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Links between Adolescents' Closeness to Adoptive Parents and Attachment Style in Young Adulthood

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Abstract

This study examined whether adolescents' closeness to adoptive parents (APs) predicted attachment styles in close relationships outside their family during young adulthood. In a longitudinal study of domestic infant adoptions, closeness to adoptive mother and adoptive father was assessed in 156 adolescents ($M = 15.7$ years). Approximately nine years later ($M = 25.0$ years), closeness to parents was assessed again as well as attachment style in their close relationships. Multilevel modeling was used to predict attachment style in young adulthood from the average and discrepancy of closeness to adolescents' adoptive mothers and fathers and the change over time in closeness to APs. Less avoidant attachment style was predicted by stronger closeness to both APs during adolescence. Increased closeness to APs over time was related to less anxiety in close relationships. Higher closeness over time to either AP was related to less avoidance and anxiety in close relationships.

Keywords

adoption; attachment styles; close relationships; adolescence; young adulthood

Relationships with parents and significant others play important roles in human development, with attachment being integral to both. Several longitudinal studies based on attachment theory have shown an association between early relationship experiences with parents and later adult attachment with peers (Conger, Cui, Bryant, & Elder, 2000; Simpson, Collins, Tran & Haydon, 2007). These studies suggest that more secure parent-child attachments lead to more secure relationships outside the family.

Most studies examining continuity between attachment within the family and relationships outside have been conducted with children who are biologically related to their parents and have lived with them since birth. Adopted children are not biologically related to their adoptive parents and may have lived in various other settings before coming to their adoptive families. Little research has examined the influence of adoption on adoptive parent-

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child relationships and subsequent relational development outside the family. A recent meta-analysis by van den Dries and colleagues (van den Dries, Juffer, van IJzendoorn, & Bakermans-Kranenburg, 2009) revealed that the majority of children adopted before age 12 months are able to form secure attachments to their adoptive parents. However, regardless of age, adoptees were more likely to demonstrate disorganized attachments than nonadopted peers. There are several possible reasons for this finding, including negative caregiving experiences (e.g., poor institutional care) prior to adoption.

Virtually all children who have been adopted are aware that they have a birth family. Adoptive parents control the information that their children have about their birth relatives as well as the access that children and birth relatives have to one another. Because of the central role that adoptive parents play, not only as primary caregivers but also as mediators of the child's relationship with their birth relatives, it is important to understand how adoptive parent – child relationships set the stage for relationships outside the family across time. Adopted children can (and do) establish secure attachments with their adoptive parents (van den Dries et al., 2009). Still, each adopted person has parents by birth and rearing. As the adopted person moves from adolescence into young adulthood, this extra layer of complexity may impact establishing close relationships outside the family.

In the current study, a central aspect of adoptive parent-adolescent attachment, closeness, was examined in relation to attachment style in relationships outside the family during young adulthood. The term *closeness* is used to describe the feelings of emotional connection to one's parents, and *attachment style* is used to describe security in close relationships outside the family during young adulthood.

An innovative aspect of this study design is its use of multilevel modeling to deal with the inherent lack of independence a) between reports of children about their adoptive mothers and fathers, measured at the same point in time, and b) between reports about individual parents, measured across time. Two aspects of adoptive parent-adolescent relationships were evaluated in this study. For Research Question 1, adoptive family influence was examined through the child's closeness to each adoptive parent during adolescence. For Research Question 2, change over time in closeness of the adolescent to each of his or her adoptive parents was examined from adolescence to young adulthood.

Parent-Child Relationships

Bowlby's (1969, 1982) attachment theory speaks to the importance of relationships with one's parents and the possible impact of these relationships on future relationships with others. Bowlby proposed that the parent-child relationship serves as the basis for an internal working model of attachment that will be relevant to other relationships. In other words, an adult's attachment to close others is based upon his or her internal working model of attachment, which was derived from the relationship to his or her primary caregiver and modified by experiences throughout the life span. Young children who have available and emotionally responsive relationships with their parents are given a "secure base," which provides the confidence and resiliency to deal with their environmental stressors. In contrast, children without this type of parent-child relationship, due to inconsistencies or rejections,

are more vulnerable to negative experiences (Bowlby, 1969; 1982). Those classified as securely attached in infancy showed greater social competence in childhood, and this has predicted more secure and positive relationships outside the family in adolescence and adulthood (Simpson et al., 2007). Evidence suggests that it is the parent-child relationship that provides an internalized model that is then continued into adult relationships (Roisman, Madsen, Henninghausen, Sroufe, & Collins, 2001).

Historically, mothers have been the focus in parent-child relationship studies. It was important in the current study of adoptive two-parent families to evaluate adoptive mothers and fathers together, as the child experiences attachment relationships with both of them. However, it is also important to assess the child's relationship with each adoptive parent, individually, over time. In a recent study of German adolescents' parent-child relationship trajectories and the effects on young adult romantic relationships, differential effects were found for mothers and fathers (Seiffge-Krenke, Overbeek, & Vermulst, 2010). Earlier mother-adolescent relationships were related to connectedness and sexual attractions experienced in later romantic relationships, whereas father-adolescent relationships showed a similar but weaker correlational pattern. More distance in early father-child relationships led to greater anxiety in later romantic relationships. This was also demonstrated by early mother-adolescent relationships. Given the possible differences in mothers' and fathers' roles in attachment development, it is important to evaluate parent attachment in a longitudinal perspective separately for a comprehensive view of adoptive parent-child relationships.

Change in Parent-Child Relationships from Adolescence to Young Adulthood

Despite the varying life experiences of adolescents and young adults, research has shown that attachment styles can be relatively stable during these periods. As Bowlby (1969; 1982) had proposed, the early relationship experiences set the stage for later experiences. Those with secure attachments to parents in adolescence have a greater capacity for intimacy in friendships and romantic relationships (Scharf, Mayseless, & Kivenson-Baron, 2004). Similarly, relationship schemas, beliefs and expectations about interpersonal interactions, at least among children being raised by their biological parents, remain moderately stable across this time period (Waldinger et al., 2002). These representations build upon prior experiences, lead to how one behaves in relationships, and manifest as one's attachment style.

Nevertheless, parent-child relationships, particularly between adolescence and young adulthood, can be affected by developmental, social, and contextual changes experienced by young people as well as their parents. Longitudinal research has revealed both stability and change in parent-child relationships over this time period. In one study, several variables were evaluated including the child leaving the parents' home, living with a partner, entering into parenthood, and gaining financial independence (Bucx & van Wel, 2008). This 6-year study revealed that generally, parent-child relationships are relatively stable. As adolescents matured, a closer parental bond was achieved; meanwhile there was decreased strength in the parental bond with milestones that promoted the child's independence (Bucx & van Wel,

2008). In any longitudinal study, it is possible that the participants will experience developmental changes and significant life events that could impact family relationships. While the actual number of these events can be relatively small for any individual in a sample, the cumulative results may impact relationships over time. Thus, in attempting to predict relationship qualities in young adulthood, it is important to take into account possible changes in parent-child relationships that occurred from adolescence to young adulthood.

Gender

It is not fully understood how gender affects attachment development. Some research suggests that men may be more dismissive than women in attachment style (Schmitt et al., 2003). In dismissive attachment, the individual avoids close relationships and rejects the importance of such relationships, emphasizing his or her own self-reliance (Schmitt et al., 2003). In an analysis of 62 diverse cultural regions, Schmitt and colleagues (2003) found empirical support for men to be generally more dismissive in attachment style than women, albeit with a small effect size, and socio-cultural indicators were related to diminished differences between males and females in attachment orientation. Research by Ma and Huebner (2008) also has shown gender differences in attachment. However, their research noted that while adolescent males and females were not significantly different in attachment to parents, females had higher levels of attachment to their peers. Given the possible differences of gender in attachment style, the child's gender will be examined in the current study.

The Current Study

The current study examined how the closeness of adolescents to their adoptive parents predicts their attachment styles outside the family in young adulthood. Attachment styles refer to young adults' approach to romantic relationships in general, rather than to their relationship with one specific close other. Two aspects of adoptive parent - adolescent closeness were examined. First, adolescents' closeness to both adoptive parents was examined as it related to later attachment style. Second, the average level and change over time in individual adoptive parent - adolescent closeness were used to predict attachment styles in young adulthood. Since attachment styles in young adulthood have repeatedly been linked to early parent-child relationships (Conger et al., 2000; Simpson et al., 2007), and different attachment styles have been found between adopted and nonadopted populations (Feeney, Passmore, & Peterson, 2007), this area needs further examination to discover possible ways that adopted individuals develop close relationships within and outside the family.

It was hypothesized that adoptive parent - child closeness in adolescence would predict attachment security outside the family in young adulthood, such that children who had reported more closeness to both adoptive parents would experience less anxiety and avoidance in relationships outside the family than would children who reported less closeness. It was also expected that higher levels of closeness to adoptive mother and adoptive father averaged across adolescence and young adulthood would predict more secure attachment styles in close relationships during young adulthood than would lower

levels of attachment. Further, the magnitude and direction of change in the adolescent's experience of closeness to adoptive parents will affect attachment style in young adulthood. Thus, it is expected that those who increase in adoptive parent - child closeness from adolescence to young adulthood would have lower anxiety and avoidance in close relationships than those that have decreased in closeness to adoptive parents. Similarly, those that have decreased in closeness from adolescence into young adulthood may also have higher levels of anxiety and avoidance in close relationships. The child's age and gender will be controlled in the analyses.

Method

Participants

Data for this study were drawn from the Minnesota-Texas Adoption Research Project, a longitudinal study involving 190 adoptive families in which the children were all adopted domestically as infants (mean age of placement = 4 weeks) by same-race parents through private adoption agencies. None of the adoptions were transracial, international, or "special needs" placements. Families were recruited from 35 agencies in 23 states, representing all regions of the United States. Most parents were Caucasian (97%), middle to upper-middle class, and possessed at least a college degree (mothers, 74%, fathers, 88%). Their primary reason for adopting a child was infertility. For details about the broader study, see Grotevant, McRoy, Wrobel, and Ayers-Lopez (2013). Table 1 describes the sample characteristics from the broader study from recruitment through Wave 3.

The present study used data from Wave 2, when the children were adolescents ($N = 81$ females and 75 males; M age=15.73 years, SD =2.08, range=11 to 20 years) and Wave 3 ($N = 82$ females and 87 males; M age=24.95, SD =1.88, range=21 to 30 years). Most young adult (YA) participants were Caucasian ($n=162$), although a small number of participants were Black/African American ($n=1$) and Hispanic/Mexican American ($n=6$). By Wave 3, approximately 20% of the YAs were married and 20% had at least one child. Most YAs were living independently of their parents (75%) and paying the majority of their housing costs (65%). Almost half of the YAs (48%) had at least some post-high school education.

Procedure

At Wave 2, adoptive families were seen in their homes across the United States during a single session that included interviews, questionnaires, and an interaction task. At Wave 3, data were collected from young adults online. All study procedures were reviewed and approved by the Institutional Review Boards of the <institution names blinded>.

Measures

Inventory of Parent and Peer Attachment—The Inventory of Parent and Peer Attachment (IPPA: Armsden & Greenberg, 1987) assessed the participants' perceptions of trust, communication, and alienation in their relationships with mothers, father, and close friends. This measure was administered to the target adopted child at Wave 2 (adolescence) and Wave 3 (young adulthood). The current study used only the scales for attachment or closeness to AM and AF. The development of the IPPA was guided by attachment theory,

originally formulated by Bowlby (Armsden & Greenberg, 1987). The measure consists of 25 self-report items each for the mother and father subscales; on a 5 point Likert-type scale, ranging from 1 = “Almost never or never true” to 5 = “Almost always or always true”. Items are statements about parent – adolescent relationships, such as: “My mother respects my feelings,” and “My father accepts me as I am.” Scoring the IPPA required reverse-coding the negatively worded items and then averaging the response values in each section. Three week test-retest reliabilities for the original version of the IPPA were .93 for parent attachment. Internal consistency reliabilities (Cronbach’s alpha) of attachment were .87 for mother and .89 for father, as assessed by the authors for this measure (Armsden & Greenberg, 1987). Internal consistency reliability coefficients in the current sample were .96 for attachment to AM and .97 for attachment to AF. Several studies provide support for the validity of this measure (Armsden, 1986; Lewis, Woods, & Ellison, 1987).

Experiences in Close Relationships (ECR) questionnaire—The ECR (Brennan et al., 1998) examines the constructs of anxious and avoidant attachment styles in close relationships. This self-report questionnaire was administered to the target young adults at Wave 3. The secure base, as described by Bowlby (1969), is conceptualized in this questionnaire by the absence (or low level) of anxiety and avoidance. The ECR examines attachment styles, the constructs of anxiety and avoidance in close relationships in general, rather than in a specific or current relationship (Brennan et al., 1998; Mikulincer, Shaver, Sapir-Lavid, & Avihu-Kanza, 2009). The avoidance scale of the ECR includes statements such as “I want to get close to my partner, but I keep pulling back”; items on the anxiety scale include “I worry about being abandoned.” The questionnaire includes 36 items (18 questions assess each dimension) each on a 7 Likert-type scale evaluating strength of agreement with each item, from 1 = “disagree strongly” to 7 = “agree strongly.” The ECR includes ten items that were reverse coded for scoring. Higher scores indicate greater levels of anxiety and avoidance.

The two dimensions of anxiety and avoidance were found to be high in internal consistency reliability (Cronbach’s alpha: avoidance=.94; anxiety=.91; Brennan et al., 1998). The internal consistency reliabilities for the current study were also strong (Cronbach’s alpha: avoidance=.95; anxiety=.95). Participants who score low on the continuum of avoidance and anxiety on the ECR fall in the “secure” category. In this study, the avoidance and anxiety scales were entered separately into each analysis.

Data analysis plan—Research Question 1 investigates average level and discrepancy in reports of closeness to mothers and fathers. Level one models the average of the two parents reports (intercept) and the discrepancy in the reports (slope) for both mothers and fathers simultaneously. The scores for both parents are regressed on an indicator variable (e.g., -0.5 = mother and 0.5 =father). This coding ensures that the intercept represents the average of the two parents’ reports and the slope represents the discrepancy of the parents’ reports.

Research Question 2 investigates average level (halfway between Wave 2 and Wave 3) and change (between Wave 2 and Wave 3) in closeness over time for mothers and fathers. The scores for both times are regressed on an indicator variable (e.g., -0.5 = Wave 2 and 0.5 =Wave 3). This coding ensures that the intercept represents the average of the two times

and the slope represents the difference between Wave 2 and Wave 3 closeness for both parents simultaneously.

For both research questions, after an unconditional level one model was fit using HLM 7, the empirical Bayes estimates of the level one coefficients were output for use as new variables in the following regression analyses. For Research Question 1, these empirical Bayes coefficients reflect the average and the discrepancy for the individual. For Research Question 2, these empirical Bayes coefficients reflect the halfway point and change over time for each individual.

Missing data analysis from SPSS 17.0 revealed various amounts of missing data in the key variables: closeness to mother (W2) (27.9%), closeness to father (W2) (27.4%), avoidance (17.9%), anxiety (18.4%), and age (6.8%). These missing data cases were examined for any patterns to explain their lack of participation on these variables. Missing value analysis revealed no clear patterns of missingness. Cases were further reviewed to determine if there was another reason for missed responses that may have had undue influence on the results. Since no clear patterns emerged that would explain their missing information, it was assumed that these data were missing at random. Given this amount of missing data, it was determined that analysis could be strengthened by using multiple imputation (using SPSS 17.0) (Widaman, 2006). Per Widaman's recommendation (2006), five imputations were conducted; all variables were used as predictors for the imputation (with the exception of the categorical variable for gender). The main analyses describe the findings based on pooled results of multiple imputation.

Accounting for Dependency in Parent-Child Data

Research Question 1—The current study used reports on closeness to adoptive mother (AM) and adoptive father (AF) by the adolescent. Due to the fact that the reports of family relationships are nested in the individual (e.g., the same person – the adolescent - is reporting on relationships with his or her AM and AF), these data have an inherent statistical dependency. The risk of ignoring the nonindependence is that the tests of statistical significance may be too liberal (Type I errors) or too conservative (Type II errors) (see Kenny, Kashy, & Cook, 2006). Multilevel models estimate the correct standard errors given the dependency in the data, thus providing a more accurate test of statistical significance. When studying child's reports on both parents together as a unit, one must make an important decision regarding data analysis. Traditionally, two parents' scores could be analyzed separately, one score could be chosen as "best," or the two could be averaged together. Problems arise with all of these approaches, such that separate analysis misses important dyadic information (e.g., correlation between two reports) and averaging is assuming nonindependence inaccurately (Kenny et al., 2006). More recently, new statistical approaches have become available to account for this type of dependency. For instance, in diary studies of couples, researchers have begun using multilevel modeling techniques (for instance, hierarchical linear modeling (HLM)) to handle this kind of dependency (Bolger, Davis, & Rafaeli, 2003). An important statistical advantage is the control for the correlation in the pair of outcome scores (e.g., reports on mother and father), more precisely estimating

the effects by decreasing the standard error associated with these tests (Lyons & Sayer, 2005).

Research Question 2—For Research Question 2, additional dependency results from using the same reporter providing data at multiple time points (adolescent to young adult). When the data are nonindependent, as in this study, the scores are nested within person over time. Here, the child is the unit of analysis. The current research has benefited from incorporating a multilevel approach to examine the variation between and within individuals. A multilevel approach allows for analysis of individual, dyad, or program characteristics' impact on both level and change, as well as the ability to chart trajectories over time (Raudenbush, Brennan, & Barnett, 1995).

Results

Descriptive Statistics

Means, standard deviations, and intercorrelations for all variables are presented in Table 2. Age was included in the models due to the wide range of ages represented.

Research Question 1: Child Relationships With Both Adoptive Parents

HLM—In the HLM model, the level one unit of analysis referred to closeness to APs, as represented by the adolescent's responses to the two IPPA scales: closeness to AM and closeness to AF. The level two unit of analysis was the individual. HLM was used to create two new variables, which referred to the average closeness score to AM and AF and the discrepancy score between AM and AF (e.g., Lyons & Sayer, 2005).

A paired t-test revealed that there was a statistically significant difference in adolescents' ratings of closeness to AM ($M = 98.05$, $SD = 18.05$) and closeness to AF ($M = 95.31$, $SD = 19.77$) ($t(1,136) = 2.19$, $p < .05$). Although it is possible to simply average the scores of closeness for AM and AF, this may miss important differences within the family. For instance, closeness to AM and AF in one family may have very different scores (e.g., 10 and 50) and in another family scores may be identical (e.g., 30 and 30), but both families could look identical (mean score of 30) if simply averaged (Raudenbush & Bryk, 2002).

Empirical Bayes residuals were output from the HLM model to run with further analyses. These coefficients are the average and discrepancy closeness scores for each individual's report on parents. The HLM model thus yielded two new types of scores, average and discrepancy scores for the adolescents' closeness to their AM and AF during Wave 2. These scores were adjusted for measurement error as well as the dependency between the two reports on parents within the individual. Furthermore, because the empirical Bayes residuals are formed through regressions in the multilevel modeling they can share strength in estimations and account for some missing data as well (Raudenbush & Bryk, 2002).

Main analyses—Regression analysis was used to predict attachment style in young adulthood from closeness to APs during adolescence. Separate analyses were run for ECR measures of anxious attachment style and avoidant attachment style. Analyses controlled for age, gender and APs discrepancy. The average closeness to parents score were used as main

predictors for the ECR outcomes. Results revealed that, controlling for age, closeness to APs (see Table 3) was a statistically significant inverse predictor of avoidant attachment style in young adulthood. Gender was also included in the initial analysis, but was removed as it was not statistically significant. Stronger closeness to APs was related to less avoidant attachment style. The regression for anxious attachment style was not statistically significant.

Research Question 2: Closeness to Adoptive Mother and Adoptive Father Over Time

HLM—Longitudinal data are hierarchically structured such that repeated measures are nested within an individual. The level one unit of analysis here referred to the closeness to AP (AM and AF in separate models) at Wave 2 (adolescence) and Wave 3 (young adulthood), and the level two unit of analysis was the adopted adolescent. HLM was used to fit a model that regressed the repeated measures on time, accounting simultaneously for mothers and fathers. The resulting coefficients in each model represented the average closeness, halfway between Wave 2 and Wave 3, to the parent and the change score over time for closeness to that parent. Empirical Bayes residuals were output from this model to run with the subsequent analyses. These residuals take into account the dependency in the longitudinal data and measurement error (Raudenbush & Bryk, 2002).

Main analyses—Regression analyses were conducted to determine the simultaneous effect of closeness to AM and AF (halfway between Wave 2 and 3) and change in closeness to an AM and AF from adolescence to young adulthood on attachment style in young adulthood. Separate analyses were run for ECR measures of anxious attachment style and avoidant attachment style. Initial analyses controlled for age and gender, but these variables were not statistically significant and thus removed in the final analyses. Both regression analyses were statistically significant (see Table 4).

Results for Anxiety—For participants' closeness to their AM, the closeness from adolescence to young adulthood and the change over time were predictive of anxious attachment style in young adulthood. Halfway between adolescence and young adulthood, closeness to AFs and change in closeness to AFs were similarly predictive of anxiety in young adulthood. For both AM and AF, higher levels of closeness were related to less anxious attachment style. Change in closeness was also statistically significant for closeness to AM and AF. Participants who grew closer to their APs over time tended to have decreased levels of anxious attachment style in close relationships. Increasing closeness to APs from adolescence to young adulthood decreases the likelihood of anxious attachment style in young adulthood. When closeness decreases over time, then experiencing less negative change leads to less anxious attachment style.

Results for Avoidance—Halfway between adolescence and young adulthood, closeness to AM across time continued to be a strong predictor of avoidant attachment. AF closeness was somewhat different for avoidance in young adulthood. While closeness was a significant predictor, change was not. Higher halfway closeness to their AM and AF between adolescence and young adulthood related inversely to avoidant attachment style in close relationships outside the family. The majority of participants showed increased

closeness to AM related to less avoidant attachment style. Only a small subset demonstrated that when there was decreased closeness, less change in closeness predicted less avoidant attachment.

Discussion

Participants in this study reported closeness to both their adoptive mothers and fathers as adolescents and young adults. Since there is inherent dependency in a person's reports about his or her mother and father, as well as dependency for longitudinal data within an individual, this dependency must be modeled statistically. Two attachment styles (anxiety and avoidance in close relationships outside the family) were assessed, and expected to be similarly influenced by the closeness to both adoptive parents. While we found an inverse relationship between closeness to adoptive parents during adolescence and avoidant attachment style in young adulthood, closeness to adoptive parents did not predict anxious attachment style. These findings suggest that security in parental closeness leads to an internal working model of relationships that provides the basis for developing new relationships outside the family as a young adult (less avoidance), most likely a result of having encouraging close relationships in one's family that lead to comfort in seeking out new relationships. Thus, avoidance appears to be related to the child's relationship to both adoptive mother and father, whereas anxiety in close relationships does not.

Avoidant attachment differs from anxious attachment in the type of impairment in close relationships. Those who experience avoidant attachment are less likely to engage in and develop intimate relationships due to fear of rejection. Those who experience anxious attachment are unsatisfied by close relationships as they often seek inappropriately high levels of responsiveness and reassurance from their partner and exhibit continual anxiety and uncertainty about their relationship (Brennan et al., 1998; Mikulincer, Shaver, Bar-on, & Ein-Dor, 2010). What differs between the two is the timing of distress. Whereas avoidant attachment inhibits individuals from initiating intimate relationships, anxious attachment inhibits comfort once in the relationship. This study suggests that participants' relationships with parents provided them with a secure base robust to the development of avoidance in close relationships, but perhaps not for their ability to feel comfort once in the relationships. Perhaps current circumstances have a greater impact on the flow of the peer relationships as they unfold, rather than on initiating it in the first place. Anxiety and avoidance in close relationships are conceptually related, while also distinct areas that might be differentially influenced by attachment development.

Parent-child relationships from adolescence to young adulthood are likely to be influenced by changes in development and social contexts. This was evaluated in the current study by determining how closeness (from adolescence to young adulthood) to adoptive mother and to adoptive father predicted attachment style in relationships outside the family during young adulthood. The discrepancy between adolescent and young adult closeness to adoptive parents was examined. Findings revealed that for the majority of participants, greater improvements in the AM-child and AF-child relationships over time seem to buffer against attachment anxiety in relationships outside the family in young adulthood. This finding was relatively weaker for the dimension of avoidance; AM-child positive change

scores predicted less avoidance while AF-child relationships did not. As expected, higher closeness to AM or AF over time was related to less attachment avoidance and anxiety.

Overall, adoptive parent-child closeness from adolescence to young adulthood was shown to predict attachment style in young adulthood. This finding is consistent with prior research (e.g., Conger et al., 2000), and extends this line of work into adoptive family parent-child relationships, highlighted during adolescence and young adulthood. In Research Question 1, only avoidant attachment style was predicted by the evaluation of the adolescent's closeness to both AM and AF. Research Question 2 showed both anxiety and avoidance in young adulthood were predicted by closeness over time to AM and to AF. The discrepancy between the young person's closeness to his or her AM and AF (from adolescence to young adulthood) significantly predicted anxiety, but AM-adolescent and AF-adolescent discrepancy did not predict avoidance in young adulthood. Generally, greater increases in closeness to APs led to more secure attachment styles. While it is anticipated that increased closeness to APs would be related to increased attachment security, it is interesting that closeness to AM or AF was not related to attachment-related avoidance.

Taken together, this demonstrates the complexity of avoidance and anxiety dimensions of attachment. It is important to consider how evaluating a conceptual average of parental closeness is different from individual mother-child or father-child closeness. Perhaps both parents provide a sort of "base" for how to interpret later relationships for the avoidance dimension, and anxiety is more related to the change in relationships with parents. In keeping with the family systems principle that *the whole is greater than the sum of its parts* (Hecker & Vetchler, 2003), it is necessary for researchers to continue to understand family relationships in the individual as well as in multiple relationships to better understand the entirety of a person's attachment. While attachment is generally viewed as relatively stable, it is clear that one's attachment grows from early relationships that can promote or inhibit this development, and this continues to be the case well beyond the childhood years.

Attachment is a relevant topic in an adoptive sample because all adoptions begin with loss of biological connections, and so adoptive parents must step into that gap and provide the bonds the children need to move into relationships outside the family. The results of this study are consistent with those found in nonadoptive samples. Links are demonstrated between early parent-child relationships and later relationships outside the family (Conger et al., 2000; Simpson et al., 2007). An examination of past and present research in adoption suggests a need for future research to focus on adjustment of adult adoptees (Palacios & Brodzinsky, 2010). While much of the research on adoption has focused on childhood, less is understood about adult adoptees. As indicated by the results of this study, adoptive parent – child relationships are an important consideration beyond just childhood, and are related to young adult adoptees' experiences of relationships outside the family. Future research should also address how closeness to parents might interact with other relevant variables, such as identity or autonomy with regard to parents.

Strengths and Limitations

This study had several strengths that will contribute to the existing research in adoption and attachment. A strength of this study was that it sought to account for this dependency

through hierarchical linear modeling calculations of average and discrepancy scores (for parents and over time), and evaluate their impact on attachment styles in young adulthood. This study included the adolescents' reports of closeness to both adoptive parents. The sample consisted of adolescents raised in two-parent households, and in order to capture the influence of the APs, a multi-level modeling approach was used. This approach accounted for the nonindependence of the adolescents' reports about their two APs, and improved understanding of combined parental influence as opposed to evaluating APs separately. Moreover, this study was able to benefit from the longitudinal design and evaluate the parent-child relationships from adolescence to young adulthood. Multilevel modeling also strengthened this study in examining data over time, accounting for the dependency within a person's scores longitudinally. There is limited research on closeness to parents during adolescence and young adulthood for adoptees; most adoption research focuses on younger children. This research was interested in the transmission of closeness to APs to relationships outside the family, based on Bowlby's theoretical premise that parents would provide an *internal working model* of attachment for their adolescents as they entered young adulthood.

Limitations to this study must also be considered in interpreting the findings. While this research provides information regarding attachment within a sample of adopted individuals, one must remember that the general population of adopted individuals is highly diverse, varying in type, circumstances, and age at placement. Through its sampling plan, this study controlled for many variables in order to better understand one particular type of adoption: infant, domestic, same-race adoptions. This particular sample excluded transracial adoptions, and the majority of the adoptive families identified as White, middle to upper-middle class. While this study may suggest a similar pattern for other adoptive parent-child relationships, future studies should extend this research to more diverse types of adoptive families, such as same-sex adoptive parents, those who have adopted children from the public child welfare system, and those who have adopted children from other countries.

Further research is needed to determine these findings can be replicated, but this study suggests that adoptive parents, similar to previous studies with biological parents, provide comfort for their children in establishing new relationships outside the family. The findings suggest that anxiety in close relationships is not influenced by closeness in combined parent-child relationships. It may be that once in the peer relationship, security in the combined parent-child relationship does not relate to an ability to maintain comfort in being in intimate relationships. Future studies should seek to better understand the family influence on peer relationship outcomes. However, when evaluated separately, closeness to one's mother or father from adolescence to young adulthood seems to predict less anxiety. Positive change in closeness to one's mother also predicted less avoidance. It is unclear what causes this change in closeness, and the differential effects of AM and AF. It could be a normative experience associated with the greater autonomy of young adulthood, or other relational changes associated with this stage. More research is needed, particularly with adoptive families, to address this further. Adoption should not be viewed as an isolated event in childhood, but rather as a process with lifelong implications.

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Table 1

Flowchart Indicating Participation across Time and Measures Used at Each Time Point

Time	Participating Adoptees	Quantitative Measures Used in this Study
Recruitment	190 adoptive families with 1 target child per family	
Wave 1 1986 – 1992	N=171 participating children N=19 nonparticipants (child too young for valid interview – 8, parent requested that child not be interviewed – 9, child refused – 1, equipment failure – 1)	
Wave 2 1996 – 2001	N=156 participating adolescents N=34 nonparticipants (parents divorced – 3, adjustment problems with the adopted adolescent – 9, did not want to discuss personal, family, or adoption-related issues at this time – 18, too busy to schedule – 4)	Inventory of Parent and Peer Attachment (attachment to AM, attachment to AF)
Wave 3 2005 - 2008	N=169 participating young adults N=21 nonparticipants (never responded despite repeated attempts – 15, could not be located – 3, refused – 2, deceased – 1)	Inventory of Parent and Peer Attachment (attachment to AM, attachment to AF) Experiences in Close Relationships (anxious attachment style; avoidant attachment style)

Table 2

Intercorrelations, Means, and Standard Deviations of Key Variables

Variables	1	2	3	4	5	6	7	Mean	SD
1. Closeness to AM (W2)	-							98.05	18.05
2. Closeness to AF (W2)	.70***	-						95.53	19.86
3. Closeness to AM (W3)	.37***	.30**	-					103.97	17.86
4. Closeness to AF (W3)	.31**	.36***	.66***	-				102.32	19.94
5. Attachment Style – Anxious (W3)	-.05	-.03	-.23**	-.31***	-			3.18	1.35
6. Attachment Style – Avoidant (W3)	-.27**	-.20*	-.38***	-.37***	-.47***	-		2.57	1.18
7. Age at W3	-.15	-.09	.14	.03	-.10	-.12	-	24.95	1.88

Note. AM = adoptive mother; AF = adoptive father;

 $p < .001$,

**
 $p < .01$,

*
 $p < .05$.

Table 3

Regression Estimates for the Effects of Child's Age, Average Closeness to Parents and Discrepancy in Closeness to Parents in Wave 2 on Avoidance in Wave 3

Variable	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Age	−0.07	0.05	−1.50	.14
Average Closeness to Parents	−1.00	0.38	−2.63	.02
Discrepancy in Closeness to Parents	0.69	2.21	0.31	.76

Table 4

Regression Estimates (and Standard Errors) for the Effects of Closeness to Parents (Halfway Between Wave 2 and Wave 3) and Change Over Time in Closeness to Parent on Avoidance and Anxiety as Measured in Wave 3

Variable	Avoidance		Anxiety	
	Mo	Fa	Mo	Fa
Halfway Closeness	-.17* (.03)	-.14* (.03)	-.13* (.04)	-.09* (.03)
Change in Closeness	-.18* (.09)	-.13 (.07)	-.31* (.11)	-.25* (.09)
R ²	.17	.17	.10	.10
df error	151	151	151	151

Note. Halfway is between Wave 2 and Wave 3, $p < .05$.