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## A Comparison of Maternal Attachment between American Adolescent and Adult Mothers of Preschoolers

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### Abstract

American adolescent mothers have been viewed as less effective parents than adult mothers. The socioeconomic disadvantages of adolescent mothers should be taken into account. The objectives of this study were to compare maternal attachment between adolescent and adult mothers of preschoolers and to examine changes of adolescents' maternal attachment over time. A secondary analysis of data from a larger study of maternal employment and low birth weight infant outcomes were used. Data were collected through home visits using structured questionnaires at two different time points. Forty-three pairs of adolescent and adult mothers who could be matched on family structure, maternal race, and child's gestational status were compared on maternal attachment. The 7-item Attachment subscale of the Parenting Stress Index was used to measure maternal attachment. Results revealed that the adolescent mothers were not less attached to their preschoolers than the adults. This held true when important confounding factors were taken into account using multiple regression.

### Keywords

adolescent mothers; child's temperament; maternal attachment; parenting

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Although birth rates for adolescent mothers have decreased over the last 10 years, the United States has the highest rate among Western industrialized countries with 8% among African-American, 7% among Caucasian, and 5% among Asian and the Pacific Islander mothers.<sup>1</sup> There is great concern about how adolescent mothers parent their offspring because of their disadvantaged socioeconomic status and psychological immaturity.<sup>2</sup> They tend to express less desirable attitudes toward childrearing, have less realistic expectations for their infant's development, and have less responsive behavior toward their infants than older mothers.<sup>3,4</sup>

Attachment is of great interest because of the negative effects that poor attachment has on child outcomes.<sup>5,6</sup> Research on adolescent mother-child attachment has focused on mother-infant dyads. Comparisons of mother-child attachment, however, between adolescent and adult mothers with preschool children have not been reported. Also, studies of long-term attachment among adolescent mothers are unknown. Therefore, the purposes of this study were to: 1) compare maternal attachment between American adolescent and adult mothers of preschoolers, and 2) examine changes of American adolescents' maternal attachment over time.

## Literature Review

### Mother-Child Attachment Definitions

Most definitions of attachment stem from Bowlby's work. Bowlby defined attachment between a mother and her child as reflecting the quality of the affectional tie, which enables a mother to care for her child, and to adjust to the daily-care needs of her child. Thus, her child can use her as a secure base for exploration, a haven of safety when danger threatens, and a basis for successful relationships in the future.<sup>7,8</sup> Attachment and overt attachment behaviors are not identical. Attachment incorporates the whole spectrum of emotions and feelings, including security, love, grief, fear, anxiety, and anger.<sup>7,8</sup> Attachment behaviors are "specific behaviors that promote proximity, contact, and interaction with other persons. These behaviors play a significant role in the development of attachment" (p.16).<sup>7</sup> Attachment behaviors can be used as indicators of the quality of attachment.<sup>7,8</sup> The quality of attachment between a mother and her child can be measured by having a mother rate her affectional emotions and feelings toward her child or by noting her behaviors and the response to such behaviors.<sup>9,10</sup>

### New Thoughts about Attachment

There have been new developments in attachment theory within the last three decades. Misapplications of attachment theory regarding maternal bonding as proposed by Klaus and Kennell have mostly subsided.<sup>11,12</sup> The claim that skin to skin contact during the first few days of life is critical for a mother to bond with her baby has not been supported by subsequent research. The claim that the first two years of life is a "sensitive period" necessary for selective attachments, and that even very good parenting provided after this period is too late, has also not been supported.<sup>12</sup> Scholars now acknowledge that attachment is not that simplistic. The effects of a time frame on the development of attachment are no longer seen as fixed and irrevocable.<sup>12</sup>

The Ainsworth Strange Situation has been used widely in attachment research.<sup>13,14</sup> In the Situation, a child is brought into an unfamiliar room and is allowed to play with toys while the mother is present. A female stranger walks in a room, talks to the mother, and then approaches the child. The mother leaves the child briefly with the stranger, which supposedly introduces stress to the child.<sup>8</sup> When the mother comes back after this brief separation, the stranger leaves the room. The researcher then evaluates the reunion between the mother and the child.<sup>8</sup> Formerly, the Situation classified the nature of the reunion according to three different attachment types: A for Insecure-Avoidant, B for Secure, or C for Insecure-Resistant attachment.<sup>8</sup> More recent research has added a new category of attachment by revealing that some children's behaviors do not fit into any of the three attachment groups (A, B, or C).<sup>13,14</sup> A combination of behaviors from groups A and C has resulted in the definition of a new category of "avoidant/ambivalent" or "disorganized" (A/C or D) attachment.<sup>13,14</sup> Evidence has shown that most infants from this category have experienced abuse and neglect or bipolar depression.<sup>15</sup> They may display incomplete, undirected, or disordered sequencing of movements, and some confusion or apprehension.

Finally, although the Strange Situation has been used internationally, questions have been raised about its generalizability and validity. For example, infants in Asian countries are seldom separated from their mothers on a regular basis.<sup>17</sup> Therefore, the Strange Situation which truly relies on brief separations and reunions may not give the same meaning for Asian infants as those of western countries.<sup>12</sup> Moreover, most children who require child care because their mothers go to work tend to cope well interacting with other adults and having several adults take care of them.<sup>12</sup> Therefore, the presentation of a female stranger may not be stressful for these children, resulting in questionable validity and generalizability of the Strange Situation's results.

### **Significance of Mother-Child Attachment**

Attachment between mother and child has received much attention in the last two decades because of its link with children's physical, emotional, and cognitive well-being.<sup>5,10,18,19</sup> Mothers who cannot be the source of joy, connection, and emotional soothing for their children normally do not feel that they have close relationships, or feel attached to their offspring.<sup>6,9</sup>

Much research suggests that suboptimal attachment experiences may cause a child to be psychologically vulnerable, in part by changing the neuroendocrine response of the brain to stress.<sup>6,20</sup> Types of attachment were correlated with motivation to master the environment at age one. Infants with avoidant or secure attachment were found to be more persistent and competent than infants with ambivalent attachment during free play.<sup>18</sup>

Children with insecure and disorganized attachment had more externalizing and internalizing problems than those with secure attachment.<sup>5,19,21</sup> For instance, children with disorganized attachment were hostile with their peers and tended to use violence to vent their anger.<sup>5</sup> They tend to be depressed, anxious, or vulnerable to other psychological disorders.<sup>19,21</sup> Disorganized attachment is the reflection of how parents communicate or raise their children.<sup>6</sup>

### **Adolescent Mothers vs. Adult Mothers Research**

Comparisons of mother-child attachment between adolescent and adult mothers have been done mostly in infancy and all but one showed that adolescent mothers had a lower quality of attachment than their adult counterparts.<sup>18,22-25</sup> Three studies used the Ainsworth Strange Situation to classify infants into different groups.<sup>18,22,25</sup> Two studies used feeding interactions to measure maternal attachment behaviors,<sup>23,26</sup> and one applied the Attachment subscale of the Parenting Stress Index (PSI).<sup>27</sup> Examples of previous studies are presented below.

Homeless adolescent mothers (15–18 years) and their infants were observed as part of a special program. The goal of the program was to enable homeless adolescents to become capable (at parenting, life, and job skills) adolescent mothers with healthy babies. The Nursing Child Assessment Feeding Scale (NCAFS) was used to assess attachment behaviors between the mothers and their infants during feeding interactions. In this study, feeding interactions were videotaped and analyzed. When compared to infants of normative adult

mothers from a national sample ( $n = 767$ ) of an NCAST group,<sup>28</sup> infants of adolescents showed less clarity of cues and responsivity to their mothers.

The Ainsworth Strange Situation, which is assumed to give information about infants' perceptions of mother-child attachment,<sup>29</sup> was used to classify children born to adolescent mothers in two studies.<sup>18,22</sup> Among 30 children (12.5 to 13.5 months) of first-time adolescent mothers (14–19 years), 53% were classified as secure, 30% as avoidant, and 17% as resistant.<sup>18</sup> When compared to 33 one-year-old children of adult mothers, no difference was found. However, only child's health and gestational status (all fullterm and healthy) were taken into account. Other characteristics (such as maternal education, family income, race, number of children at home, and family structure) were not controlled. For example, whereas all adult mothers had at least one child at home, were Caucasian, and were married, all adolescent mothers had only one child at home, about half were Caucasian and half African-American, and only 17% were married. Therefore, the infants from the two groups are not comparable.

Instead of classifying 56 children (12–19 months) from low-income families in Los Angeles into different attachment groups, Terberg and colleagues et al rated individual child and maternal attachment behaviors during a Strange Situation episode.<sup>25</sup> Of 56 children, 6 were of younger adolescent mothers (13–14 years), 20 were of older adolescent mothers (15–16 years), and 30 were of adult mothers (mean age = 26 years). Children of younger adolescent mothers had lower quality of attachment than children of adult mothers. They decreased their activity during exploration and play episodes and showed more distress (cried or screamed loudly) upon the arrival of a stranger than the children of adult mothers. Consistent with Ainsworth and colleagues,<sup>8</sup> infants with more desirable attachment had mothers with more favorable attachment behaviors. Adolescent mothers showed less direct eye contact with, smiling and physical affection toward, and verbal encouragement and praise for their children than adult mothers, matched for children's age, sex, socioeconomic status, and ethnic background.

In another study, Passino et al. could not find a difference of maternal attachment (as measured by the Attachment subscale of the Parenting Stress Index) between 23 adult mothers (22–33 years) and 114 adolescent mothers (14–19 years), controlling for socioeconomic status and race.<sup>30</sup> Adult mothers' primary source of support was their spouse, whereas adolescent mothers lived with and were dependent on their parents for financial and emotional support. Among adolescent mothers, 53% were African-American, 42% were Caucasian, and 2% were Hispanic. Race provided 12% of the unique variance for maternal attachment. Unfortunately, Passino et al. did not report on which race had more favorable attachment.

In summary, most studies showed a better quality of attachment among adult mothers than adolescent mothers. All studies were limited to the infancy period. Differences of attachment between adolescent and adult mothers beyond infancy are not known. Also, previous research did not examine the long-term effects of adolescent parenting. Thus, it is not known whether adolescent mothers adapt how they feel about and how they interact with their children, based on their changing life circumstances. An examination of maternal

attachment change and predictors of change is crucial to understanding long-term parenting, especially with preschool-age children. Any differences could be particularly important for the child during the preschool age, a time period which serves as a springboard for the ability to develop abstract thoughts, an internalization of moral standards, a realistic sense of ambition and independence, and an acceptance of schooling.<sup>31</sup> Because preschool age is the time for a child to develop conscience and initiative, a mother's understanding and support at this time as received by the child through a high quality of mother-child interaction can provide the "peaceful cultivation of initiative, [and] a truly free sense of enterprise" (p. 82)<sup>31</sup> which permits a child to grow up in a self-confident way.<sup>32</sup>

A problem of discrepancies among existing studies for the adolescent mothers' age cut point is apparent. Whereas most studies defined mothers aged 19 years or younger as adolescents, one study used the cut point of 18 years or younger.<sup>30</sup> Different age definitions for being an adolescent mother may have influenced the results obtained. Adolescents not yet 19 years of age tend not to have accomplished four important and specific tasks: continuing in high school; their emancipation or independence from parents; their identity formation in the sexual, cognitive, and moral domains of self-concept; and the development of a functional role in determining such matters as vocational and career goals, personal life-style, and family formation.<sup>32,33</sup> In this study, mothers who were 18 years old or younger at the time of giving birth were included in the adolescent group and mothers aged 19 years old or older were included in the adult group.

"Used-to-be" adolescent mothers were included in the adult group of almost all previous comparison studies. Adult mothers who gave birth to their child when they were adolescents might still interact with their children the same way they did when they were adolescents. Empirical evidence shows that adult mothers who gave birth to their child when they were an adolescent interacted with their child less positively than adult mothers who gave birth when they were an adult.<sup>34</sup> Therefore, the exclusion of adult mothers who used to be adolescent mothers enhanced the effects of maternal age in this study.

Finally, most studies excluded some important variables such as maternal education, maternal race, family structure, family income, maternal employment, the number of children at home, child temperament, and the child's gestational status. These eight variables have all been found to affect mother-child interactions. Some researchers included most of these variables in their study; however, their data analysis was too simplistic. This study controlled all eight variables in order to effectively isolate and maximize the effects of maternal age on mother-child interactions.

## Conceptual Framework

The theoretical framework for this study was based on Belsky's model.<sup>35</sup> (Figure 1) The model assumes that mother-child interaction is directly affected by the parent's characteristics, the child's characteristics, and contextual factors. Maternal attachment is included as mother-child interaction in the present study. Maternal age is applied as the mother's characteristic. Belsky proposes that adolescent mothers are less mature

psychologically than adult mothers; therefore, they may interact less with, and have less attachment toward their children than their adult counterparts.

The child's characteristics included in this study are child's gestational status and child temperament. Preterm infants' behaviors are likely to be inconsistent, puzzling, and disturbing to their mothers.<sup>36</sup> Children with difficult temperament are easily irritated by noises, cry more, demand more attention and care, and are harder to be soothed than those who have easy temperament.<sup>37,38</sup> Therefore, mothers of preterm or difficult children may interact negatively with their offspring, thereby causing them to feel less attached to their children than those who have full-term, easy temperament children.<sup>8,39,40</sup>

The contextual factors included in the present study are maternal education, maternal race, family structure, total family income, maternal employment, and number of children at home. Mothers who have had more years in school tend to interact with their children more positively than those who have had less. When the mother is exposed to higher education, it is possible for her to learn and understand more about her child's development<sup>41</sup> Thus, she can interact with her child more appropriately, strengthening her attachment to her child. Evidence also supports that adaptive responses to adolescent motherhood vary as a function of race and ethnicity.<sup>42,43</sup>

As to family structure, single mothers tend to face child care stress and role overload due to their lack of spousal support.<sup>44,45</sup> As a result, they are more likely to interact negatively with and feel less attached to their children than mothers from two-parent families.<sup>43,46</sup> Mothers with lower income may be preoccupied with their financial hardship, resulting in their being emotionally unavailable to feel attached to their children.<sup>47,48</sup>

Maternal employment may decrease the time that a mother spends developing attachment between herself and the child.<sup>7</sup> It also may increase stress for the mother because of possible hassles/conflicts found at work which, in turn, might lead to adverse mother-child interactions.<sup>7</sup> However, maternal employment might help release a mother from the daily burden of taking care of her child, enhance her self-esteem and personal autonomy, and thereby increase positive interactions with her child.<sup>50,51</sup> Maternal employment does not influence mother-child interactions when other socioeconomic factors were controlled.<sup>52</sup> Mothers with more children at home tend to spend less energy and attention on their children than those with fewer children.<sup>41,52,53</sup>

## Methods

### Sample Size and Procedure

A larger study was approved by the appropriate Human Subjects Review committees at a university and each of three hospitals in the U.S. The larger dataset consisted of 398 preterm children ages 3, 4, and 5 who were recruited through the admission records of three level III Neonatal Intensive Care Units (NICU) and followed for one year. Term children (n = 402) ages 3, 4, and 5 years old were recruited from newborn nursery records and followed in the same manner as the preterm children. Data were collected between January, 1993 and May, 1997 by trained data collectors. The initial interview took place in the home within a month

of the child's third, fourth, or fifth birthday. The purpose of the larger study was to identify the effects of maternal employment status and child care arrangements on developmental outcomes for LBW and a comparison group of full term preschool children at two time points.

The sample for this secondary analysis included 43 adolescent and 43 adult mothers with their preschool children. All of the adolescent mothers were younger than 19 years old at the time they gave birth to the studied preschooler. Adult mothers were selected from the same study if they were 19 years or older at the time of childbirth and could be matched on maternal education, number of children at home, employment status, maternal race, family structure, and child's gestational status. This study excluded adult mothers who were adolescents at the birth of an older child.

The three variables completely matched were family structure, maternal race, and child's gestational status. These three variables were considered the most important variables to be matched. Strongly consistent evidence exists that the interactions of mothers vary according to differences in family structure, maternal race, and child gestational status. For example, Caucasian mothers use corporal punishment less than African-American mothers because they emphasize obedience less.<sup>37</sup> Single mothers often use dominating and hostile parenting styles and provide a lower quality home environment for their children,<sup>46,54</sup> possibly because of their limited financial resources.<sup>55</sup> Mothers of preterm infants were less active and sensitive than those of fullterm infants.<sup>56,57</sup> Maternal negative perceptions of preterm infants are found to continue and might result in negative long-term mother-child interactions.<sup>58</sup>

### Power Analysis

Power provided by the 43 pairs of adolescent-adult mothers available for the paired t-tests and multiple regression analyses was estimated with the Power Analysis Program.<sup>59</sup> Based on the means and standard deviations of the Attachment subscale scores from Passino and colleagues's study,<sup>30</sup> a sample of 43 adolescent-adult mother pairs, a medium effect size of .56, and an alpha of .05 resulted in a power of .83. Therefore, the sample of 43 pairs of adolescent-adult mothers was sufficient to detect a medium difference between the two groups of mothers.

### Measures

**Dependent Variable**—Maternal attachment was defined as an affectional tie to the child perceived by the mother. It is an aspect of the quality of the mother's attachment toward her preschool-aged child as measured by the Attachment subscale of the Parenting Stress Index (PSI).<sup>60</sup>

The PSI is a 101-item self-report instrument. Mothers rate their perceptions of stress relevant to various aspects of their mothering role on a scale ranging from "strongly agree" (1) to "strongly disagree" (5). The 7-item Attachment subscale in the mother's domain was used as a measure of the degree to which mothers perceived their affectional tie to their



children as stressful. The Attachment subscale was scored by adding the weights of the seven items. Higher scores indicate a more stressful affectional tie, or maternal attachment.

Internal consistency of the Attachment scale score as derived from the responses of the normative sample of 2,633 parents was .75.<sup>60</sup> For construct validity, the Attachment subscale scores were correlated with scores of the Maternal Responsivity to Distress subscale (measured by NCATS) among first-time adolescent mothers (N = 18) of one-month-old infants.<sup>61</sup> In this study, internal consistency for adolescent mothers was .72 at Time1 (T1) and .80 at Time2 (T2). Internal consistency for adult mothers was .72 at T1 and .73 at T2.

All mothers were divided into two groups by age. Adolescent mothers were younger than 19 years of age at the birth of the study child and adult mothers were 19 years old or older at the birth of the study child. Adolescent mothers were coded "1". Adult mothers were coded "0".

### Independent Variables

*Total family income* was the yearly income in US dollars a mother's family obtained from all sources and measured according to three categories: <\$20,000, between \$20,000 and \$39,999, and >\$40,000.

*Maternal education* was the educational level of a mother collapsed into three categories: < high school, high school graduate, and some college.

*Number of children at home* was defined as the number of children who lived in the family at the time of the study, including the study child.

*Maternal race* was defined as the racial group to which the mother identified herself, being either Caucasian, African-American, Hispanic, Asian, or other. Caucasians were used as the reference group.

*Family structure* was classified as either single-parent or two-parent families.

*Maternal employment status* was classified as employed or nonemployed based on maternal identification of employment status.

*Child temperament* was defined as characteristics of a child (adaptation to change and transitions, a demand for being cared for, child's mood, and child's hyperactivity) as perceived by the child's mother. The sum of the Adaptability, Demandingness, Mood, Hyperactivity/Distractibility subscale scores in the child domain of the PSI was used as the measure of the child's temperament as perceived by the mothers. Higher scores indicate more difficult temperament of the child as perceived by the mothers. Internal consistency for the four subscales ranged from .70 to .82 for 2,633 parents.<sup>60</sup> For construct validity, mothers of 52 children with insulin dependent diabetes rated their children's temperament as more demanding and moodier than 'those of 43 healthy children.<sup>62</sup> In this study, internal consistency for the temperament scale in adolescent mothers was .85 for both T1 and T2. Internal consistency in adult mothers was .87 at T1 and .90 at T2.

*Child's gestational status* was classified as preterm or full term. A preterm child was born before 38 weeks gestation, weighing less than 2,500 grams, with appropriate weight for gestational age, and was hospitalized for at least one week in a Level III NICU. A full term child was born between 38 and 42 weeks gestation, discharged home with the mother after birth, and was without any preterm siblings who were born within 10 years of the study child's birth. This was to eliminate any potentially confounding effects on the mother's parenting due to having another preterm.

## Results

### Examinations of Independent Variables

In the total sample, the majority of mothers were Caucasian (51.1%), followed by African-American (41.9%), with only three Hispanics in each group. At the time they gave birth to their preschoolers, the age range for adolescent mothers was between 13 and 18 years old, and between 19 to 37 years old for adult mothers. The mean age for adolescent mothers was 16.6 years old (SD=1.42) and 25.6 years old (SD=5.29) for adult mothers. Almost all independent variables were not significantly different between both groups at both time points. At T1 (within a month of the child's third, fourth, or fifth birthday), adolescent and adult mothers were comparable on most independent variables. Total number of children at home and child temperament were not significantly different by using t-tests. No proportion differences were found in child's gestational status, maternal race, family structure, maternal employment, and maternal education, using<sup>2</sup>. However, adult mothers had higher family incomes than the adolescent mothers ( $\chi^2 = 15.6, p < .001$ ).

Similarly to the results of T1 the only variable at T2 (one year later) which revealed a significant difference was total family income ( $\chi^2 = 6.7, p < .05$ ). Fewer adolescent mothers lived in higher-income families. A little more than half of the adolescent mothers were single (51.4%) and nonemployed (56.8%), whereas a little less than half of the adult mothers were single (41.0%) and nonemployed (48.7%). The majority of adolescent and adult mothers were at least high school graduates (63.6% and 69.2%, respectively). In sum, total family income was the only independent variable that was significantly different between adolescent and adult mothers at both T1 and T2.

### Maternal Attachment Comparison

Adolescent mothers and adult mothers perceived their attachment to their preschoolers similarly at both T1 and T2, based on paired t-tests (Table 1). In other words, both groups of mothers generally felt that it did not take them too long to find out what their children needed and to develop close, warm feelings for their children. They also felt that their children wanted them rather than wanting other people. In summary, adolescent mothers did not perceive more stressful attachment toward their preschool children than that of their adult counterparts.

### Predictors of Maternal Attachment

Assumptions for multiple regression were examined first. The assumptions include multivariate normality, linearity, homoscedasticity, independence of each independent

variable from the residuals, and no multicollinearity for independent variables.<sup>63,64</sup> All assumptions were met for this data set.

All variables were entered simultaneously for each time point. Independent variables at T1 were used to predict maternal attachment at T1 and those at T2 were used to predict maternal attachment at T2. Maternal attachment was regressed on all of the independent variables at each time point.

The overall F-test was statistically significant at an alpha of .05 for both times (see Table 2). Maternal age group (adolescent vs. adult mothers) was not related to maternal attachment at either time. This is consistent with results of the t-tests. At T1, child temperament and maternal race were significant predictors of attachment. African-American and Hispanic mothers perceived more stressful attachment to their preschoolers than Caucasian mothers. Altogether, the whole model yielded 39% (adjusted R<sup>2</sup>) of the explained variance for maternal attachment at T1.

At T2, child temperament again played an important role in explaining maternal attachment. Mothers from single-parent families perceived more stressful attachment to their children than mothers from two-parent families. Altogether, the whole model yielded 27% (adjusted R<sup>2</sup>) of the explained variance for maternal attachment at T2.

### **Change of Maternal Attachment Scores**

Subtracting each subject's score on attachment at T2 from T1 created change scores. Paired t-tests revealed that adolescent mothers perceived their attachment to their preschoolers as more stressful at T2 (M = 13.7, SD = 4.22) than T1 (M = 11.9, SD. = 3.48)  $t = -2.02, p < .05$ . However, none of the independent variables were related to change scores for maternal attachment, when multiple regression was applied.

### **Discussion**

To examine if adolescent mothers feel less attached to their children than their adult counterparts, the present study controlled for possible confounding factors, some through matching and some through statistics. Adolescent and adult mothers in this study were completely matched on maternal race, family structure, and child's gestational status at T1. However, at T2, family structure was not completely matched, due to a divorce or separation for some mothers. Adolescent and adult mothers were comparable in terms of the number of children at home, their employment status, child's temperament, and education at both T1 and T2. However, more adult mothers identified themselves as coming from higher-income families than adolescent mothers at both time points.

The present study revealed that there were no effects of maternal age on maternal attachment when both paired t-tests and multiple regression were used. This suggests that the effect of maternal age on mother-child attachment may depend on child temperament and other sociodemographic factors. Specifically, being an adolescent mother does not have its own independent effect on maternal attachment. Rather, a combination of child temperament, family structure, and race affect how attached the mother is to her child.

This finding is congruent with Passino et al.'s study during infancy that controlled for other socioeconomic factors and found no differences of maternal attachment between adolescent and adult mothers.<sup>30</sup>

### **Child temperament**

Child temperament was found to be the most powerful predictor of maternal attachment at both times. Specifically, mothers of children with more difficult temperament perceived their attachment as more stressful at T1 and T2 than mothers of children with less difficult temperament. Even among the constellation of other variables, child temperament was a significant predictor for maternal attachment. This suggests that child temperament should not be overlooked and that the child has an important influence on the quality of the mother-child relationship.

The findings are congruent with past research in both single and married mothers.<sup>41,65</sup> For example, Stevenson Barratt et al. reported that single mothers who perceived their infants as more difficult showed less emotional and verbal responsiveness, less involvement, and fewer age-appropriate activities than mothers who perceived their infants as less difficult.<sup>63</sup> However, the direction of causation is not clear in Stevenson Battatt et al.'s study because of its correlational design.

The present study is contradictory to some research in infants that found an inverse relationship between child temperament and mother-child interaction.<sup>39,66</sup> These conflicting findings can be explained in noting that this past research examined the relationships during infancy, whereas the present study assessed such relationships during the preschool period. Mothers with infants will likely interact differently with their children than mothers with preschoolers because of differences in child development and different needs at different levels of development.<sup>32</sup> The temperament of preschoolers is affected by their rapidly increasing independence and mobility, and it is not unusual for them to shift between resistant and compliant behaviors. Their own emotional extremes require greater emotional involvement on the part of their mothers.<sup>37</sup> Moreover, mothers' efforts to respond positively to difficult children do not necessarily persist over time. A longitudinal study reported that at six and 13 months, mothers who provided more affection and physical stimulation for their children had children with less difficult temperament than those who provided less affection and physical stimulation.<sup>39,66</sup> However, when the children were 24 months old, their mothers interacted negatively with them in response to their long-lasting difficult temperament. Although conflicting results persist, the importance of child temperament should be stressed.

### **Family structure**

It is not surprising that the present study found a correlation between being a single mother and stressful attachment. Being single can reduce the amount of time that mothers spend with or think about their children due to the excessive responsibilities of their multiple roles (e.g., child care, work, housework, financial maintenance/or management, etc.). It can become harder for them to share closeness and warmth with their children or to understand

what their children want or need. As a result, their children can develop distant feelings towards them, and/or vice versa.

In past research, single mothers were found to use dominating and hostile parenting and have psychological symptoms that are negatively related to their involvement in and provision of a positive physical and temporal environment for their children.<sup>41,67</sup> Single mothers are more likely to experience stressful situations due to unemployment or underemployment, poverty, child care stress, role overload, and social isolation due to the lack of spousal support.<sup>56,68</sup> All of these factors may diminish their ability to be responsive and feel attached to their children as compared to mothers from two-parent families.

Socioeconomic disadvantages for single mothers were evident in the present study. Eighty-five percent of the single mothers were unemployed, while only 52% of the mothers from two-parent families were unemployed. The limited resources of single mothers and, especially, their lack of financial support from a spouse also were found in the present study. Whereas 90% of the single mothers earned less than \$20,000 per year, only 40% of the mothers from two-parent families did so.

### Maternal race

Results from the present study showed that African-American and Hispanic mothers perceived more stressful attachment to their preschoolers than Caucasian mothers. This may be due to environmental differences. African-American and Hispanic families are more likely to live in a disadvantaged environment than Caucasians.<sup>69</sup> They are also more likely to be unemployed or underemployed, less educated, and to live in unsafe neighborhoods and among violence.<sup>69</sup>

Although it is likely that the effect of maternal race on parenting would be confounded with other socioeconomic factors, this was not the case in the present study. No differences (maternal education, maternal employment status, total family income, or number of children at home) were found among African-American, Caucasian, and Hispanic mothers in the present study, using Chi-squares and t-tests. Therefore, it is speculated that factors other than these contributed to how a mother of a specific race parents her preschoolers. This is consistent with previous research where, after the effects of socioeconomic factors were taken into account, maternal race still had its influence on mother-child interaction.<sup>36</sup> The question still remains why African-American and Hispanic mothers in the present study perceived more stressful attachment with their preschoolers than socioeconomically comparable Caucasian mothers. This might be due to the instrumentation effects. The Attachment subscale of the PSI used to measure maternal attachment in the present study was normed on a sample composed mostly of Caucasian families. Therefore, the instrument is possibly culturally biased.

It is hypothesized that differing beliefs about parenting from different cultures contribute to differing approaches to childrearing. For example, African-American mothers place a greater emphasis on their children's sense of personal identity and feeling of belonging to the broader family and community network than Caucasian mothers. Expecting earlier autonomy for their children and having fears about spoiling them, they tend to be more

restrictive and punitive than Caucasian mothers.<sup>36,53,69</sup> Perhaps for this reason, African-American mothers in the present study were characterized as less attached to their children than Caucasian mothers.

Hispanic-American families tend to be nurturing, warm, and egalitarian toward their children.<sup>70</sup> They put the emphasis on a close mother-child relationship. This appears to be incongruent with the finding of the present study. Perhaps a reason why Hispanic mothers in our study perceived more stressful attachment than Caucasian mothers is due to their living arrangements, despite their comparable total family income. It is common for Hispanic children to share their bedroom with their parents.<sup>71</sup> If a child has difficult temperament or is hard to soothe when he is upset, the stress of the situation may make it harder for the mother to feel warm and close to her child. Another possible reason may be that the responsibility for childrearing among Hispanics is shared more frequently among parents and other members in the extended family.<sup>69</sup> Thus, a mother may spend less time with her preschooler while the child is taken care of by other family members. She may be characterized as less attached to her child than comparable Caucasian mothers. Moreover, the very small number of Hispanic mothers in this study might have yielded the association between stressful attachment and being Hispanic by chance. Inclusion of more Hispanic mothers may have changed the results.

### **Maternal Attachment Change Over Time**

Very little research has examined changes in adolescent mother-child interaction over time, and thus, little is known about whether adolescent mothers become more effective parents as they become older and possibly less centered on themselves. Interestingly, the present study revealed more stressful attachment of adolescent mothers to their preschoolers after a one-year interval.

Changes of the adolescent mothers' attachment scores were not associated with any independent variable in the present study. There are two possible explanations for this. First, the sample size of the adolescent mothers in this study might have been too small to detect such an association. Second, a mother's personality (e.g., personal adjustments and self-esteem), found to mediate the effects of contextual factors on mother-child interaction, was not included as a variable in the present study. Therefore, its exclusion might have reduced the effects of the contextual factors.

### **Implications for Nursing Practice**

The present study revealed that maternal attachment was not associated with maternal age, when controlling for the effects of other factors. Rather, child temperament, family structure, and maternal race predicted the quality of the attachment.

Although the causal directions between child temperament and maternal attachment are not definite, some recommendations can be made. Because children differ in their temperament, attention to their individuality is important. Although there is no universal prescription for "good parenting," because children differ in their responses to similar styles of parenting, perhaps emphasizing the importance of a child's individuality and specifying the need for

parental sensitivity and flexibility will be useful.<sup>70</sup> The recognition of the importance of a child's individuality may help the mother to better respond in alternative and effective ways to her own child's individuality, resulting in better psychological attachment to her child.<sup>8</sup> An example of alternative ways to respond to a difficult child was illustrated by van den Boom who found that some highly active infants did not like to be cuddled and resisted mother's physical contact.<sup>71</sup> Among these infants it was found that play or distraction with toys, when coupled with warmth and affection, could substitute for cuddling.

For children with difficult or extremely difficult temperament, extra training and support for the mother should be provided. For example, van den Boom's study designed an intervention that increased the appropriateness of maternal responsiveness for mothers of infants.<sup>70</sup> Home visits with interventions to introduce variety and complexity in the mothers' behaviors toward both positive and negative signals from preschoolers may be helpful. For instance, if a preschooler starts to cry or is fussy and the mother does not soothe her child, a nurse can demonstrate and teach the mother to appropriately respond to the child. As mentioned, some preschoolers like to be cuddled, but some do not. With intervention, various approaches (e.g., play and toys) for dealing with each unique situation can be suggested. Lastly, some books and programs focusing specifically on child temperament may be good resources for mothers.

Since the finding suggests that single motherhood is correlated with negative mother-child interaction, it is important that family structure as a family contextual factor is addressed in any intervention. Programs or counseling services that provide support for mothers who are single or experiencing separation or divorce are also critical.<sup>72</sup>

Regarding the finding concerning maternal race, nurses should be aware of possible stressful attachment among African-American or Hispanic mothers and their preschoolers so that they may offer appropriate interventions to the mother, her child, and the family. Ultimately, however, it is crucial to be aware and respectful of the mothers' cultural differences.

## Recommendation for Future Research

According to Belsky's model, maternal personality is an important predictor of mother-child interaction. Future research should include the effect of the mother's personality (e.g., self-esteem, coping styles, psychological distress, etc.) on mother-child attachment, especially in adolescent mothers. Since differences of maternal attachment were found among African-American, Caucasian, and Hispanic mothers of preschoolers, further study in this area would be useful.<sup>35</sup>

An ethnographic, qualitative research among mothers of preschoolers in each race would give us greater detail as to how mothers of different backgrounds interact with their children. A longitudinal study that assesses mother-child attachment of adolescent mothers at other stages of child development (e.g., from toddlerhood to preschool period, or from preschool period to school period) will add new knowledge to the field. A larger sample size of adolescent mothers would enhance the power of future research in detecting an association between change scores on maternal attachment and their predictors (e.g., child temperament and sociodemographic factors). Lastly, a comparative study of maternal attachment between

American and Thai adolescent mothers and between American and Thai adult mothers will be useful for nurses and other health professionals from both America and Thailand. Such a comparative study across the two countries would also add new knowledge to the area of maternal attachment.

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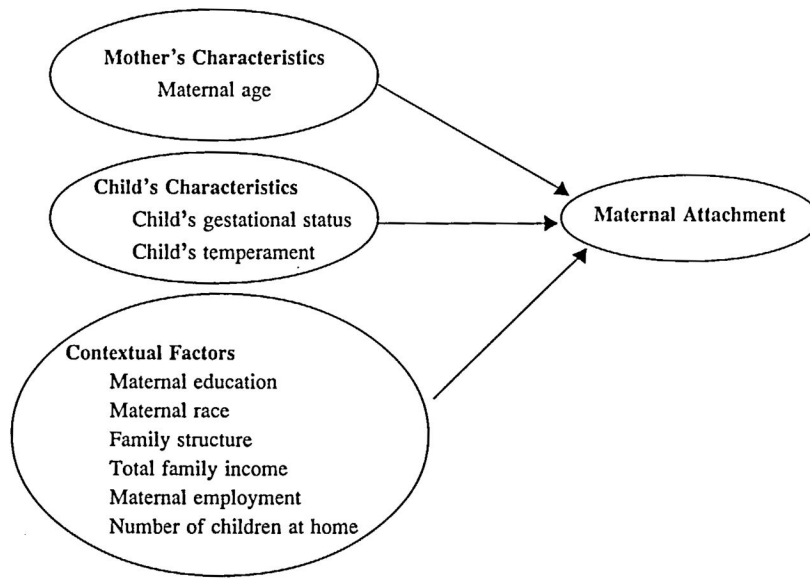
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**Figure 1.**  
Conceptual Framework of the Study based on Belsky's (1984)

**Table 1**

Comparisons of mean scores for maternal attachment of adolescent and adult mothers at T1 and T2

<b>Tim</b>	<b>Adolescent Mothers M (SD)</b>	<b>Adult Mothers M (SD)</b>	<b>n</b>	<b>t</b>
T1	12.6 (4.30)	13.2 (4.27)	43	.62
T2	13.9 (4.43)	12.7 (4.14)	28	-1.03

**Table 2**

Regression analysis for variables predicting maternal attachment in the full sample at T1 and T2

Variable	T1 (n = 86)		T2 (n = 70)	
	$\beta$	t	$\beta$	t
Maternal age group	-.04	-.41	-.06	-.46
Total # of children at home	-.14	-1.36	.15	1.08
Child temperament	.62	6.31 **	.55	4.44 **
Child's gestational status	-.05	-.56	-.04	-.36
Maternal race				
African-American	.26	2.55*	-.06	-.48
Hispanic	.23	2.46*	.04	.26
Family structure	-.08	-.72	-.33	-2.06*
Maternal employment status	.09	.90	.04	.32
Maternal education	-.17	-1.65	-.12	-.90
Total family income	.23	1.91	.12	.69
F	5.94 **	2.99*		
Adjusted R2	.39	.27		

\*  $p < .05$ \*\*  $p < .001$