theory and Research

Bowlby (1978), who has popularized the term “attachment” and developed the original psychological theory of attachment, defines attachment theory as

a way of conceptualizing the propensity of human beings to make strong affectional bonds to particular others and of explaining the many forms of emotional distress and personality disturbance, including anxiety, anger, depression, and emotional detachment, to which unwilling separation and loss give rise. (1)

Bowlby (1988) describes attachment behavior as any behavior in which a person attains and seeks to maintain a relationship with a specific and clearly identified person who is judged by the individual to be able to better cope with the world. When in a state of fear, fatigue, or illness,

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an individual (or child) will typically seek proximity to an attachment figure in an effort to obtain the comfort and caregiving that the attachment figure can provide. Bowlby states that while attachment behavior is most obviously observed in the early years of childhood, it is evident throughout the lifecycle and can be seen in all human beings. The role of the attachment figure (or figures) is that of availability and responsiveness, providing the individual with a feeling of security and protection. As summarized by Sroufe et al. (2005), "attachment generally refers to provision of a haven of safety, a secure base for exploration, and a source of reassurance when the child is distressed" (51). The primary attachment figure for a child is most often the child's caretakers, typically his or her parents, most often the mother. Bowlby states that the major provision of the parents is to establish a "secure base" from which an individual is able to explore the outside world and to which he or she may return for guidance, reassurance, and physical and emotional comfort (1988).

Bowlby postulated that children will internalize their experience with their caretakers so that their initial attachment relationships will come to form prototypes or "working models" for future relationships (Bartholomew and Horowitz 1991). According to Bowlby (1973), working models can be identified by two key features: "(a) whether or not the attachment figure is judged to be the sort of person who in general responds to calls for support and protection; [and] (b) whether or not the self is judged to be the sort of person towards whom anyone, and the attachment figure in particular, is likely to respond in a helpful way" (204). Based on those key features, Bowlby believed that children whose attachment figures are sensitive and responsive would develop a working model in which they would learn to confidentially approach the world or seek out help if they had trouble. Bretherton (2005) states such working models develop from a "secure self, caring parents, and a reasonably benign world" (16). In contrast, children would form a "working model" of the world as unreliable and unpredictable if their primary attachment figures were unavailable and unresponsive to their needs, which would lead them to either retreat from such a world or to struggle against it (Bretherton 2005).

While Bowlby was the primary figure in the formation of attachment theory, more recent psychologists have sought to categorize individuals

into groups based on the way in which they form attachment bonds and behave as a result of previous experiences with primary attachment figures as well as others. Ainsworth and colleagues (1978) developed the Strange Situation test, which involved distressful separations and reunions between 12- to 18-month-old children and their mothers. The test examined the behavior of the children: whether or not they seek comfort from their mothers, how easily they are calmed by their mothers, and how quickly they resume other activities, such as exploring the room and playing (Rholes and Simpson 2004). Based on the Strange Situation procedure, Ainsworth classified infant-parent relationships into three possible categories: secure, avoidant, or anxious-ambivalent (Levy, Blatt, and Shaver 1998). The children who were classified as having secure attachment relationships with their mothers readily sought the comfort of their mothers after being distressed, were calmed more easily, rapidly, and completely, and more quickly resumed other activities. The children who were classified as having anxious-ambivalent relationships with their attachment figures/mothers showed decidedly mixed reactions to the presence of their mothers, were unable to be calmed, and did not resume other activities. Finally, the children with avoidant attachment relationships disregarded or ignored their mothers, appeared emotionally withdrawn and disengaged, and engaged in behaviors that distracted them from their distress (Rholes and Simpson 2004).

Belsky and Cassidy (1994) state in Levy et al. (1998) that those three categories described by Ainsworth reflect the relationships between infants and parents outside of the laboratory as well. For example, Belsky and Cassidy describe the parents of secure infants as generally more readily available, and more sensitive and responsive to the needs and emotions of their children when compared to the parents of insecure infants. The parents of avoidant children are often uncomfortable with bodily contact, more rejecting or dismissive, and distant or detached. The parents of anxious infants tend to be more self-preoccupied with their own anxieties and needs, invasive, and lack consistency in their response to their child's needs.

Expanding on the attachment labels of Ainsworth, and based on Bowlby's working model theory, Bartholomew and Horowitz (1991) have developed a fourfold model of attachment. Their model is

based on a person's abstract image of themselves as either positive or negative (either feeling worthy of love and support or not) and their abstract image of others as positive or negative (either readily available and worthy of trust or not). From their model, four attachment styles can be conceptualized: secure, preoccupied, fearful-avoidant, and dismissive-avoidant. Individuals who have a secure attachment style indicate that they have a high sense of self-worth (view themselves as generally loveable) and have the expectation that other people will be generally accepting of them and responsive to their needs, which matches Ainsworth's category of secure attachment. Individuals with a preoccupied attachment style view themselves as unlovable or unworthy of love yet have a positive view of others. Those individuals typically seek out the acceptance of others in hopes of achieving self-acceptance. A person who views themselves as unworthy/unlovable and who also has a negative view of others as rejecting and unworthy of being trusted has a fearful-avoidant attachment style. Those individuals, in order to protect themselves from their anticipated rejection by others, will avoid close relationships. The final style of attachment that they conceptualize is dismissive-avoidant. Individuals in this category view themselves as being worthy of love although they have a negative view of others. By avoiding close relationships, they protect themselves from possible disappointments and maintain their sense of independence, which helps them to remain invulnerable to the possible rejection of others (Bartholomew and Horowitz 1991). Individuals are able to be grouped into such various categories of attachment styles based on a variety of methods that exist for measuring attachment style, such as interviews, self-reports, and questionnaires. The Adult Attachment Interview (AAI; Main and Goldwyn 2008) is the most prevalently used interview method of attachment in adults and has three primary categories (dismissive, secure, or preoccupied) into which individuals are placed based on how they mentally organize their childhood experiences with an attachment figure (Rholes and Simpson 2004). The scoring of the AAI is based primarily on such variables as awkward pauses, incoherent dialogue, perceived gaps in memories, and other signs which may indicate defensiveness, all of which are indicators of the individual's "current state of mind" (Levy, Blatt and Shaver 1998).

The Adult Attachment Scale (AAS) and the Attachment Style Questionnaire (ASQ) are two examples of survey-based self-reports. The Adult Attachment Scale (AAS) developed by Collins and Read (1990) is a 21-item self-report method of assessing attachment styles into one of three categories: secure, avoidant, or anxious-ambivalent. Participants score each item based on how characteristic the phrase/item was in relation to themselves based on a Likert-type scale that ranges from “not at all” to “very.”

The Adult Attachment Questionnaire (AAQ) developed by Hazan and Shaver (1987) is another self-report method for categorizing one's attachment style into one of Ainsworth's three patterns of attachment: secure, avoidant, or anxious-ambivalent. However, the AAQ differs from Collin and Read's (1990) AAS in that subjects are asked to choose one of three descriptions of romantic attitudes that best summarizes their feelings and behaviors in romantic relationships. Each of the three short descriptions contains essential characteristics of each attachment style. The secure paragraph emphasizes trust and friendship in romantic relationships; the avoidant paragraph reflects fear of intimacy; and the anxious-ambivalent paragraph focuses on a preoccupation with love. In 1990, Hazan and Shaver published a slightly reworded version of their three descriptions, while maintaining the basic theoretical premises of the descriptions, in order to further differentiate the three categories and to remove some of the emphasis on romantic relationships. The current study utilized the essay they published in 1987.

Various family factors and qualities of parents have been associated with attachment styles. In their study of undergraduate students' mental representations of their parents, Levy and colleagues (1998) measured the students' attachment styles and had them write descriptions of their parents. They found that securely-attached individuals are more apt to describe their parents as more benevolent. Also, the descriptions of insecurely attached individuals and individuals in both the dismissive and fearful attachment style groups viewed their parents as punitive and malevolent. In another study (Pfaller, Kiselica, and Gerstein 1998), participants (also undergraduate students) who self-identified as secure currently represented their family as more cohesive and consistently connected, in both good and bad times, when compared to insecurely

attached individuals (Pfaller, Kiselica, and Gerstein). Those same securely attached individuals also reported significantly higher levels of family adaptability, which refers to the family's ability to adjust to changes, and family satisfaction, which was defined as the degree of contentment that they felt about their family's levels of cohesion and adaptability.

Family Unpredictability

While various family factors have been related to attachment styles and social functioning, one specific factor that merits special consideration is family chaos and/or family unpredictability. Matheny et al. (1995) describe a family environment as chaotic when there is crowding, elevated or high levels of background noise, and a general lack of routine which may result in elevated levels of stress (qtd. in Valiente, Lemery-Chalfant, and Reiser 2007: 251). Ross and Hill (2000) define family unpredictability as "inconsistent family behavior patterns and regulatory systems. . . [that occur] when members are unable or unwilling to consistently fulfill their familial responsibilities, such as providing nurturance (e.g., affection and sustenance)" (549). Also, Ross and Hill (2000) note that a lack of consistent regulatory systems or mechanisms for sustaining expectations represents a key dimension of family unpredictability. Other factors associated with recollections of family unpredictability are parental divorce, economic adversity, and parental alcoholism (Ross and McDuff 2008).

Family unpredictability should have adverse affects on an individual's attachment style, because, as Bowlby (1969) postulated, an infant's attachment style is influenced by the predictability or unpredictability of a caregiver's responsiveness. Ainsworth et al. (1978) state that infants whose needs are inconsistently responded to by their mothers are likely to develop an insecure-anxious attachment style, which results in a reduction of exploratory behavior and makes soothing them during stressful situations more difficult (qtd. in Ross and Hill 549). In contrast, Lewis and Goldberg (1969) found that a secure attachment style can be promoted by consistent caregiving (qtd. in Ross and Hill 549). Furthermore, family unpredictability correlates with individuals being more reluctant to trust others, due to their previous experiences with attachment figures (Ross and Hill, "Childhood"). As previously mentioned, Bowlby posited that children would learn to view the

world and others as unreliable and unpredictable if they could not rely on an available and responsive attachment figure. By viewing the rest of the world as unreliable as a result of family unpredictability, those consistently rejected individuals may form an insecure style of attachment (Ross and Hill, "Childhood").

Mental Health

Problems with early experiences which promote insecure attachment styles have been found to be related to mental health in later life. Hinnen, Sanderman, and Spranger (2009) point out that Vygotsky (1978) states that the development of models about the self, others, and the world in general are shaped by early childhood experiences. These authors also note that Sarason et al. (1986) found that an individual's expectations about the availability of others are related to parental attitudes and behaviors (such as the amount of support provided) during the child's infancy.

Hinnen, Sanderman, and Spranger (2009) also support the idea that early experiences and relationships with attachment figures influence later life experiences. They found that for the individuals in their study (90% female, mean age = 37), memories about childhood correlated with adult attachment styles, which then could be found to predict overall life satisfaction. Those researchers found that people who had insecure attachment styles reported greater degrees of parental rejection, less parental support, less family harmony and warmth, and more adverse events in their childhoods. In turn, those participants who had insecure attachment styles were less satisfied with themselves, their relationships, and their lives in general.

Attachment style has not only been associated with overall life satisfaction but also with anxiety and depression. Riggs and Han (2009) examined a sample of 317 college students from a large university in the Southwestern United States (66% female, mean age of 21.07, 70% Caucasian). Adult romantic attachment style was measured using the Relationship Scales Questionnaire (RSQ; Griffin and Bartholomew 1994). That measure of attachment consists of 30 items, each made up of a 5-point Likert scale, designed to assess an individual's attitudes in close adult relationships. Riggs and Han found that anxious attachment styles predict chronic anxiety directly and indirectly. Indirectly, individuals with insecure attachment also

reported low self-esteem and irrational beliefs, which in turn predicted anxiety. Avoidant attachment styles were directly associated with depression, and indirectly associated with depression as mediated by chronic anxiety (Riggs and Han 2009).

A study by Bifulco et al. (2002) examined a sample of women (average age of 34.6) who, through extensive questionnaire screening of general practitioners' registers of patients, were found to have a high risk for vulnerability to depression. The women's attachment styles were assessed using the Attachment Style Interview (ASI) during in-home interviews that lasted between 30-40 minutes (Bifulco et al. 1998). The researchers found that there was a significant relationship between insecure attachment and clinical depression. Also, those participants who had "markedly" or "moderately" insecure attachment (a greater degree of insecure attachment) had the strongest depression symptoms (55). They also found that participants with an "angry-dismissive" attachment style were scored highly on depression as well (55). Individuals with an angry-dismissive style of attachment do not trust others to be reliable and supportive and exhibit conflict and anger in their close relationships.

Another study by Heimberg et al. (2001) examined attachment and mental health. Their study included three sets of participants. The first set, the primary clinical participants, were 118 patients (mean age 32.43, 58.6% male) who had social anxiety disorder and sought treatment at two different anxiety clinics. The clinical replication sample consisted of 56 participants (average age 33.66, 60.3% male) who had sought treatment for interpersonal or performance anxiety at an anxiety clinic. The non-clinical control group, which consisted of 36 participants (average age 32.66, 52.8% male), was recruited through local media advertisements in the Philadelphia area, screened in a telephone interview, matched with the clinical sample on age, gender, and race, and did not meet any criteria for Axis I disorders as assessed by the ADIS-IV-L. Heimberg and colleagues measured the participants' attachment styles using Collins's (1996) Revised Adult Attachment Scale (1996: RAAS). They found that the majority of participants in both clinical groups had an anxious-preoccupied attachment style, while a secure attachment style was the next style most frequently found. The most common attachment style for the

non-clinical, control group was a secure style. Their results showed that the severity of social anxiety disorder was directly associated with an anxious working model of attachment and indirectly related to depression. Also, participants with a secure attachment style appeared to be less anxious, less impaired, and less depressed than the participants with an anxious attachment style.

While attachment styles have been related to mental health correlates and the degree of satisfaction with one's life in later years, there are other variables which may correlate with attachment styles and mental health yet to be fully examined. Family variables, such as characteristics of the parents and their style of parenting, have been shown to be related to the attachment style that an individual forms in early life (Kerns et al. 2001). However, the relationship of family unpredictability, or family chaos, to attachment style has not been researched in depth. Because chaos in the home and inconsistent parenting do not provide an individual with a consistent and supportive environment through which to form a secure attachment style, it seems logical that family unpredictability should have an adverse effect on attachment style.

Attachment styles have been shown to have numerous possible relationships with other individual and/or family factors. The current study has several purposes. The study examined the relationship between family factors and attachment style. The relationship between these factors and mental health (specifically anxiety and depression) was also investigated.

Based on previous research and our own assumptions, we tested several hypotheses: 1) that greater levels of family chaos will be positively related to the existence of an insecure attachment style; 2) that insecurely attached individuals will report greater levels of anxiety and depression; 3) that parenting styles will show a relationship to attachment style, specifically that individuals who report that their parents were warm and affectionate while also having high expectations and control (also known as an authoritative parenting style) will be more likely to report a secure attachment style; 4) that participants whose parents were authoritative will report less family chaos; 5) that the children of parents who were authoritative will report less anxiety and depression; and 6) that a greater degree of family chaos will be

positively correlated with higher anxiety and depression scores.

Method

Participants

A total of 281 individuals (73% female; $M = 19.1$ years old; 86.5% Caucasian) participated in the study. They were recruited from both introductory and upper-level psychology classes at a medium-sized, liberal arts college located in the southeastern United States. All students were invited to afternoon and evening administration sessions. The students from the upper-level classes received extra-credit for their participation while participants from the introductory class satisfied a research participation requirement. The introductory students could also satisfy their research participation requirement by doing library research instead if they preferred.

Procedure

Participants were recruited during their classes (either introductory or upper-level) or via a computer webpage which they were invited to visit. The beginning of the session included a discussion by the researchers on the nature of the informed consent forms, which guaranteed anonymity to maximize the participants' level of comfort in sharing possibly sensitive information. After informed consent was obtained and the voluntary nature of the research participation was again emphasized, the researchers administered the surveys. After completion of the survey, the signed consent forms and the completed surveys were placed in separate boxes to ensure anonymity of the participants. Extra credit and research credit was awarded from the informed consent forms.

After every participant had finished completing the survey packet, the researchers conducted a de-briefing session. In the de-briefing session, researchers provided the participants with a short summary of the study and telephone numbers for numerous community resources were given to the students to ensure that participants had available support if needed. Furthermore, the research participants were encouraged to contact any of the research team members with any additional questions.

All materials and procedures were approved by the college's

Institutional Review Board.

Materials

Surveys included items to measure the following constructs.

Family Chaos. The Retrospective Family Unpredictability Scale (Ross and McDuff 2008) was used to measure family unpredictability in four areas: discipline, nurturance, meals, and money. The Retro-FUS includes items such as, “My dad showed me the same amount of affection from day to day,” and “Monday through Friday, the same people sat down and ate dinner together” (both reverse coded). Each item is rated on a 5-point scale, ranging from 1 (not at all) to 5 (extremely). Higher scores reflect higher levels of family unpredictability. The psychometric properties of this scale have been evaluated in samples of nonclinical university students and are satisfactory (Ross and McDuff 2008). Total scale reliability was found to be .90 and subscale α 's ranged from .67 (for money) to .92 (for father discipline).

Attachment Style. The Adult Attachment Questionnaire (AAQ) developed by Hazan and Shaver (1987) was used to measure attachment style. As discussed earlier, the AAQ asks participants to categorize their attachment style as either secure, avoidant, or anxious-ambivalent. Participants choose one of three descriptions of romantic attitude that best summarize their feelings and behaviors in romantic relationships. For example, the securely attached selection reads: “I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't often worry about being abandoned or about someone getting too close to me.”

Depression. The Center for Epidemiologic Studies-Depression Scale (CES-D; Radloff 1977) was used to measure depression and consists of 20 items, with four of the items worded in a positive way in order to control for response bias. Subjects rate each item on a scale from 0 to 4 on the basis of “how often you have felt this way during the past week,” where 0 = rarely or none of the time (less than 1 day), 1 = some or a little of the time (1-2 days), 2 = occasionally or moderate amount of time (3-4 days), and 4 = most of the time (5-7 days). Scores range from 0 to 60 with higher scores indicating more severe depressive symptoms. Examples of questions are “I felt hopeful about the future” and “My sleep was restless.” In the present

study, the reliability was found to be $\alpha = .89$.

Anxiety. Ten items from the 20-item Trait Anxiety Inventory (Spielberger et al. 1983) was used to measure trait anxiety. The responses are measured on a four-point Likert scale where the number on the scale is positively correlated to the anxiety related to in the question (ex. 1 = almost never and 4 = almost always). Examples of questions are "I feel satisfied with myself" and "I worry too much over something that really doesn't matter." In the present study the reliability was .84.

Parenting Styles. Parenting style items were derived for this study to assess high versus low warmth and expectations/control dimensions, as suggested by Baumrind (1971). Participants check which of four statements best reflects the parenting style of each parent separately. The selection that reflects an authoritative parenting style for the father reads as follows: "My father was warm and affectionate. He established many rules and he explained the reasons for his rules to me. His rules were consistently but not harshly enforced, so I know who was 'in charge' of the household. He had high expectations for me." The selection that reflects an indulgent parenting style, high warmth and low expectation/control, is: "My father was warm and affectionate, and he tended to give in and give me whatever I wanted. There weren't many rules and he rarely punished me. He didn't have a lot of expectations of me. In some ways, he seemed to be more my friend than my parent." The selection that reflects an authoritarian parenting style, low warmth and high expectation/control, is: "My father was not very warm or affectionate. He had a lot of expectations for me. He had rules for everything and expected me to be obedient. I was punished when I broke the rules." Finally, the selection that reflects a neglecting parenting style, both low warmth and low expectation/control, is: "My father is not very warm or affectionate. I was rarely punished and he didn't have many rules. He didn't have high expectations of me, and he didn't seem to pay much attention to me." Each of the four statements was worded once for the mother and once for the father.

Results

We conducted a multivariate analysis of variance (MANOVA) to test the relationships between family chaos and attachment style. We found that the three attachment style groups (insecure avoidant,

insecure anxious, and secure) did not differ, overall, on the retrospective FUS scores, $F(10, 440) = 1.298$, $p = 0.229$. Thus, hypothesis 1 was not supported.

Next, we examined the relationship between attachment style and mental health, specifically anxiety and depression. First, we verified that the anxiety and depression scores correlated, $r = .738$, $p = .0001$. After conducting a MANOVA, we found that, overall, attachment style groups differed on the mental health outcomes, $F(4, 544) = 14.172$, $p = .0001$. Follow up ANOVAs were as follows: for anxiety, $F(2, 274) = 22.695$, $p = .0001$, $\eta^2 = .143$ and for depression, $F(2, 274) = 29.294$, $p = .0001$, $\eta^2 = .177$. These results provided support for hypothesis 2. Table 1 shows the means and standard deviations for each attachment style with each mental health correlate (anxiety and depression) separately. For each mental health outcome, Tukey's post-hoc analyses revealed that all three attachment styles significantly differed from one another. The securely attached group showed significantly lower anxiety and depression scores, while the insecure anxious group showed significantly higher anxiety and depression scores. This supported hypothesis 2.

Table 1. Anxiety and Depression Scores for Attachment Groups

Attachment Group	Anxiety M (SD)	Depression M (SD)
Insecure Anxious	2.41 (.57)	2.14 (.61)
Insecure Avoidant	2.10 (.57)	1.88 (.50)
Secure	1.84 (.45)	1.59 (.38)

The relationship between parenting style and attachment style was tested twice, once for each parent. The chi-square (χ^2) test for these 3x3 cross tabulations were not significant. Thus, hypothesis 3 was not supported.

Next, we conducted two MANOVAs to examine the relationship between parenting styles of the mother and father to family chaos. The MANOVA for the parenting style of the father yielded a significant relationship between the father's parenting style and family chaos, $F(15, 657) = 6.839$, $p = .000$, $\eta^2 = 0.135$. There were three follow up

ANOVAs that were significant: chaotic father nurturance, unpredictable father discipline, and overall family unpredictability. Table 2 contains the statistics for the three follow-up ANOVAs and also shows the means and standard deviations for these significant findings. For unpredictable father nurturance, the post-hoc Tukey's test revealed that the mean was highest for both negligent and authoritarian parenting styles, whereas these two styles significantly differed from the others. Both of the styles with low perceived warmth were associated with the most unpredictable nurturance. For father discipline, the post-hoc Tukey's test revealed that the mean was significantly highest for the selection that reflected low warmth and low expectation/control, or a negligent parenting style. For overall family unpredictability, Tukey's tests reveal all four parenting style groups differed from one another, and the mean was highest for the selection that reflected low warmth and high expectation/control, or authoritarian parenting style (while the negligent parenting style, low on both dimensions, was a close second). The ideal parenting style, authoritative, which is high on both dimensions (warmth and expectation/control) had the lowest mean in each of the three categories.

Table 2. Father's Parenting and Family Unpredictability

Parenting Style	Father Nurturance <i>M (SD)</i>	Father Discipline <i>M (SD)</i>	Overall Unpredictability <i>M (SD)</i>
Authoritative	2.53 (.73)	2.01 (.61)	2.21 (.54)
Indulgent	2.55 (.83)	2.36 (.65)	2.21 (.42)
Negligent	3.59 (.73)	2.68 (.84)	2.65 (.77)
Authoritarian	3.83 (.60)	2.48 (.71)	2.67 (.39)
	$F(3, 224) = 31.372$	$F(3, 244) = 7.007$	$F(3, 244) = 8.057$
	$p = .0001, \eta^2 = .299$	$p = .0001, \eta^2 = .087$	$p = .0001, \eta^2 = .099$

The MANOVA for the parenting style of the mother found a significant relationship between the mother's parenting style and family chaos, $F(15, 666) = 7.277, p = .0001, \eta^2 = .141$. All follow up ANOVAs were significant, as shown in Table 3. Table 3 also shows the means and standard deviations for these findings.

For chaotic mother nurturance, the highest means were reported by those describing an authoritarian mother (low on warmth and high on expectation/control) or a negligent mother (low on both warmth and on expectation/control), according to Tukey's post-hoc analyses. For chaotic father nurturance, the highest means were reported by those describing an authoritarian mother (low on both dimensions of warmth and expectation/control) or an indulgent mother (high warmth but low expectation/control). For unpredictable mother discipline, unpredictable father discipline, and overall family unpredictability, the lowest mean was reported by those describing an authoritative mother (high warmth and expectation/control). Hypothesis 4 was supported overall, as there was a relationship in the predicted direction between parenting style and family unpredictability.

Table 3. Parenting and Family Unpredictability

Parenting Style	Mother Nurturance <i>M</i> (<i>SD</i>)	Father Nurturance <i>M</i> (<i>SD</i>)	Mother Discipline <i>M</i> (<i>SD</i>)	Father Discipline <i>M</i> (<i>SD</i>)	Overall Unpredictability <i>M</i> (<i>SD</i>)
Authoritative	2.05 (.70)	2.66 (.84)	2.10 (.71)	2.10 (.63)	2.18 (.48)
Indulgent	2.04 (.75)	3.04 (.83)	2.65 (.84)	2.38 (.69)	2.53 (.51)
Negligent	3.75 (1.15)	3.32 (1.29)	3.29 (.98)	2.89 (.60)	3.38 (.79)
Authoritarian	3.96 (.43)	3.73 (.57)	3.18 (.77)	2.80 (.93)	3.33 (.42)
	$F(3, 227) = 25.792$ $p = .0001, \eta^2 = .257$	$F(3, 227) = 6.228$ $p = .0001, \eta^2 = .077$	$F(3, 227) = 12.506$ $p = .0001, \eta^2 = .143$	$F(3, 227) = 6.188$ $p = .0001, \eta^2 = .007$	$F(3, 227) = 24.706$ $p = .001, \eta^2 = .249$

We conducted a MANOVA to test whether the parenting style of the father was associated with anxiety and depression and a separate MANOVA to test whether the parenting style of the mother was associated with anxiety and depression.

The MANOVA for the fathers showed a significant relationship between the parenting style and mental health, $F(6, 526) = 2.186, p = 0.43, \eta^2 = .024$. Table 4 shows the means and standard deviations from the parenting style of the father with anxiety and depression separately, along with details from the follow up ANOVAs. According to Tukey's post-hoc analyses, students who described their fathers as

authoritarian (low warmth, high expectation/control) had significantly higher anxiety scores than any other group, and students who described their fathers as either authoritarian or indulgent (high warmth, low expectation/control) reported significantly more depression than their peers describing other father parenting styles.

Table 4. Father's Parenting Style

Parenting Style	Anxiety <i>M (SD)</i>	Depression <i>M (SD)</i>
Authoritative	1.99 (.54)	1.74 (.49)
Indulgent	2.03 (.58)	1.75 (.61)
Negligent	1.84 (.46)	1.64 (.31)
Authoritarian	2.29 (.67)	2.02 (.63)

The MANOVA for the mothers showed a significant relationship between the parenting style and mental health in the participants, $F(6, 544) = 3.541, p = .002, \eta^2 = .038$. Table 5 shows the follow up ANOVAs and the relevant means and standard deviations for the parenting style of the mother with anxiety and depression separately. According to Tukey's post-hoc analyses, students with authoritative mother (high on both dimensions) reported significantly less anxiety than those describing an indulgent mother (high on warmth and low on expectation/control/), who in turn reported less anxiety than those describing a negligent mother (low on both dimensions). Students who described their mothers as authoritative (high on both dimensions) reported significantly less depression than those reporting a mother who was either negligent (low warmth and low expectation/control) or authoritarian (low warmth and high expectation/control).

Table 5. Mother's Parenting Style

Parenting Style	Anxiety <i>M (SD)</i>	Depression <i>M (SD)</i>
Authoritative	1.96 (.54)	1.72 (.48)
Indulgent	2.20 (.65)	1.84 (.57)
Negligent	2.60 (.35)	2.31 (.42)
Authoritarian	2.18 (.47)	2.13 (.49)

Overall, hypothesis 5 was supported.

Finally, we found significant correlations between family unpredictability and mental health. Table 6 shows these correlations. Specifically, anxiety correlated with the four Retro FUS subscales (mother nurturance, father nurturance, mother discipline, and father discipline) as well as overall family chaos scores. The strongest subscale correlation was with unpredictable maternal discipline. The second strongest correlations were with the overall family chaos scores. Depression correlated with all unpredictability scores. Again, the strongest association was with unpredictable maternal discipline, and the next highest association was with the overall family unpredictability scores. Thus, hypothesis 6 was supported.

Table 6. Correlations Among Family Unpredictability and Mental Health

	1	2	3	4	5	6	7
1. Anxiety	---						
2. Depression	.730**	---					
3. Mom Nurturance	.133*	.141*	---				
4. Dad Nurturance	.232**	.234**	.411**	---			
5. Mom Discipline	.377**	.384**	.465**	.252**	---		
6. Dad Discipline	.314**	.254**	.282**	.354**	.567**	---	
7. Overall Unpredictability	.366**	.370**	.723**	.697**	.729**	.668**	---

* = $p < .05$ ** = $p < .01$

Discussion

While the majority of our results supported our initial hypotheses, some of the results also contradicted two of our previous assumptions. While not all of our hypotheses were validated by our statistical analyses, our study has provided new contributions to the study of family unpredictability and attachment theory.

Our first hypothesis was that greater degrees of family chaos would be positively related to a higher frequency of individuals who had insecure attachment styles. Despite previous research, our hypothesis was not supported by the results of our study. The three

attachment style groups (insecure avoidant, insecure anxious, and secure) did not significantly differ, overall, on the Retro FUS scores. There may have been several reasons why our prediction may not have been supported by our data. Perhaps if attachment style and family chaos were measured concurrently instead of retrospectively then we would have found a stronger relationship between the two variables. Also, using an alternative attachment style measure may have produced slightly different results.

Our second hypothesis was that insecurely attached individuals would report higher levels of anxiety and depression. This hypothesis was supported and the three attachment groups were found to have significantly differed on the individual mental health outcomes. Our results showed that those individuals who were found to have secure attachment styles had the lowest means/scores for anxiety as well as depression. Our result is similar to prior research which has found existing relationships between mental health, specifically anxiety (Heimberg, Hart and Schneier 2001; Riggs and Han 2009) and depression (Bifulco, Berran and Bernazanni 2002; Riggs and Han 2009), and insecure attachment styles. While not part of our original hypothesis, we found that the individuals who had an insecure anxious attachment style scored the highest on both anxiety and depression measures.

The third hypothesis was that a relationship would exist between parenting style and attachment style, specifically that more securely attached individuals would report having authoritative parents. However, our results did not support that claim.

We also hypothesized that participants who recalled having authoritative parents would report less family chaos. This hypothesis was supported and we found that the lowest scores for overall family chaos were from individuals whose parents were recalled as being both high in warmth and high in expectation/control. Those parents reflect the ideal, authoritative parents that we predicted would have the least degree of family chaos. Furthermore, both parents, mother and father, were investigated separately and each parent that was described as authoritative was significantly associated with less family chaos. Family chaos has been linked to other family functioning dimensions, such as parental divorce, poverty, and parental alcoholism (Ross 2006;

Ross and McDuff 2008). This is the first time the Retro FUS has been linked with parenting styles. Furthermore, this is the first time the current assessment of parenting styles has been utilized in a research context.

Our fifth hypothesis was that the children of authoritative parents would report lesser degrees of anxiety and depression at the time in which the survey was completed. We found that there was a difference between the style of parenting and the degree of anxiety and depression that the participant was currently experiencing in their life. Although our results did show that children of mothers perceived as authoritative had the lowest scores on depression and anxiety, the pattern of results for fathers was somewhat different, in that children of authoritarian fathers reported the highest anxiety and depression scores.

Finally, we hypothesized that a greater degree of family chaos would be positively correlated with elevated anxiety and depression scores. That hypothesis was supported on each of our four subscales (unpredictable mother nurturance, unpredictable father nurturance, unpredictable mother discipline, and unpredictable father discipline) as well as with overall family chaos. This confirms prior studies that have found correlations between retrospective family unpredictability and college student anxiety (Ross and Gill 2002) and depression (Ross and Wynne 2010).

The major limitation, or caveat, of this study was the uniformity of our sample. The sample was 73% female, 85% Caucasian, relatively young (average age = 19.1 years) and all in attendance at the same southeastern liberal arts college. That lack of diversity may have affected the degree to which our findings can be generalized to other populations. Future studies or replications should examine a more diverse sample in order to find if the results of the present study apply to men and women as well as to people of various ethnic backgrounds.

While our narrow sample was a limitation of the study, the study did have several strengths and new contributions. To our knowledge, our study was the first psychological study which examined the relationships between family unpredictability (or chaos) and two unique variables: the attachment styles of the young adults who were raised in those households and parenting style. While our hypothesis that a

greater proportion of individuals with insecure attachment styles would report greater degrees of family chaos was not supported, we did find a significant relationship between recalled family unpredictability and parenting style. Those previously unexamined relationships may be beneficial to future researchers who are researching attachment theory, family unpredictability, and/or developmental psychology.

While not all of our hypotheses were supported by our results, we did find many significant relationships. We found significant relationships between attachment style and the mental health correlates of anxiety and depression, between parenting style and family unpredictability (which has not been previously researched), between parenting style and the mental health correlates of anxiety and depression, and between family unpredictability and anxiety and depression.

Because attachment styles have been shown in previous theory and research to develop early in life, progress through the life cycle, and relate to mental health, attachment is an important area of research. Because parenting styles and the characteristics of parents and families (such as unpredictability) have also been shown to be of significant developmental importance, further research related to attachment theory could, and should, help to influence or develop better parenting behaviors. Such parenting practices could then provide individuals with a healthy/secure working model of relationships in infancy in order to positively affect the child's later life and subsequent mental health.

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