# MATERNAL SEPARATION ANXIETY: A LONGITUDINAL ANALYSIS WITH WELL-EDUCATED, WORKING MOTHERS

by

**Amy Delaplane Gee**

BA, Duquesne University, 1988

MS, University of Pittsburgh, 2004

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This dissertation was presented

by

Amy Delaplane Gee

It was defended on

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and approved by

Christina J. Groark, PhD, School of Education

Lindsay Clare Matsumura, PhD, School of Education

Catherine G. Greeno, PhD, School of Social Work

Dissertation Advisor: Joan I. Vondra, PhD, School of Education

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Amy Delaplane Gee, M.S.

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This associational study examines Maternal Separation Anxiety in a sample of at least college educated, employed mothers with young children in non-maternal care selected from Phase I of the National Institutes of Child Health and Development study of early child care. The study provides descriptive data on maternal separation anxiety from 6 months to 24 months after birth of a child, its association with indices of mother-child relations, and whether these associations are merely a manifestation of general neuroticism/anxiety or depressive symptoms, or if there is something unique about maternal separation anxiety of relevance to mother-child relations. Self-report and observational data on 147 mothers indicated that maternal separation anxiety showed high individual stability, but on average decreased over time. Maternal personality characteristics and maternal education level showed modest associations with MSA. However, MSA was associated with neither observed maternal behavior at day care drop-offs and pick-ups, nor infant-mother attachment in the expected patterns. Results suggest that MSA may not be a fruitful approach to thinking about parenting in a White, well-educated sample of women.

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# 1.0    INTRODUCTION

Nearly 73% of infants and toddlers of working mothers in the United States are in some form of non-parental care, and approximately 39% are in full-time (35 hours or more per week) non-parental care. The average amount of childcare for all children is currently 25 hours per week (Macomber, Adams, & Tout, 2001). This constitutes almost 5 million children experiencing non-parental care on a weekly basis, which in turn means that for millions of families, balancing employment and childcare is a salient issue (Macomber, Adams & Tout, 2001). Mothers are traditionally responsible for the majority of childcare responsibilities. Therefore, for mothers who work, one consequence of this balancing act is that millions of mothers may be experiencing some degree of anxiety related to the process of trying to maintain equilibrium between home and work demands.

In fact, there are more American mothers in the paid workforce today than in the past two to three decades (U.S. Census Bureau, 2005). More mothers in the workforce necessitates the use of more non-maternal care, and there are currently more children in non-maternal care than in past decades (U.S. Department of Education, 2005). This increase in non-maternal care is, in part, responsible for a large body of literature related to the effects of non-maternal care on child outcomes. However, there has been very little research conducted on the emotional aspects for mothers of using non-maternal care (Hock & Lutz, 1998). This lack of attention is problematic because maternal psychological well-being is also linked to child outcomes (see Belsky, 1984).

Likewise, although there is a relatively large body of literature on parenting, little of it concerns parenting beliefs in general or beliefs about childcare in particular (Mistry, Chaudhuri & Diez, 2005). Instead, most of these studies investigate parent beliefs about their child's development. Garcia-Coll and colleagues, (1998) noted this trend:

> Clinical and developmental psychology have historically focused on child development, with little attention paid to the lifelong relational development of mothers and children; even less attention is paid to the psychological development of mothers. The absence of the mother's perspective and experience in clinical formulations, developmental theory, and psychological research is striking (p. 2).

In particular, there is very little research on mothers' views about separating from their infant on a regular basis (McBride, 1990).

Hock, McBride and Gnezda (1989) operationalized the construct of 'maternal separation anxiety' (MSA) as negative emotions related to separating from one's child, including feelings of worry, sadness, and guilt. Maternal separation anxiety is conceived as being associated specifically with the experience of separation from one's child and as being temporary distress rather than a constant emotional state (Hock, DeMeis, & McBride, 1987). In a sample of 400 middle-class, first-time mothers, Hock, McBride and Gnezda (1989) found that MSA can be measured reliably through maternal self-report, and using a sample of 87 White, middle-class mothers, Hock and Schirtzinger (1992) established that maternal reported separation anxiety is positively related to maternal depressive symptoms and a mother's reported reluctance to allow her child to individuate from her. Little empirical research beyond this is available on the construct.

The few childcare studies that include a mother's perspective, or her views related to childcare, deal primarily with good communication between non-maternal caregivers and parents (Owen, Ware & Barfoot, 2000) and associations between childcare and mother-child interaction quality (NICHD, ECCRN, 1999). Therefore, a mother's perspective is relatively neglected in work on the effects of childcare on the family. How do various maternal and family characteristics and child-related circumstances relate to maternal belief systems and concerns about non-maternal care? How is maternal separation anxiety related to other aspects of a mother's psychological functioning?

Hock, McBride, and Gnezda (1989) argued that the guilt a mother feels about separating from her child might result in her reporting a greater number of depressive symptoms. In fact, Hock and Schirtzinger (1992) found a strong, positive association between MSA and reported depressive symptoms. This suggests that the degree of maternal separation anxiety a mother experiences reflects and/or has implications for her mental health. A mother's psychological well-being has implications for maternal caregiving and, in turn, child outcomes (Belsky, 1984). For instance, a mother who experiences a high level of MSA may have difficulty allowing her child the independence, both physically and emotionally, he/she needs to achieve age-appropriate developmental milestones, such as autonomy and exploration. Maternal separation anxiety, in particular, may influence the interplay between maternal employment and child outcomes (Hock, DeMeis, & McBride, 1987). Maternal separation anxiety, for instance, has been associated with an infant's coping ability and adaptability at center-based care (Hock, 1984). However, the construct of MSA has been largely ignored by researchers (Hock & Lutz, 1998).

The work of Hock and her colleagues (1984, 1986, 1987, 1989, 1992, 1995, & 1998) serves as the foundation for this study. The proposed study is designed as a correlational,

exploratory study to examine MSA in a sample of 147 well-educated (a college degree or higher), employed mothers with young children in non-maternal care. All participants were involved in Phase One of the National Institutes of Child Health and Development study of early child care. The following questions serve as the basis for this study: (1) What does maternal separation anxiety look like in a sample of well-educated mothers? (2) How does maternal separation anxiety change over time? (3) Is MSA merely a manifestation of mothers' general anxiety and/or tendency toward depressive symptoms? (4) Is MSA more typical of mothers without an advanced degree? Finally, (5) Is MSA related to mother-child relations? The answers to these questions are relevant to both maternal functioning and child development because a mother's anxiety about separating from her child can likely be transmitted to the child, resulting in less optimal child outcomes (Hock, 1984).

These questions will be examined by generating descriptive statistics of MSA and calculating correlations between MSA and various maternal characteristics (education, separation and reunion behavior, and personality). A repeated measure ANOVA will be computed in order to examine MSA over time. A Fisher z-test will be performed comparing correlations of mothers of firstborns and mothers of laterborns in order to determine if experience as a parent has any relevance to the MSA a well-educated mother experiences. T-tests will be performed in order to examine whether MSA has any bearing on mother-infant attachment security. Finally, regression analyses will be run controlling for maternal personality and depressive symptoms in order to determine if MSA has meaning for maternal behavior and mother-child relations beyond general anxiety and depressive symptoms.

# 2.0 LITERATURE REVIEW

Separating from one's child, whether at center-based care, in neighbor care, or with a nanny, may cause some mothers to experience worry, sadness, and guilt related to the separation (Hock et al., 1989). Hock and her colleagues conceptualized MSA (in the 1980's) during a period of societal transition related to families and employment when a great number of young mothers were entering the workforce. In this review of the literature, studies bearing on the incidence and evolution of MSA are first considered. Attention is then given to the question of whether MSA is merely a manifestation of general maternal anxiety or tendency to experience depressive symptoms. Next, the focus is on whether maternal separation anxiety is related to level of maternal education. Following this, the association between MSA and mother-child interaction and attachment are explored. Finally, the potential role of variables not included in the present study receives attention. There are, as yet, no clear answers to these questions, and a greater understanding of the concept of maternal separation anxiety would expand the existing literature on maternal attitudes and beliefs about her use of childcare. It might also improve understanding of how employed mothers struggle to balance work and home lives, and how this balance relates to child adaptability to and adjustment in non-maternal care.

## 2.1    ETIOLOGY OF MATERNAL SEPARATION ANXIETY

Working mothers balance the roles of mother and employee in many different configurations, depending on characteristics of their job, their family make-up, financial need, and number of children (Hock, DeMeis, & McBride, 1987). The fact that there are no set strategies or formulas for accomplishing this task makes it more difficult (Hock, DeMeis, & McBride, 1987). The myriad differences in women themselves and how each one navigates the balance between home and employment makes it difficult to identify the root of maternal separation anxiety. Indeed, according to Hock, DeMeis, and McBride (1987), there is no single cause of maternal separation anxiety.

One source of maternal separation anxiety is theorized to be maternal personality (Hock, DeMeis, & McBride, 1987). A key component of a mother's personality (as it relates to maternal separation anxiety) is her level of general anxiety and depressive tendencies, or neuroticism. A mother's personality has implications for her behavior, which can have implications for her child's behavior (Hock, 1984). A mother who is anxious about separating from her child may behave in a manner that signals to her child that there is something to fear about the separation (Hock, 1984). If initial separations go badly, this may lead to increased anxiety on the part of both the mother and child during subsequent separations (Hock, 1984).

Hock, McBride, and Gnezda (1989) found that their *Maternal Separation Anxiety Scale* as a whole was only modestly associated with general anxiety (as assessed by the *Taylor Manifest Anxiety Scale*, $r = .34$). This constitutes only 12% shared variance between these two constructs. These researchers interpreted this result to indicate that maternal separation anxiety is something different from general anxiety.

Other variables that may contribute to MSA arise from the society and culture in which a mother functions. In other words, the socio-cultural context in which a mother lives can alter the maternal separation anxiety she experiences (Hock, 1984; Hock, DeMeis, & McBride, 1987). One's culture defines the various roles of its members. As it relates to motherhood, culture creates expectations of the maternal role (Hock, DeMeis, & McBride, 1987). In particular, depending on the culture, there may be strong views related to how much time a mother spends away from her child, or whether she should separate from her infant at all. In some cultures (e.g., Japanese) these cultural values include having an infant sleep in the parents' bed, in some cases for years, and using very little non-maternal care. In most cultural groups, there is a definite belief that mothers are the best caregivers for their infants. Mothers who have grown up with such cultural values, but who choose to use non-maternal care (e.g., in order to pursue a career) may experience maternal separation anxiety to a higher degree, due to internalized cultural expectations.

A third proposed source of maternal separation anxiety is the combination of maternal preference for employment and the degree of importance a mother gives to the maternal role (Hock, DeMeis, & McBride, 1987). DeMeis, Hock, and McBride (1986) found that mothers who wanted to work had lower MSA scores than mothers who preferred to stay at home when their child was 8 months and again at 13½ months. Hock and DeMeis (1990) found that mothers who preferred to be at home reported significantly more MSA than did mothers who preferred to work, and that the greatest differences existed between mothers who wanted to stay at home and did (highest on MSA) versus mothers who wanted to work and did (lowest on MSA).

Mothers who prefer to work may view motherhood as just one in a number of women's roles that provide fulfillment and may have crafted a view of motherhood that is not mutually

exclusive with employment, consequently experiencing MSA to a lesser degree (Hock, DeMeis, & McBride, 1987). Wille (1998) reported no connection between a mother's employment preference and MSA assessed when infants were 6 and 18 months of age in a sample of 66 White, lower to middle class, employed mothers. However, this investigator found significant results with a closely related construct – "Employment-Related Separation Concerns." The "Maternal Separation Anxiety" subscale of the *Maternal Separation Anxiety Scale* measures maternal feelings about separating from her child in general, whereas the "Employment-Related Separation Concerns" subscale measures maternal feelings about separating from her child from a specific point of view: for reasons of employment. The number of hours a mother worked per week (at child age 6 and 18 months), the amount of child-care a father performed (at child age 6 months), and the perception a mother had of the maternal role (at child age 6 and 18 months) predicted a mother's Employment-Related Separation Concerns. Mothers reported lower employment-related separation concerns when they worked more hours per week, fathers helped more with childcare, and mothers preferred to be employed.

At the other end of the spectrum of home-to-work preference are mothers who prefer to stay home with their children and do stay home. In several studies, mothers committed to an exclusive parenting role–who wanted to stay at home with their children and did so–reported higher levels of MSA than both conflicted mothers (those with a mismatch between employment preference and status) and employed mothers who wanted to work (DeMeis, Hock, & McBride, 1986; Hock & DeMeis, 1990; Booth, Clarke-Stewart, Vandell, McCartney and Owen, 2002). Women who view the role of mother as paramount in their lives and as their sole source of role fulfillment may hold more traditional beliefs about maternal roles and choose not to separate from their children often. When they do separate, it may trigger anxiety for these mothers. In

fact, mothers who have a match between wanting to stay at home with their children and do stay at home report higher MSA than mothers who are in conflict about working versus staying at home with their children.

In turn, mothers whose employment preference conflicts with their employment status tend to report higher levels of MSA than mothers who want to work and are working (Hock & Schirtzinger, 1989; Hock & DeMeis, 1990). In one investigation, mothers who preferred to work but stayed at home reported higher MSA than mothers who preferred to be employed and were employed (Hock & Schirtzinger, 1989). The former may feel that they should stay home with their child in order to promote the best outcomes for their child, ignoring or setting aside their own desire to be employed and find fulfillment in another role. The emphasis on child needs over the mother's may manifest itself as higher reported MSA for this group of mothers.

Likewise, mothers who preferred to stay at home but were employed (e.g., for financial reasons) also reported higher MSA than mothers who preferred to be employed and were employed (DeMeis, Hock & McBride, 1986). Mothers who prefer to stay at home tend to view the maternal role as paramount in their lives (DeMeis, Hock & McBride, 1986). When these women move into the workforce they may feel that their employment will result in poorer outcomes for their child. Consequently, the separation process may be a source of anxiety for them. The levels of MSA by employment preference and status are listed in Table 1.

**Table 1. Levels of Maternal Separation Anxiety by Employment Preference and Status**

| Situation | Prefer to stay at home | Prefer to be employed |
|---|---|---|
| Stay at home | Highest | Medium |
| Employed | Medium | Lowest |

While the match between employment preference and status does explain some variability in maternal separation anxiety, it does not explain all or even most of the variation between mothers in MSA. Otherwise, mothers who want to stay at home and do (indicating a match between employment preference and status) would report the same low levels of maternal separation anxiety that mothers who want to work and do report, but they do not. Stay-at-home mothers who want to be at home report the highest MSA.

In sum, mothers who presumably struggle psychologically to balance their roles at home and at work (i.e., their preference and circumstances do not match) tend to experience higher MSA than mothers who prefer employment and are employed, but less than mothers who prefer to stay at home with their children and do. These examples illustrate the importance of the mother's employment preference, in addition to her status, for predicting MSA. Indeed, the mother's employment preference has been hypothesized to influence the association between a mother's work status and outcomes for her child (Hock, DeMeis, & McBride, 1987). Maternal satisfaction with and positive approach to motherhood presumably result in better parenting which, in turn, results in better child outcomes, regardless of whether a mother is employed or

stays at home. Therefore, maternal employment preference alone is a necessary, but not sufficient, component for explaining maternal separation anxiety.

Put succinctly, maternal separation anxiety is a multifaceted construct affected by a variety of factors (Hock, DeMeis & McBride, 1987). Women experience MSA differently depending on their background and experience. Therefore, a first step in understanding MSA is to describe how it manifests itself in different maternal populations.

## 2.2    WHAT DOES MATERNAL SEPARATION ANXIETY LOOK LIKE?

Using a sample of women from a wide range of income levels ($M$ = $32,366, range = $13,500-$103,000), ages ($M$ = 26, range = 19-39), and education ($M$ = 14.38 years, range = 11 – 19 years), Hock, McBride, and Gnezda (1989) found that maternal separation anxiety is a significant issue for many mothers. To what extent that is true along the entire continuum of income and education, however, has yet to be determined. The present study in part addresses this question.

### 2.2.1   Maternal Separation Anxiety over time

Over time, as children get older and become more self-sufficient, they spend increasing amounts of time away from their mothers (e.g., non-maternal care, pre-school or an early education program), providing their mothers with more experience separating from them. The increased maturity of the child in combination with the greater experience separating from one's child may decrease a mother's feelings of MSA over time.

McBride and Belsky (1988) discerned a significant decrease in MSA between infant ages 3 and 9 months for employed mothers only ($M = 21.1$ versus 19.6, n = 33). Hock and Lutz (1998) found that from first pregnancy to child age 18 months, there was a significant main effect for time (decline in MSA) for first-time mothers (over 80% were working). Hsu (2003) also reported that MSA decreased significantly from infant age 1 month ($M = 22$) to 6 months ($M = 21$) for first-time mothers (over 50% were working). Using a repeated measures ANOVA, Hock, DeMeis and McBride (1987) found that over four measurement points (child ages birth, 7 weeks, 8 months, and 14 months), self-reported MSA decreased significantly in a sample of first time, working (56%) mothers. Means at each measurement point were 21.5 (birth), 20.5 (7 weeks), 19.9 (8 months), and 19.5 (14 months). Similarly, Hock and Schirtzinger (1992) found that over three measurement points (child ages 8 months, 3 years, and 6 years), self-reported MSA decreased significantly from 8 months ($M = 19.4$) to 3 years ($M = 18.8$), to 6 years ($M = 17.9$). Therefore, over time, there is a statistically significant decrease in MSA, although in practical terms, the actual decrease is very small (possible scale range is 7 to 35). There is relative consistency in the means each researcher reports: from birth to infant age 1 month ($M = 22$); from 2 to 6 months ($M = 21$); from 8 to 14 months ($M = 20$); at 3 years ($M = 19$); and at 6 years, ($M = 18$). The present study focuses on children from birth until age 2 years, therefore it is expected that mean MSA scores will range from about 21 (at 6 months) to 19 (at 2 years).

Hock and Schirtzinger (1992) found that individual rank order in maternal separation anxiety scores were highly stable across measurement points (at child age 8 months to 3 years, $r = .72$; 3 years to 6 years, $r = .74$) in a sample of 87 White mothers with a relatively wide range of income ($M = \$54,251$, range = $\$16,000 - \$153,000$), age ($M = 33$, range $26 - 40$), and an average education of 15.3 years. Hock, DeMeis and McBride (1987), likewise, found a great deal of

individual stability in reported maternal separation anxiety over time (average $r = .67$) in a sample of 130 first time, White mothers, with an average age of 26.4 years ($SD = 3.4$), and education of 15 years ($SD = 2.0$). These studies established maternal separation anxiety as a relatively common phenomenon among mothers that shows rank order stability over time, meaning that mothers who score higher than average on MSA at one particular time will tend to score higher on MSA at another. Other studies show that, on average, levels of maternal separation anxiety decrease over time.

The stability of individual differences in maternal separation anxiety may indicate that these differences are related to stable personality traits. A woman who is more anxious by nature may tend to express more MSA at any one point in time. The same may be true of women with a psychologically based tendency to experience symptoms of depression. Of particular interest to this study is whether maternal separation anxiety is merely a proxy for mothers' general anxiety or neuroticism and/or depressive symptoms, or if there is something unique about MSA for maternal behavior and mother-child relations.

## 2.3    LINKS TO PERSONALITY AND DEPRESSIVE SYMPTOMS

### 2.3.1    Maternal personality dimensions

In their conceptualization of maternal separation anxiety, Hock and Schirtzinger (1989) envisioned characteristics of mothers' personality having some bearing on their ability to navigate the process of maintaining a balance between separation from and proximity to their child, as he/she grows older. Women who score higher on measures of neuroticism (worrying,

nervousness, emotionality, and insecurity) are expected to score higher on measures of maternal separation anxiety because they tend to experience more psychological distress, may have more unrealistic ideas about parenting, and/or may possess poorer coping skills. In contrast, women who are more extraverted (more sociable, optimistic, and affectionate) and/or agreeable (trusting, modest, compliant, and straightforward) may have better interpersonal skills and experience more positive social interactions. Greater optimism and interpersonal trust from positive social interactions may, in turn, result in lower reported MSA when leaving a child in care. In other words, mothers who have a more positive outlook in general and who have faith that social interaction will be a positive experience may feel less guilt and anxiety about leaving their child in non-maternal care, and may even perceive how their child could benefit from the experience. Further, these characteristics of personality are independent from each other (Caspi, 1998); therefore, each variable should account for unique variance in an analysis of maternal personality.

It is important to point out the caveat that a more inhibited and/or negatively reactive infant or child is likely to elicit more maternal separation anxiety. But maternal perceptions of and reactions to child inhibition/negative reactivity are, themselves, a likely product of maternal personality (Sameroff, Seifer & Elias, 1982). So there is an inherent confound between MSA and maternal personality when considering how child temperament/behavior might affect a mother's level of MSA.

One study that supports the link between maternal personality and MSA is McBride and Belsky's (1988) examination of a sub-sample of the Pennsylvania Infant and Family Development Project. Using regression analysis, these researchers found that scores from two personality measures (*Personality Factor Questionnaire* and the Interpersonal Affect and Self-

Esteem subscales of the *Jackson Personality Inventory*) accounted for a significant portion (19%) of the variance in self-reported MSA. The *Personality Factor Questionnaire* evaluates the quality and magnitude of empathy a person has, with higher scores suggesting lower self-esteem and affect. Mothers reporting higher levels of MSA also described themselves as lower in self-esteem and having less empathy toward others. The association between low self-esteem and MSA indicates that mothers who doubt and criticize themselves report experiencing greater distress about leaving their child in the care of someone else.

Hock and Lutz (1998) found a significant, positive correlation between self-criticism and MSA ($r = .25$, *p*<.01) when children were 24 months of age. Using hierarchical regression analysis, Hock and Lutz (1998) found that maternal scores on the personality traits of self-criticism and dependency components of the *Depressive Experiences Questionnaire* accounted for a significant portion (15%) of the variance in MSA. A mother highly dependent on her infant or child for her sense of well-being may experience anxiety related to separations, and leaving her child in non-maternal care could provoke feelings of guilt, expressed as MSA. As an alternative, the authors suggested that self-critical (neurotic) mothers may feel unworthy of love, and the act of separating from their child may heighten these fears, manifested in higher MSA scores (Hock & Lutz, 1998). The results of this research establish a link between the personality characteristics of self-criticism and dependency and MSA. Other researchers have found associations between MSA and other personality characteristics, such as self-esteem.

In Hock and Schirtzinger's (1992) longitudinal study of mothers of six-year-olds, women reporting MSA in the highest 20% of the sample (61.8 or higher out of a possible 105, n = 17) described themselves as "less effective mothers" and "poorer wives" and as having self-esteem lower than mothers reporting MSA in the lowest 20% of the sample (43.8 or less, n = 17). These

findings recall those of McBride and Belsky (1988), who found an inverse association between MSA and self-esteem.

As noted earlier, Lutz and Hock (1995) found that mothers who remembered their own mothers as "rejecting" and as not encouraging independence reported higher MSA when their infants were 2 months of age. These mothers were also more often categorized as having an insecure working model of attachment (as assessed by the *Adult Attachment Interview*). In general, then, women who are more negative about themselves (lower self-esteem), more dependent, more negative about their own mothers, and less trusting about close relationships in general (adult attachment) seem to score higher on MSA. This certainly suggests the possibility that MSA may simply be a manifestation of an overall tendency to experience negative affect (neuroticism) or, more specifically, to experience symptoms of depression. The latter possibility is discussed in the next section.

### 2.3.2   Depressive symptoms

There is not much literature on the association between maternal separation anxiety and depressive symptoms, and the findings of two studies that directly address this association contradict each other. Using a sample of 87 White, mothers with an average income of $54,251 (range $16,000 - $153,000), average age 33 years (range 26 – 40), and average education of 15.3 years, Hock and Schirtzinger (1992) found that depressive symptoms (measured using the *Center for Epidemiological Studies Depression Scale*) were correlated with MSA at child age 6 years ($r = .36$, $p=.001$), but not at 8 months ($r = .01$), or 3 years ($r = .17$). The greater a mother's self-reported MSA, when her child was 6, the more depressive symptoms she reported. An analysis of the differences between the coefficients at the three measurement points showed a significant

difference between the first and third ($z = 2.46$, $p=.02$). Therefore, no significant association between higher MSA and depressive symptoms existed until the children in this sample were older. Higher than usual MSA scores when a child has entered elementary school may signal adjustment issues on the part of the mother.

Using a sample of 53 White, "middle-class" mothers with an average age of 27 years (*SD* = 5.51), and average education of 15 years (*SD* = 2.24), Hsu (2003) found that maternal depressive symptoms (measured with the *Beck Depression Inventory*) were not significantly associated with MSA at 1 month ($r = .16$) or at 6 months ($r = .29$), although the 6-month association could be significant in a larger sample. This study supports Hock and Schirtzinger's (1992) finding of no significant association between MSA and maternal depressive symptoms during infancy. Therefore, it appears that initially, MSA and depressive symptoms are not significantly associated. But when mothers report more MSA than their peers by the time their child has started school, they are more likely to report depressive symptoms.

Based on the two available studies (Hock & Schirtzinger, 1992; Hsu, 2003) it appears that there may not be a significant association between MSA and depressive symptoms for the current sample of mothers of children ages 6 to 24 months. However, the previous lack of significant findings may be related to their relatively small samples (N = 87 and N = 53, respectively). It may be the case that these samples were not large enough to detect significant, moderate correlations, whereas the proposed study has a sufficient sample (n = 147). Therefore, based on the conflicting research results, it remains an empirical question how (or even whether) there will be an association between depressive symptoms and MSA.

## 2.4    MATERNAL SEPARATION ANXIETY AMONG WELL-EDUCATED MOTHERS

Maternal education is a broad indicator of many kinds of differences among mothers. On the one hand, it is an indicator of maternal social class and the myriad of differences associated with it. Whether the construct of interest is maternal intelligence and verbal fluency, encouragement of child cognitive growth and competence, knowledge of early developmental milestones, attitudes about child rearing, use of disciplinary strategies, or emphasis on encouraging versus punishing child behavior, maternal education and social class translate into predictable patterns of differences. On the other hand, the best-educated women, those with degrees beyond college, are more likely to embark on self-fulfilling careers that are not particularly tolerant of family needs. College-educated women who do not go on to advanced degrees, in contrast, may feel the most flexibility about moving in and out of employment and adjusting their hours of employment to suit the perceived needs of their family and children.

In their study of maternal separation anxiety among well-educated mothers, DeMeis, Hock and Gnezda (1986) defined "well-educated" mothers as those with 14 or more years of education. Fourteen was chosen because at the time many "traditional female professions" (e.g., nursing) required only two years of post high school education. With the societal changes that have occurred over the past 20 years, education requirements for all employees, not just women, have increased. Today, many workers are required to have at least a four-year college degree for an entry-level job. In addition, with the increased entry of women into previously male-dominated fields (e.g., engineering, medicine), more women are achieving higher levels of education than previous generations of women. Therefore, the idea of "well-educated" currently means more education than it did previously.

There are education and income differences in choices mothers make regarding childcare arrangements. According to the 2002 National Survey of America's Families (NSAF), children with higher income parents are more likely to be in (generally costly) center-based care, whereas children with lower income parents (less than 200 percent of the poverty level) are more likely to be cared for by (generally inexpensive) non-parental family members (Capizzano & Adams, 2003). Furthermore, children from higher income homes tend to spend more time in non-maternal care than their lower income counterparts (Capizzano & Main, 2005). Higher income mothers are, on average, more highly educated mothers (Macomber, Adams & Tout, 2001). Therefore, more highly educated mothers are more likely to utilize non-family care and require this care for more hours per week. If there is a match between a highly educated, employed mother's employment preference and status, it can be hypothesized that she may experience low levels of MSA; conversely, a mismatch is expected to produce higher levels of self-reported MSA.

However, existing literature is contradictory in its findings related to MSA and maternal education. Some studies have not found a reliable link between maternal education and MSA (Gee & Vondra, under review; Hock & Schirtzinger, 1992), but others have established an association (Hsu, 2003; McBride & Belsky, 1988; NICHD ECCRN, 1999). These conflicting results could be a product of sample differences. Conceptually, there are at least two rationales for expecting links between maternal education and MSA.

One rationale concerns the environments in which well-educated, working mothers function. The more educated a mother, the more likely that she was socialized to value education, career goals, and/or personal and economic independence. Secondly, highly educated mothers who work may also be socialized by their co-workers or others in their social networks

to focus on positive aspects of center-based care and social benefits children receive from the experience. This socialization should reduce a working mother's feelings of guilt and distress related to putting her child in center-based care, thereby reducing her separation anxiety.

Despite these rationales, both Gee and Vondra (under review), and Hock and Schirtzinger (1992) found no significant association between MSA and maternal education. The sample in the Gee and Vondra (under review) study, however, was limited in size (N = 46), socio-economic diversity (combined family income ranged from $50,000 to over $150,000, with a mean of $100,000), maternal age ($M = 33.51$, $SD = 3.64$), and ethnicity (White only). The average age of the children in this investigation was 2½ years at the time MSA was measured. The Hock and Schirtzinger (1992) sample was slightly larger (N = 87), consisting of working- and middle-class mothers (mean combined family income = $54,251), though, again relatively older ($M = 33$ years of age), White women with an average of 15 years of education. The average age of the children in their investigation was 6 years when MSA was measured.

Using a younger sample of 53 White, middle-class mothers ($M$ age = 27 and $M$ education = 15 years), however, Hsu (2003) found that mothers with more education reported lower levels of maternal separation anxiety when their infants were only 1 month ($r = -0.28$, $p<.05$) and 6 months old ($r = -0.30$, $p<.10$). McBride and Belsky (1988) also assessed MSA in a somewhat younger sample of 63 predominantly White, working- to middle-class women ($M$ age = 27, and average education = 16 years) when infants were only 3 and 9 months of age. Using a regression model, the investigators found that including education (combined with maternal age and family income) in a block of variables explained a significant amount (17%) of concurrent variance in maternal self-reported separation anxiety ($F(3,62) = 4.36$, $p<.01$). Further, the only variable that

made a significant, unique contribution to the prediction of MSA was maternal education ($\beta = -1.34$, $p<.01$). The more years of education a mother reported, the lower her self-reported MSA.

A theme that emerges from these studies is that child age may be one critical variable related to maternal separation anxiety and its connection to maternal education. The studies that did not find an association between MSA and maternal education had mean child ages of 2½ years (Gee & Vondra, under review) and 6 years (Hock & Schirtzinger, 1992). Conversely, the studies that did find an association between MSA and maternal education had mean child ages of 3.5 months (Hsu, 2003), 3 and 9 months (McBride & Belsky, 1988), and 6, 15, 24 and 36 months (NICHD, ECCRN, 1997). Therefore, it is more likely that an association with maternal education will be found if the sample of mothers have children who are infants, as opposed to preschool and school-aged children. The sample in the present investigation is a sub-sample of Wave 1 of the NICHD Study of Early Child Care, which spans target child ages from birth to 36 months. So, it remains an empirical question how (or even whether) maternal education will relate to maternal separation anxiety.

Maternal separation anxiety thus appears to be a more salient issue to mothers who prefer to be at home with their child, have a first born in infancy, and have no more than a college education. But is it an issue with significant consequences for the mother-child relationship? Unless the construct has bearing on mother-child interaction and/or mother-child relationship quality, does it hold much meaning in the field of developmental psychology? In the next section, the association between MSA and a potentially key component of mother-child interaction, maternal behavior during actual separations and reunions at the child care site, and between MSA and patterns of infant-mother attachment, will be discussed.

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## 2.5    LINKS BETWEEN MATERNAL SEPARATION ANXIETY AND MOTHER-CHILD RELATIONS

When a mother leaves her child in non-maternal care, the mother-child dyad separates. However, much of the literature on separation anxiety has focused exclusively on the child, ignoring the mother's perspective on the separation and her contribution to the process (Hock, 1984). Despite the importance of the mother's contribution to the separation, there is very little literature about the feelings a mother has at separation, and how these feelings may affect her behavior. Yet maternal separation and reunion behavior may ultimately shape the quality of attachment her infant makes with her. In this study, mother-child relations are operationalized as maternal separation and reunion behavior and attachment security.

### 2.5.1    Maternal separation and reunion behavior

Despite the wealth of parenting studies, little relates to maternal separation anxiety. It is unclear whether and how MSA is associated with various parenting behaviors. MSA may manifest itself at the childcare setting as lingering for an extended period of time at drop-off, discussing and questioning the caregivers, controlling interactions with the child, and/or not focusing on what the child has to say about his/her experiences during the day. In other words, drop-off at childcare (when the mother and child separate) and pick-up from childcare (when the mother and child reunite after an extended separation) are times when MSA may be particularly salient. Documenting that a mother's self-reported MSA is associated with her behavior during childcare separations and reunions assists in establishing the validity of the MSA measure.

If a mother's MSA interferes with her ability to navigate distance and closeness with her child, her behavior may prevent the child from reaching developmentally appropriate independence and exploration. For example, mothers who experience a great deal of separation anxiety may maintain a degree of physical and/or psychological closeness, protection, and/or control that interferes with their child's attempts at independence. Conversely, mothers who feel very little MSA may not be receptive to actual child neediness and dependency. Therefore, self-reported MSA at either end of the range in a given population may reflect a mother-child relationship that is out of psychological and/or developmental balance.

According to Hsu (2003), a mother experiencing higher levels of separation anxiety (negative affect) may generally be more aware of and responsive to her infant's negative versus positive affect. This researcher found maternal reported MSA and response to negative infant affect correlated at 1 month ($r = .34$, $p<.05$), and at 6 months ($r = .40$, $p<.05$) after birth when measured in the home during free play. Hsu (2003) defined maternal responsiveness as a mother modifying her behavior to attend to her infant's signal (verbal and/or physical) within three seconds of the child's signal during free play in the home. A mother's own negative affect and increased feelings of "guilt, sadness and/or worry" related to separation from her infant may lead mothers high in MSA to be more responsive to their infant's negative affect (fussiness, crying) in general. Alternatively, a mother higher in generalized anxiety or depressive symptoms may both endorse more questionnaire items indicative of MSA and respond differentially to infant negative affect.

Hsu (2003) also noted a non-significant trend for higher levels of self-reported MSA to be associated with lower response rates to infant positive social signals, again at 1 month ($r = -.25$, $p<.10$) and at 6 months ($r = -.31$, $p<.10$). The difference in associations of MSA with

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maternal responsiveness to negative versus positive behaviors was significant at both 1 month and at 6 months.

In contrast to the selective responding to infant affect documented by Hsu (2003), Hock, McBride and Gnezda (1989) found differences in maternal responsivity to be contextually based in a sample of 53 White, middle-class, mothers. Hock and her colleagues created a lab-based observational rating measure of MSA concerning maternal behavior at separation and reunion. This measure consists of a series of Likert-type ratings, where 1 indicates lower levels of observed MSA and 5 indicates higher levels of observed MSA. Examples of behavior that indicate higher observed MSA on this scale include: at separation, a mother lingering long or asking questions related to the caregiver's ability to care for her child; at reunion, a mother verbally expressing anxiety, or comforting a child who is not in distress. The average correlation between self-reported MSA and observed departure behavior (in the laboratory) was not, unfortunately, significant ($r = .12$). The average correlation between self-reported MSA and reunion behavior, in contrast, was modest to moderate in size ($r = .40$, $p<.05$). Mothers anxious about separation may resist the urge to respond to and/or hover over their infants during departure at center-based care, in order to present a calm front and/or reassure their child during the separation process. At reunion, mothers high in self-reported MSA may, however, attempt to "compensate" for the separation by demonstrating especially solicitous behavior toward their child.

Hock and her colleagues reasoned that a mother's behavior during reunion is a better indicator of her true anxiety related to the separation than her (perhaps more self-conscious) behavior at departure. When a mother picks up her child from day care, according to their logic, she may display more of her feelings of guilt and distress related to the earlier separation from

her infant because she is no longer trying to prepare her infant for a separation. At reunion, highly anxious mothers may display more anxious, hovering, and/or overly solicitous behavior because they no longer feel the need to present a calm facade. Alternatively, the anxiety and/or guilt related to leaving their child may intensify as work is set aside and reunion nears. At reunions, mothers may display more anxious behavior (trying to sooth a child who is not in distress, questioning the child about whether the child missed her while she was gone) with their child because they are not in the physical and psychological process of separating from them and no longer feel a need to monitor their own behavior as carefully. If this is the case, the association between self-reported maternal separation anxiety and reunion behavior will be stronger than the association between MSA and departure behavior.

These two studies (Hsu, 2003; Hock et al., 1989) established a link between MSA and maternal behavior. Importantly, Hock (1984) theoretically extended this link from MSA to maternal behavior, to child adjustment and adaptability in non-maternal care. She hypothesized that the way early separations are handled by the dyad influences how subsequent separations are experienced. If early separations go smoothly, and the infant associates separations with neutral or even positive emotions, subsequent separations are also expected to be relatively easy. If, however, early separations do not go well, and fear and/or apprehension are connected with the process of separating, over time the heightened anxiety of the infant will influence maternal behavior, and the mother's behavior will, in turn, increase the anxiety both mother and child experience at separations. Thus, according to Hock (1984), MSA has implications not only for a mother's behavior in separation/reunion contexts, but also for her child's adjustment in the relevant care context. This suggests that the relationship between infant and mother may be involved as well. In the next section this possibility is explored further.

### 2.5.2 Mother-infant attachment security

Attachment security refers to the emotional bond an infant and his/her primary caregiver, usually the mother, have (Bowlby, 1969). The quality of the attachment an infant develops with his/her primary caregiver is believed to influence the degree of independence an infant demonstrates, and how he/she deals with new situations and people. This first bond is also believed to serve as a blueprint for future relationships, and has theoretical implications for child (and adult) development. For instance, children with a secure attachment are more likely to be rated as optimistic and empathic towards others, showing greater competence with peers, and better at developing friendships (Sroufe, 1988).

Attachment theory includes a place for a moderate amount of maternal separation anxiety. Benedek (1970) considered moderate amounts of maternal separation anxiety as a "normal" aspect of motherhood. Early on, this involves mothers being in close proximity to their infant and continuously monitoring their infant's behavior. As the infant grows older, a mother's role involves recognizing the child's developmentally appropriate need for independence. McBride (1990) stated that mothers of infants tend to view them as emotionally vulnerable, but as the infant gets older mothers come to realize that their infant can handle such experiences as regular separations. Therefore, a mother's MSA should decline over time. Hock and Schirtzinger (1992) found that mean self-reported MSA scores did diminish between birth and the child age of 6 years, but that individual differences remained relatively stable over repeated measures. High self-reported level of MSA by the time one's child reaches the age of 6 years may reflect some non-adaptive aspect of the mother's personality.

In point of fact, higher than average maternal-reported MSA has been linked with a mother's insecure adult working model of attachment. Lutz and Hock (1995) reported that those

mothers higher in MSA who tended to remember their own mothers as "rejecting" and not encouraging independence were also more often categorized as having an insecure working model of adult attachment (as assessed by the *Adult Attachment Interview*) at infant age two months. Lutz and Hock (1995) demonstrated that higher MSA scores are directly associated with insecure adult attachment models, but did not clarify which (or both) sub-classifications of insecure attachment, because the researchers dichotomized the attachment variable into secure and insecure classifications (overall, 8% dismissing, 13% preoccupied) in order to increase the size of the groups used in their multivariate analysis (Lutz & Hock, 1995).

Findings related to particular categories of insecure attachment are provided by McBride and Belsky (1988). These researchers found that the mean level of MSA reported by mothers of securely attached infants was in the mid-range for their sample, but that higher reported MSA and lower reported MSA were linked to different forms of insecure attachment, avoidant and resistant, respectively. However, McBride and Belsky (1988) did not clarify what constitutes "higher" in their middle- and working-class, White sample. MSA scores ranged from 21 to 105, a broader range than the scores in Hock and Schirtzinger's (1992) research with a sample of exclusively working-class, White mothers (28 to 84, with scaling adjusted for comparison purposes). According to the results of their research, "mothers of secure infants expressed a moderate degree of anxiety – less than mothers of avoidant (Type "A" attachment) infants but more than mothers of resistant (Type "C" attachment) ones" (McBride & Belsky, 1988, p. 409). This result was contrary to their research hypothesis; mothers of insecure-avoidant infants are usually seen as not admitting to negative feelings (George & Solomon, 1999) and often, in middle-class samples, projecting a competent demeanor (Cassidy & Kobak, 1988). There are, however, studies that link maternal separation anxiety with intrusive parenting (Berger & Aber,

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1986; McBride, 1983) and, in separate studies, link this type of parenting with insecure-avoidant attachment (Belsky, Rovine & Taylor, 1984; Isabella, Belsky & von Eye, 1987; Lewis & Feiring, 1987).

McBride and Belsky (1988) hypothesized that the MSA measure may avoid the defense mechanisms of insecure-avoidant mothers to extract some of their true feelings about separating from their child. The wording of the questions and the reverse coding of some items (e.g., item # 5: "If a child is independent and outgoing, he/she will make friends easily without his/her mother's help," Hock, McBride & Gnezda, 1989) may have provided the means to bypass the defensive reactions of some mothers. This focus on the child could glean more accurate responses from mothers who tend to be defensive about their own competence. Therefore, either the MSA measure is designed in such a way as to avoid triggering the defense mechanisms of mothers whose infant has an insecure-avoidant attachment with her, or McBride and Belsky's (1988) findings are specific to their sample of 63 White, middle- and low-income, mothers living in rural Pennsylvania, who had, on average, almost a college education ($M$ = 15.6 years, $SD$ = 2.0).

Stifter, Coulehan, and Fish (1993) found mixed results regarding the association between MSA and the quality of infant attachment, some of which support McBride and Belsky's (1988) findings, and others which conflict. In a sample of 73 employed and non-employed, middle-class, mostly White mothers (mean age 29 years, average education 15 years), they assessed MSA shortly before infants reached 5 months of age, and attachment when infants reached 18 months of age (using the *Strange Situation* assessment). Stifter, Coulehan and Fish (1993) found no association between MSA at 5 months and infant attachment at 18 months when analyzed using the A (avoidant), B (secure), and C (resistant) classification system or by dichotomizing

attachment into secure and insecure categories. However, the investigators did find that (only) employed mothers who self-reported high MSA had a disproportionate number of infants with insecure-avoidant attachments. According to Stifter, Coulehan, and Fish (1983), this result could indicate that employed mothers who report high levels of maternal separation anxiety may be more likely to be "out of synch" with their infants and these mothers also may be very controlling when they spend time with their infants.

Using multiple regression analysis in a sample of 66 White, lower to middle class, employed mothers and fathers (average age of 29, mean education of 14 years), however, Wille (1998) found neither linear nor curvilinear relations between MSA and infant attachment (assessed using the *Attachment Behavior Q-set*) when infants were 6 and 18 months of age.

It is important to note that the findings for infant-mother attachment, at best, may relate only to types of attachment insecurity, and not the overall frequency of security or insecurity. This is different from findings for mothers' own working model of attachment, using the *Adult Attachment Interview*, wherein maternal insecurity (of any form) covaries with higher MSA. So, it remains an empirical question how (or even whether) infant-mother attachment will relate to maternal separation anxiety.

The inconsistencies apparent in the results of these four studies have a variety of explanations. Sampling bias could be one of them. The samples in all of these studies are relatively small, varying from 49 to 73 cases. In most cases, these samples were then divided according to attachment classification for comparison purposes, resulting in very small sub-samples. Small samples size is associated with restricted power in statistical analysis, which can lead to a Type II error, or failing to reject a false null hypothesis (Pallant, 2006). This would lead one to believe no difference exists, when, in fact, there is one (though typically modest in size).

Despite the inconsistencies in results, higher maternal self-reported MSA has been linked in two of four studies with an insecure infant-mother relationship.

In sum, the research relating maternal behavior or infant-mother attachment insecurity with self-reported maternal separation anxiety is scanty, inconsistent, and based on generally small sample sizes. The samples themselves are often unrepresentative, even of White, middle-class, employed mothers. It seems likely that such broad variables as maternal employment, social class, and race might all have some cultural influence on a mother's tendency to experience (and report) separation anxiety with her infant. In the present investigation, maternal employment and race, and to some extent education, are held constant through selective sampling from a large, national sample of mothers. Both convergent and discriminant validity need to be examined for the MSA construct. Ultimately, the value of understanding MSA is in its importance for mother-child interactions and relationships (convergent validity). But if there is an association between MSA and either neuroticism or depressive symptoms, one must then ask whether MSA can explain variance in maternal behavior over and above these broader indices of a mother's (characterological) tendency to experience negative affect (i.e., discriminant validity).

The discussion thus far has focused on constructs associated with MSA and investigated in the current research. However, there are others that will not be examined empirically. While the following constructs are hypothetically important to the idea of maternal separation anxiety, their omission from this analysis was undertaken specifically to maintain the focus of this research on the maternal perspective, and to minimize, to the extent possible, measurement problems.

## 2.6 OTHER CONSTRUCTS POSSIBLY RELATED TO MATERNAL SEPARATION ANXIETY

### 2.6.1 Maternal temperament

Maternal temperament (inhibition, negative reactivity, and sociability) may be related to maternal separation anxiety. Maternal perceptions of and reactions to child inhibition and/or negative reactivity are, themselves, a likely product of maternal personality (Sameroff, Seifer & Elias, 1982). A mother who is highly reactive may respond more strongly to an infant's cry at departure, exacerbating her own and her infant's negative affect. A mother who is inhibited may be overly solicitous with her infant or toddler at separations, possibly increasing her child's distress (and her separation anxiety), or may simply interpret normative infant wariness as more extreme inhibition or negative reactivity. So there may be an inherent confound between MSA and maternal temperament when considering correlates of MSA.

### 2.6.2 Child temperament

Another likely contributor to maternal separation anxiety is the child's temperament. Having a truly inhibited and/or negatively reactive child may contribute to a mother's MSA. The mother of an inhibited child may worry that her child is not adapting to non-maternal care once she leaves. The mother of a negatively reactive child, who displays high levels of distress at separation, may become increasingly anxious as she witnesses the child's negative emotional displays. Thus, there is theoretical support for an association between child temperament and MSA (McBride, 1990).

There is, however, a measurement issue related to assessing infant temperament that must qualify conclusions drawn from the results of these two studies. If mothers complete the child temperament assessments, there is a data source confound with self-reported MSA. Results may be biased because of the subjective nature of both mother's report of her own separation anxiety and her perception of the child. Furthermore, after 6 months or so, a child's observed "temperament" reflects both genotype and rearing environment, including quality of attachment to mother. So, although the construct of child temperament is theoretically important to consider, methodologically it is problematic. Partly for this reason, the focus of this investigation will not be broadened beyond maternal personality, behavior and mother-child attachment security.

### 2.6.3 Quality of non-maternal care

Another issue of likely importance to maternal separation anxiety is the quality of care available. The type of care a mother chooses is associated with maternal education (NICHD ECCRD, 1997). More highly educated, higher income mothers are more likely to choose center-based care (Capizzano & Adams, 2003), and their economic situation enables these mothers to afford better care than lower income, less educated mothers (NICHD ECCRN, 1997). McBride (1990) found that mothers who indicated that they had trouble finding quality childcare reported higher levels of MSA. The ability to secure quality care for one's child will tend to make mothers feel better about their decision to put their child into non-maternal care, presumably resulting in lower MSA. Not only can better-educated mothers afford higher quality care, but they have more choices in the type of care they choose. Some employed mothers want center-based care so that their child–especially firstborns–can benefit from the socialization available at these centers. Others choose in-home care so that their child has the advantage of the familiarity of his or her

own home. Still others desire neighbor care, with their child integrated into the family life of the caregiver. The issue of perceived quality of care and its relation to MSA is potentially a key one, but is not the focus of the proposed research, and is not included in the analysis. This limitation will be addressed more fully in the discussion section.

## 2.7    STUDY HYPOTHESES AND ANALYTIC PLAN

This cross-sectional and longitudinal research is a descriptive study of maternal separation anxiety in a sample of well-educated, married White mothers. First, a descriptive analysis of maternal separation anxiety will be conducted. The mean and range of reported maternal separation anxiety scores and the distribution of these scores will be analyzed and reported. Then, in an attempt to replicate previous research, an examination of maternal separation anxiety over time (from infant age 6 to 24 months) will be performed by repeated measure ANOVA. Based on previous research (Hock & Lutz, 1998; Hock & Schirtzinger, 1992; Hsu, 2003; McBride & Belsky, 1988), **it is expected that, over the course of the three measurement points, there will be a significant decrease in MSA.** The present study will also attempt to replicate stability coefficients by correlational scores across study time points. Based on Hock and Schirtzinger (1992), **it is expected that stability coefficients will be on the order of .70 to .75.**

Following this, MSA will be correlated with both overall maternal neuroticism as well as depressive symptoms. Based on existing literature, **it is predicted that the association between MSA and neuroticism at 6 months (and between MSA and extraversion and agreeableness at 6 months; as an exploratory analysis) will be on the order of .3 to .4** based on associations

reported by Hock and Lutz (1992), Hock and Schirtzinger (1992), and McBride and Belsky (1988). As far as maternal depressive symptomatology, there are only two studies that examined its association with MSA. The results of these two investigations contradict each other, and their samples are dissimilar. Hsu (2003) using a sample of mothers of infants (ages 1 and 6 months of age) found no significant association between MSA and maternal depressive symptoms. Hock and Schirtzinger (1992) found a significant association between MSA and maternal depressive symptoms at child age 6 years, but not earlier. **Therefore, it remains an empirical question how (or even whether) maternal depressive symptoms will relate to maternal separation anxiety.**

Next, the association between a mother's level of education and her self-reported separation anxiety will be examined. Previous literature indicates that education has a modest to moderate, inverse association with self-reported MSA, depending on child and/or mother's age (Hsu, 2003; NICHD ECCRN, 1999; McBride & Belsky, 1988). **Based on these results, it is an empirical question how (or even whether) maternal education will relate to maternal separation anxiety**. Whether maternal education is concurrently associated with self-reported MSA at 6, 15 and 24 months will be tested by correlation. Additionally, in order to examine whether experience as a parent has any relevance to the MSA a college-educated mother experiences, an examination of the associations between MSA and maternal education will be performed in two sub-groups: mothers of firstborns and mothers of laterborns. Mothers with more than one child, and therefore more experience as a parent and potentially with non-maternal care, are expected to report lower MSA, regardless of education level in this well-educated sample. **However, again, it is an empirical question how (or even if) the**

**associations between MSA and education in these two groups of mothers will differ**. Correlations will be compared by Fisher z-test.

In addition to documenting its prevalence and longitudinal course among well-educated women, this investigation tests whether maternal separation anxiety is related to mother-infant relations (maternal separation and reunion behavior and infant-mother attachment security), and whether those relations are merely a manifestation of general neuroticism and/or depressive symptomatology on the part of mothers. Previous research indicates that maternal reunion behavior in a childcare setting (e.g., whether or not mother seems rushed at pick-up, whether or not mother listens when child speaks at pick-up) will moderately correlate with self-reported separation anxiety. Maternal separation behavior in the same setting (e.g., how long mother stays at center before leaving, whether or not she tries to engage child in an activity before she leaves) will be correlated only modestly with self-reported maternal separation anxiety. Based on Hock, McBride and Gnezda's (1989) single study on the topic, **it is expected that concurrent associations between MSA and reunion behavior will be in the range of .3 to .5, and that associations between MSA and separation behavior will be in the range of .1 to .2 at both 15- and 24-month assessments.**

In order to detect a small effect (.1 to .2) in a correlational analysis at $p<.05$, a sample of 783 participants is required (Cohen, 1992). Unfortunately, the full NICHD dataset only includes observations of maternal behavior for 521 mother-child dyads (NICHD, Child Care Data Report, 1994). However, for a medium effect size (.3 to .5), a sample of only 85 participants is required (Cohen, 1992). The sub-sample selected for this analysis consists of a total of 147 participants, with a range in number from 97 to 147 for different analysis (depending on the measure), and an average sample size of 120. Therefore, it is unlikely that a small effect size (i.e., the expected

correlation with maternal separation behavior) will be detected. However, there should be sufficient power to detect a moderate effect size (i.e., the expected correlation with maternal reunion behavior).

The next analyses will test whether a mother's self-reported separation anxiety at 6 months (and then again at 15 months) has any bearing on the subsequent insecurity of attachment her baby demonstrates in relation to her at 15 months. **Based on the conflicting results of previous literature, it remains an empirical question how (or even whether) maternal separation anxiety has any connection to insecure infant-mother attachment classification (i.e., avoidant and resistant).**

Finally, analyses of mother-child relations will be re-run controlling for general maternal neuroticism and tendency to experience symptoms of depression. If MSA has meaning for maternal behavior and mother-child attachment beyond more general anxiety and depressive symptoms, MSA should continue to covary with maternal behavior even after maternal personality traits are statistically controlled. Linear regression will be used to test this hypothesis for maternal behavior. Logistic regression will be used for attachment classifications.

This investigation is unique in that the women represent a narrow, but often over-looked segment of the American population that uses non-maternal childcare: affluent, well-educated professional women. Much developmental research relies on samples of middle-class children, with little attention paid specifically to high-income families, parents in particular. Luthar (2003) argued that this may be due to the misconception that middle-class families are very similar to affluent families, and/or that affluent families do not have problems. However, the limited research that does exist suggests that the kinds of pressure affluent women experience, combined with the importance of privacy and maintaining a 'gracious' facade, result in increased rates of

self-medication with alcohol and/or prescription drugs, as well as eating disorders such as anorexia, bulimia, and/or extreme dieting (Luthar, 2003). In addition, there are statistics showing high rates of depressive symptoms among affluent, professional women (Luthar, 2005). These problems have important implications for mother-child relationship quality as well as other aspects of family and child well-being.

Well-educated, high earning mothers may feel pressured to work long hours for a variety of reasons, such as the desire to achieve personal or professional success or to maximize resources for the next generation (Luthar, 2003). However, work time can detract from family life. Working longer hours can lead to less time for family, and some erosion in family relationships. The latter may increase feelings of unhappiness and self-doubt even if, for some mothers, longer work hours represent an escape from problems at home and/or an effort to gain self-esteem. A sub-set of mothers maintain the time they spend with their children by working part-time (Bianchi, Robinson, & Milkie, 2006). But many mothers do not feel they have the option to work part-time, whether for economic, personal, or professional reasons.

There is empirical justification, then, for a descriptive, partly exploratory examination of maternal separation anxiety in a sample of affluent, well-educated, professional women. First, there has been relatively little research into Hock's construct of maternal separation anxiety (MSA). A review of the literature produced less than 50 peer-reviewed journal articles that utilized her self-report measure since it was published in the mid-1980's, and few of those specifically focused on a maternal perspective. Even fewer have focused on any particular sub-group of mothers, instead combining women across sometimes widely disparate social classes, job conditions, and family circumstances. Therefore, the proposed study is an attempt to redress

that imbalance by investigating maternal separation anxiety in a sample of affluent, well-educated, employed mothers who utilize non-maternal care for their children.

# 3.0    METHODS

## 3.1    SAMPLE

The participants for this investigation are taken from the NICHD Study of Early Childcare, Phase I (NICHD ECCRN). The initial NICHD sample was recruited beginning in 1991 in 10 cities across the United States (Little Rock, AR; Irvine, CA; Lawrence and Topeka, KS; Boston, MA; Philadelphia, PA; Pittsburgh, PA; Charlottesville, VA; Morgantown and Hickory, NC; Seattle, WA; and Madison, WI). Recruitment was not intended to be representative of the United States general population; however, subsequent comparisons of this sample with the demographic characteristics of the general population indicate that this sample is similar to the general public on a number of key demographics, for example average family income and ethnic group representation (NICHD ECCRN, 1999). Initially, 8,986 families were contacted related to participating in the study; however, 134 (2%) refused the initial interview, and 310 (4%) refused to be interviewed during a follow-up telephone call at 2 weeks postpartum, therefore approximately 6% or the original pool of participants refused to participate. Further, 3,721 (41%) were ineligible because they did not meet study criteria (mother over 18, native English speakers, home visit at 1 month post-partum). The resultant pool of eligible participants was 5,265 (59%). Then, 1,364 eligible families were randomly selected for participation in the study, resulting in a sample of 26% of eligible participants.

Mothers were initially contacted regarding participation while still in the hospital shortly after they had given birth. The first data collection occurred when infants were one month old. Data across the duration of the study were collected in the home, over the telephone, in a lab and at center-based care. The various methods of data collection include maternal self-report, interview, and observation (by both research staff and childcare workers). Time points for data collection were 1, 6, 15, 24, and 36 months of infant age.

The population of interest for the present investigation is well-educated, married mothers who worked at least 20 hours per week consistently throughout Phase I of the NICHD study (birth to child age 36 months). Further, because of the theoretical influence of culture on MSA (Hock, DeMeis & McBride, 1987), only Caucasian mothers are included. These steps were taken in order to produce the most functionally homogeneous sample of mothers to study (Richters, 1997). Functional homogeneity is important because there are then fewer confounds in associational analyses and because it allows greater insight about the behavior of a specific group of people. For example, including single mothers in this analysis (a functionally different group of mothers from married mothers) could result in a great deal of variability in reported MSA, but it could be the stress of being a single mother, as opposed to her experience of leaving her child in non-maternal care, that accounts for the variance in MSA.

The various filtering activities resulted in a sub-sample of 147 mothers, or 11% of the NICHD sample. Among these women, the range of education (highest degree completed) extended from at least a bachelor's degree (16 years of education, n = 111), to a Master's degree (18 years of education, n = 69), law degree (19 years of education, n = 7), and doctoral degree (MD, PhD, EDD, n = 11). The range of hours worked per week was 20 to 70 ($M$ = 36 hours per week, $SD$ = 10). Total family income for this sample ranged from $20,000 to $315,000 ($M$ =

$80,662, $SD$ = $50,508) at 6 months and from $22,500 to $252,500 ($M$ = $77,445, $SD$ = $38,340) at 15 months. Although these ranges contain some relatively low incomes, at each measurement point the percentage of families making above $50,000 (4 times the poverty rate at the time of measurement) ranged from 78% (at 6 months) to 83% (at 24 months), making this a predominantly affluent sample. All mothers were stably married over the course of Phase I of the NICHD data collection (i.e., married at 1, 6, 15, 24 and 36 months). Mothers' ages at the 1 month assessment ranged from 24 to 46 years ($M$ = 32, $SD$ = 4, $Mode$ = 30). Sample descriptive statistics are provided in Table 2.

**Table 2. Sample descriptive statistics**

| Variable | N | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|---|
| Maternal Age | 147 | 24 | 43 | 32.30 | 4.0 years |
| Maternal Education | 147 | 16 | 21 | 17.18 | 1.53 years |
| Income-Total Family at 6 mo. | 143 | $20,000 | $315,000 | $80,662 | $50,508 |
| Average Hours Worked/Week 6 mo. | 147 | 20 | 70 | 37.64 | 9.69 |
| Average Hours Worked/Week 15 mo. | 147 | 20 | 56 | 38.22 | 8.25 |
| Average Hours Worked/Week 24 mo. | 147 | 20 | 64 | 38.00 | 8.88 |
| Hours Childcare/Week Primary – 5 months | 138 | 6 | 55 | 36.01 | 11.84 |
| Hours Childcare/Week Secondary – 5 months | 26 | 4 | 38 | 15.00 | 9.65 |

*(Table 2 continued)*

| | | | | | |
|---|---|---|---|---|---|
| Hours Childcare/Week Tertiary – 5 months | 6 | 4 | 10 | 7.17 | 2.32 |
| Hours Childcare/Week Primary – 14 months | 146 | 4 | 59 | 36.25 | 12.31 |
| Hours Childcare/Week Secondary – 14 months | 40 | 4 | 45 | 12.73 | 10.31 |
| Hours Childcare/Week Tertiary – 14 months | 5 | 2 | 8 | 6.20 | 2.50 |
| Hours Childcare/Week Primary – 23 months | 146 | 2 | 55 | 37.48 | 12.54 |
| Hours Childcare/Week Secondary – 23 months | 50 | 1 | 60 | 11.02 | 11.63 |
| Hours Childcare/Week Tertiary – 23 months | 5 | 4 | 16 | 8.60 | 4.45 |

## 3.2    MEASURES

Data were collected using self-reports, observations, and interviews. A complete listing of construct measurement time points, locations where assessments took place, and who completed the instruments can be found in Table 3.

**Table 3. Construct measurement time points, locations, and administrators**

| Construct | Administrator | Timepoints | | | | |
|---|---|---|---|---|---|---|
| | | 1 Month | 6 Months | 15 Months | 24 Months | 36 Months |
| Maternal Separation Anxiety Scale | Self-report | Home | Home | Home | Lab | |
| NEO Personality Inventory: Neuroticism, Extraversion, and Agreeableness Subscales | Self-report | | Home | | | |
| Maternal Depressive Symptomatology (*CES-D*) | Self-report | Home | Home | Home | Home | Home |
| Maternal Education | Interviewer | Home | | | | |
| Maternal Behavior: Child Care Separation & Reunion Scale (Ratings of Drop-off and Pick-up Behaviors) | Caregivers | | | Childcare | Childcare | Childcare |
| Mother-infant Attachment (*Strange Situation*) | Research Team | | | Lab | | Lab |

Timepoints generating data for the current study.

### 3.2.1   Maternal Separation Anxiety

The *Maternal Separation Anxiety Scale* (Hock, McBride & Gnezda, 1989) consists of 35 items separated into three subscales, each with a possible range of 7 to 35. The Maternal Separation Anxiety subscale is a 21-item scale and the only subscale of the *Maternal Separation Anxiety Scale* utilized by the NICHD ECCRN study. The Maternal Separation Anxiety subscale and was administered at 1, 6 and 15 months in the home and at 24 months in the lab. It measures the

degree to which a mother experiences anxiety during separations with their child, with a high score indicating that a mother experiences concern about the separation event itself. Responses are rated on a Likert scale with 1 = *Strongly Disagree* and 5 = *Strongly Agree*. The scale covers issues of importance to parents, and includes statements such as, "I miss holding or cuddling my child when I am away from him/her" and "My child is happier with me than with babysitters or teachers." Sub-scale totals are calculated by reverse coding particular items and summing responses.

### 3.2.2  General anxiety

The *NEO Personality Inventory (NEO PI)* and *NEO five-Factor Inventory (NEO-FFI)* (Costa & McCrae, 1989) were completed by mothers in the family home when children were 6 months old. The complete measures were not administered; only certain aspects of personality were assessed. From the NEO PI, neuroticism and extraversion were measured; from the NEO FFI, agreeableness was measured. The neuroticism scale measures a person's emotional stability and adjustment. High scores on this measure indicate nervousness, insecurity, and feelings of inadequacy; low scores indicate calmness, feelings of security, and low emotional reactions. The extraversion scale measures the amount and degree of a person's interaction with others, level of activity, and tolerance of stimulation. High scores on this measure indicate outgoing, positive, and energetic individuals; low scores indicate unfriendly, calm, and "standoffish" individuals. The agreeableness scale measures various aspects of an individual's interpersonal style such as expectations of others, conformity, and self-sacrifice. High scores indicate empathy and collaboration, whereas low scores indicate competition with others and stubbornness.

### 3.2.3 Depressive symptoms

Mothers' reported depressive symptoms over the previous week were measured using the *Center for Epidemiological Studies Depression Scale* (CES-D; Radloff, 1977). This 20-item scale has a possible range of 0 to 60, with higher scores indicative of more symptomatology. Scores falling between 0 – 16 indicate no depressive symptoms, those between 16 – 30 indicate mild to moderate depressive symptoms, and any score over 30 indicates severe depressive symptoms (Radloff, 1977). Item examples include, "Your sleep was restless," "You felt lonely," and "You did not feel like eating; your appetite was poor." Internal consistency (Cronbach's alpha) for this sub-sample is .88 (at child age 6 months), .86 (at child age 15 months), and .89 (at child age 24 months). Scores for this measure ranged from 0 to 30, $M = 7$, $SD = 6.74$ (at 6 months) to 0 to 41, $M = 7$, $SD = 6.68$ (at 24 months).

### 3.2.4 Maternal education

Maternal education was measured by asking mothers how many years of education they have completed. Sixteen years of education was coded as a bachelor's degree, 18 years as a master's degree, 19 years as a law degree, and 21 years as a doctoral degree (PhD, MD, EDD). The range of responses for this sub sample is 16 to 21 years. Maternal education was assessed at the time of the baby's birth.

### 3.2.5  Maternal behavior

The *Child Care Separation/Reunion Scale* (McCartney & Beauregard, unpublished) was completed by caregivers at the childcare site when the child was 15, 24 and 36 months of age. This measure consists of 17 items–10 for departures, 7 for reunions–scored from 1 (Never) to 4 (Always) with higher scores indicative of more involved, responsive parent behavior (Bub & McCartney, 2004). Examples of items at departure include, "Before leaving, parent tries to interest child in an activity," and "Parent stays too long before leaving." Examples of items related to parent behavior at reunion include, "Parent listens attentively when child speaks (or makes sounds)," and "In general, parent seems rushed." Scores are calculated by summing responses.

For the original NICHD dataset, 692 caregivers assessed departure and reunion behavior at center-based care. Instructions provided to caregivers was that they, "Please read each item below and rate how often the behavior occurs on a scale from 1 (never) to 4 (always)." In other words, the measures may not have been completed during actual departures and reunions, but are likely composites of caregiver recollections of parental departure and reunion behaviors. No reliability information is available.

Hock's (1989) maternal behavior scale assessed the amount of positive behavior a mother demonstrated during departures and reunions (helping her infant/child adapt to the environment prior to departure, solicitous behavior demonstrated with the child, and/or exchanges with caregiver). For the purpose of replicating Hock et al.'s (1989) findings, two composite scores were computed. One composite used only the positive behavior items from the *Child Care Separation/Reunion Scale* that are similar to Hock and colleagues' ratings, (#14, "Before leaving, parent tries to interest child in an activity."). The other composite that was created

included relevant items that address "negative" behavior, but were significantly correlated (average $r = .43$) with the positive items (#13, "Parent seems uncomfortable when child gives attention to a caregiver."). The Hock departure composite used items 14, 15, 16, and 17; the Hock departure and negative items composite added items 13, 18, 20, and 22. The Hock reunion composite used items 14 and 15; the Hock reunion and negative items composite added items 13, and 17.

### 3.2.6 Attachment

The attachment classification assigned to infant-mother relationships was based on their behavior in the *Strange Situation* (Ainsworth, Blehar, Water, & Wall, 1978) at 15 and again at 36 months. The *Strange Situation* is an observational measure used to assess security of attachment an infant has established with the primary caregiver. The procedure takes place in an unfamiliar environment and consists of one introductory play episode and two separation and reunion episodes, each lasting approximately three minutes. During the process, a stranger enters/exits the room and interacts with the child at various points throughout the assessment. The entire procedure is videotaped. Trained coders view the tapes and rate the infant's behavior in terms of seeking proximity with mother, maintaining contact with mother, so-called resistant behavior (e.g., pulling back from mother's embrace, pushing away toys mother offers), and avoidant behavior (e.g., greeting mother, then averting gaze, veering off during an approach to mother).

Securely attached infants explore the room, periodically checking back with mother visually. They may be distressed at separation but, if so, seek out and are comforted by mother. Infants with an avoidant attachment reference mother less during exploration, often are not distressed at separation, and show subtle or overt avoidance of mother at reunion. Infants with a

resistant attachment tend to hover around mother during exploration, are upset at separation, and at reunion demonstrate both contact seeking and resistant behavior. Attachment using the *Strange Situation* was assessed at both 15 and 36 months, but only the 15-month data are used here because validity is more established for infant attachment. In addition, data from the 15-month assessment are more consistent with previous research on MSA and infant-mother attachment.

There are no published data about the fourth, "disorganized," classification in relation to maternal separation anxiety, and a fourth category further limits attachment cell sizes for analysis. For these reasons, only the secure, avoidant and resistant "forced" classifications are used in analyses. The frequency and percentage of the attachment (forced) classifications are listed in Table 4. In this subsample of well-educated, working mothers attachment classifications approximate the frequencies found in typical middle-class, U.S. samples, (65% secure, and 15% resistant), except for the low percentage of avoidant attachments (9% here versus 20% typically). Relatively little avoidance was observed in this sample of well-educated, working mothers and their toddlers.

**Table 4. Frequencies of forced attachment classification at 15 months (Strange Situation)**

| Classification | Frequency | Percent |
|---|---|---|
| Secure | 101 | 69% |
| Insecure-Avoidant | 13 | 9% |
| Insecure-Resistant | 27 | 18% |
| Unclassified | 6 | 4% |
| Total: | 147 | 100% |

Descriptive statistics were computed for the independent and dependent variables.

A list of descriptive statistics is provided in Table 5.

**Table 5. Descriptive statistics for the independent and dependent variables**

| Variable | N | Min. | Max. | Mean | SD |
|---|---|---|---|---|---|
| Maternal Separation Anxiety | | | | | |
| 6 mo. | 147 | 25.00 | 96.00 | 58.70 | 11.85 |
| 15 mo. | 147 | 29.00 | 91.00 | 57.82 | 11.47 |
| 24 mo. | 141 | 31.00 | 97.00 | 56.40 | 11.10 |
| Maternal Personality | | | | | |
| Neuroticism 6 mo. | 147 | 15.00 | 52.00 | 28.17 | 6.70 |
| Extraversion 6 mo. | 147 | 27.00 | 56.00 | 44.07 | 5.62 |
| Agreeableness mo. | 147 | 39.00 | 58.00 | 47.00 | 4.30 |
| Maternal Depressive Symptoms | | | | | |
| 6 months | 147 | 0 | 30 | 7 | 6.74 |
| 15 months | 147 | 0 | 28 | 6.5 | 6.12 |
| 24 months | 141 | 0 | 41 | 9 | 6.68 |
| Maternal Education | 147 | 16 | 21 | 17.17 | 1.53 |
| Maternal Behavior | | | | | |
| Departure 15 mo. | 88 | 2.29 | 4.0 | 3.52 | .32 |
| Reunion 15 mo. | 76 | 2.57 | 3.43 | 3.12 | .24 |
| Departure 24 mo. | 100 | 2.57 | 4.0 | 3.51 | .33 |
| Reunion 24 mo. | 83 | 2.64 | 4.0 | 3.58 | .32 |

| | | | | | |
|---|---|---|---|---|---|
| Departure 36 mo. | 100 | 1.57 | 4.0 | 3.50 | .38 |
| Reunion 36 mo. | 84 | 2.43 | 4.0 | 3.54 | .32 |

Further, internal validity for the measures used in this study was, on average, very high. Cronbach's alpha for each measure was at least .7. Internal validity values are listed in Table 6.

**Table 6. Internal validity (Cronbach's alpha) for the study variables**

| Variable | N | Cronbach's alpha |
|---|---|---|
| Maternal Separation Anxiety | | |
| 6 mo. | 148 | .91 |
| 15 mo. | 147 | .91 |
| 24 mo. | 141 | .91 |
| Maternal Behavior at 15 Months | | |
| Departure Behavior | | |
| Hock Composite | 100 | .71 |
| Composite & Negative Items | 99 | .85 |
| Reunion Behavior | | |
| Hock Composite | 100 | .89 |
| Composite & Negative Items | 100 | .83 |
| Maternal Personality | | |
| Neuroticism 6 mo. | 147 | .82 |
| Extraversion 6 mo. | 147 | .76 |
| Agreeableness mo. | 147 | .70 |
| Maternal Depressive Symptoms | | |
| 6 Months | 146 | .88 |
| 15 Months | 147 | .86 |
| 24 Months | 136 | .89 |

# 4.0    RESULTS

This study examined maternal separation anxiety in a sample of well-educated, married, White mothers, its interface with maternal personality factors, its bearing on mother-child relations, and whether it continues to covary with mother-child relations once maternal personality/depressive symptoms are statistically controlled. The intercorrelations among the study variables are reported in Table 7.

**Table 7. Intercorrelations among study variables**

| | MSA | | | Mat. | | Maternal | | | | | | | Maternal | | | Depressive | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6M | 15M | 24M | Ed. | | Behavior | | | | | | | Personality | | | Symptoms | | |
| | [ 1 | 2 | 3] | 4 | [5 | 6 | 7 | 8 | 9 | 10 | 11 | 12] | [13 | 14 | 15] | [16 | 17 | 18] |

Maternal Separation Anxiety (self-report)

1) 6 mo.
  1

2) 15 mo.
  .78** 1
n 147

3) 24 mo.
  .72*** .75*** 1
n 141   141

4) Maternal Education
  -.06 -.16* -.08 1
n 147 147 141

Maternal Behavior
Departure at 15 Months:

5) Hock Composite
  .11 .05 .08 -.14 1
n 100 100 97 100

6) Composite & Negative Items
  -.01 .02 -.01 -.17† .86***1
n 99  99 97 99  99

Reunion at 15 Months:

7) Hock Composite
  -.12 -.11 -.06 .06 .09 .07 1
n 100 100 97 100 99 98

8) Composite & Negative Items
  -.17† -.08 -.08 -.01 .05 .17 .88*** 1
n 100  100 97 100 99 98 100

*(Table 7 continued)*

Departure 24 Months:

9) Hock Composite:
  -.01  -.43  .01  -.15  .18  .06  .07  -.13  1
n 52    52   51   52    35   35   35    35

10) Composite & Negative Items:
  -.006  -.03  -.04  -.12  .08  .001  .05  -.14  .82*** 1
n 51     51    50    51   34   34    34    34   51

Reunion at 24 Months:

11) Hock Composite:
  .02  .14  .04  -.14  -.08  -.07  .02  -.03  .54***  .69*** 1
n 54  54   53   54    37    37    37    37    52      51

12) Composite & Negative Items:
  .18  .11  .07  .17  -.01  -.05  .07  -.07  .45**  .63***  .78*** 1
n 54  54   53   54   37    37    37    37    52     51      54

Maternal Personality

13) Neuroticism
  .20*  .12  .18*  .14†  .10  .02  -.13  -.18†  -.16  -.06  -.11  .02   1
n 146 146 140   146    99   98    99    99     52    51    54   54

14) Extraversion
  -.01  .00  -.03  -.02  -.02  -.02  -.34**  -.26**  .33*  .30*  .14  .13  -.31***1
n 146 146  140 146   99    98    99       99      52    51    54   54  146

15) Agreeableness
  -.02  -.01  -.03  -.15†  .16  .12  .04  .05  .23  .005  -.01  .02  -.33***  11   1
n 146 146  140   146    99   98   99   99  52   51    54   54  146       146

Maternal Depressive Symptoms

16) 6 months
  .11  .03  .07  -.02  -.03  -.05  -.13  -.15  -.07  -.04  -.01  -.09  .67***  -.30***  .23** 1
n 147 147 141 147 100  99   100   100   52    51    54    54  146     146      146

*(Table 7 continued)*

17) 15 months
 .05 .12 .19* -.05 -.06 -.12 -.08 -.15 -.09 -.11 -.09 -.22 .45*** -.17* -.29*** .60*** 1
n 147 147 141 147 100 99 100 100 52 51 54 54 146  146  146  147

18) 24 months
 .16† .13 .26** -.03 .08 .00 -.09 -.13 -.10 -.10 -.09 -.13 .48*** -.11 -.09 .55*** .56*** 1
n 141 141 141  141 97 97 97 97 51 50 53 53 140  140 140 141 141

*p<.05, **p<.01, ***p<.001, †=approaching significance

# 4.1    DESCRIPTIVE STATISTICS

In order to examine maternal separation anxiety, descriptive statistics were computed, graphs generated, and correlations run among reports of maternal separation anxiety at 3 measurement points (6, 15 and 24 months after birth of child). The sample size at 6 and 15 months is 147 mothers, and at 24 months is 141. At all ages the range in MSA scores is relatively high (e.g., at 6 months, 25-96 out of a possible range of 21 to 105). The distribution of scores at each age is normal. An example of the distribution of scores is provided in Figure 1, which illustrates maternal separation anxiety at 6 months.

MATERNAL SEPARATION ANXIETY AT 6 MONTHS
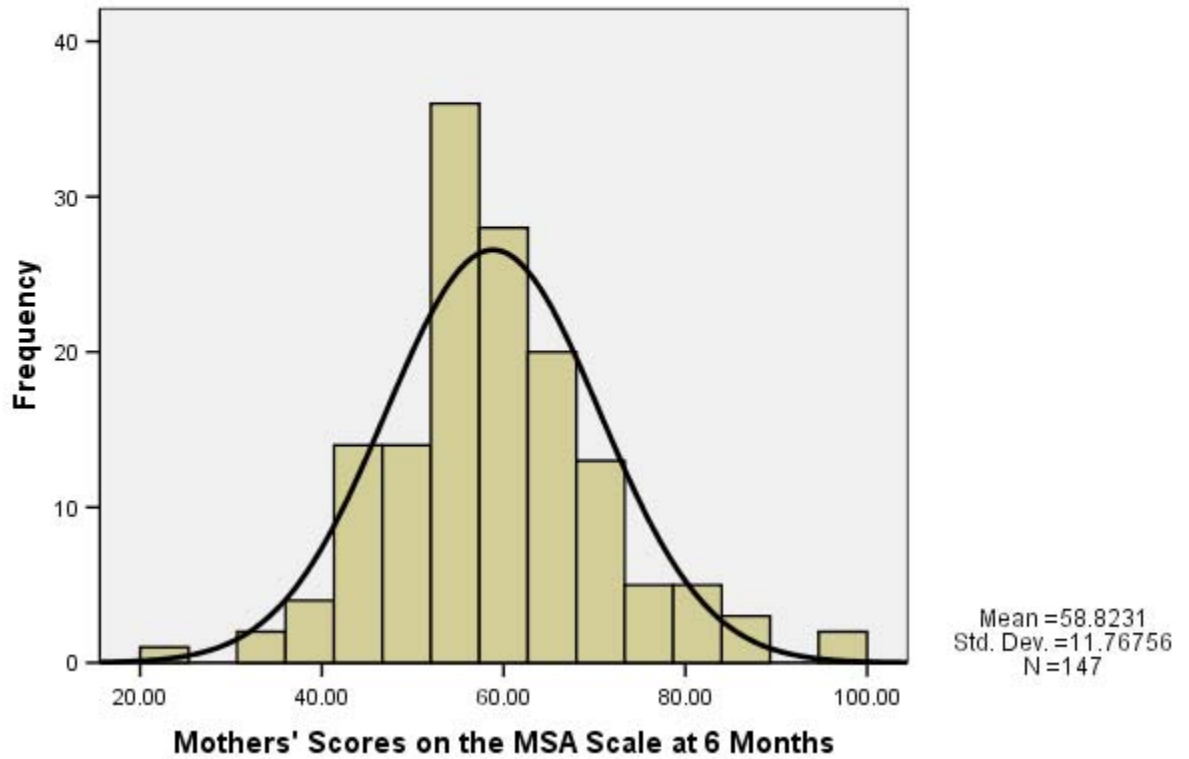
Mean =58.8231
Std. Dev. =11.76756
N =147

**Figure 1. Maternal separation anxiety at 6 months**

Comparing maternal separation anxiety means in the present study (highlighted) with the MSA means of published studies reveals that the MSA means in the present study are lower than those of other studies. Means appear in Table 8.

**Table 8. Comparison of MSA means in current study with means of previous research (working mothers only)**

Child Age at Administration of MSA to Mothers

| Study | N | Pre | 2 Dys | 7 Wks | 1 Mo | 2 Mo | 3 Mo | 5 Mo | 6 Mo | 8 Mo | 9 Mo | 13.5 Mo | 15 Mo | 18 Mo | 24 Mo | 2.5 Yr | 3 Yr | 6 Yr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Current | 147 | | | | | | | | **20** | | | | | **19** | **18.6** | | | |
| Gee & Vondra | 47 | | | | | | | | | | | | | | | | 19 | |
| Hock & Lutz | 133 | 22 | | | | 22 | | | | | 21 | | | 20 | 20 | | | |
| McBride | 49 | | | | | | | | | | | | | | | | 19 | |
| DeMeis, Hock & McBride | 26 | | 21 | 20 | | | | | | 18 | | | | 18 | | | | |
| Hock & Schirtzinger | 87 | | | | | | | | | 19 | | | | | | | 19 | 18 |
| Lutz & Hock | 49 | | | | | 25 | | | | | | | | | | | | |
| Hock, DeMeis & McBride | 130 | | 22 | 21 | | | | | | 20 | | 19 | | | | | | |
| Hsu | 53 | | | | 22 | | 21 | | | | | | | | | | | |
| McBride & Belsky | 33 | | | | | | 21 | | | | 20 | | | | | | | |
| Wille | 70 | | | | | | | | 23 | | | | | 22 | | | | |
| Stifter, Coulehan & Fish | 73 | | | | | | | 20 | | | | | | | | | | |
| NICHD ECCRN* | 609 | | | | | | | | 21 | | | | 21 | | 20 | | 20 | |
| Average (excluding current study): | | 22 | 22 | 21 | 22 | 24 | 21 | 20 | 22 | 19 | 21 | 19 | 21 | 21 | 20 | 19 | 20 | 18 |

*Only mothers using center-based care

## 4.2 MATERNAL SEPARATION ANXIETY OVER TIME

### 4.2.1 Mean level of maternal separation anxiety

Next followed an examination of mean levels of maternal separation anxiety over time. Based on previous research (Hock & Lutz, 1998; Hock & Schirtzinger, 1992; Hsu, 2003; McBride & Belsky, 1988), it was expected that, over the course of the three measurement points, there would be a significant decrease in MSA. To test this prediction, a repeated measures ANOVA followed by *a priori* comparison of the 6-, 15-, and 24-month means was computed. A significant effect for time was detected, Wilks' Lambda = .92, $F(2,139) = 5.72$, $p<.01$, multivariate partial eta squared = .076. Over time, there is a statistically significant decrease in MSA. The means and standard deviations are reported in Table 9.

**Table 9. Descriptive statistics for maternal separation anxiety at 6, 15, & 24 months**

| Time | N | Mean | SD |
|---|---|---|---|
| Maternal Separation Anxiety | | | |
| 6 mo. | 147 | 59[a] | 12 |
| 15 mo. | 147 | 58[b] | 11 |
| 24 mo. | 141 | 56[a, b] | 11 |

[ab] Means with a different superscript are significantly different at $p<.05$.

The post hoc analysis revealed that there was a significant decrease in MSA between 6 and 24 months, $t = 2.41$, $p<.05$, and between 15 and 24 months, $t = 3.35$, $p<.01$. The decrease in MSA between 6 and 15 months was not significant ($t = 1.34$, $p=.18$). Significant change appears to occur sometime after 15 months. In this sample, mothers of 6- and 15-month olds were similar

in their reported MSA. The average MSA score before 24 months is 22; the average after 24 months is 19.

### 4.2.2 Individual differences in maternal separation anxiety over time

Correlational analyses indicated relatively strong stability of maternal separation anxiety over time. MSA at each measurement point was highly correlated $r = .78$, $p<.01$ (6 & 15 months), $r = .71$, $p<.01$ (6 & 24 months), and $r = .75$, $p<.01$ (15 & 24 months). The high correlation of the MSA scores over the 3 measurement points indicates that there is considerable individual stability in MSA over time in this sample. The fact that mothers retain their higher or lower anxiety level over time suggests that some sort of personality feature in mothers may be involved in the MSA they report.

### 4.2.3 Maternal personality dimensions

The association between both individual and multiple facets of a mother's personality and her self-reported separation anxiety were examined. Based on existing literature, it was expected that there would be a moderate, positive association (in the range of .3 to .4) between the personality characteristic of neuroticism and both concurrent (6 months) and subsequent (15 and 24 months) MSA, and moderate, inverse associations (in the range of -.3 to -.4) between the personality characteristics of extraversion and agreeableness and both concurrent and subsequent MSA. A significant association emerged between concurrent neuroticism and MSA at 6 months ($r = .20$, $p<.05$). The higher a mother's level of general anxiety at 6 months, the higher her self-reported 6 month MSA. Additionally, a significant association emerged between 6 month neuroticism and

subsequent MSA at 24 months ($r = .18$, $p < .05$). The higher a mother's general anxiety at 6 months, the higher her self-reported MSA at 24 months. The overall sizes of the correlations, however, were lower than expected. There were no significant associations between MSA and either extraversion or agreeableness. In summary, maternal personality factors are generally <u>not</u> associated with MSA, with the exception of very modest, direct associations for neuroticism.

### 4.2.4 Maternal depressive symptoms

Based on the conflicting results of previous research, it was an empirical question how (or even whether) depressive symptoms would relate to maternal separation anxiety. A significant association emerged for 24-month MSA and 15-month depressive symptoms ($r = .19$, $p<.05$ and concurrent maternal separation anxiety and maternal depressive symptoms at 24 months ($r = .26$, $p < .01$). The higher a mother's self-reported separation anxiety at 24 months, the higher her self-reported depressive symptoms at both 15- and 24-months. The magnitude of the correlations were lower than expected, however.

In sum, there was only limited evidence that maternal separation anxiety covaries with either general neuroticism or symptoms of depression. At 24 months only, both showed modest associations with MSA. Prior to that age, MSA correlated modestly with concurrent neuroticism only at 6 months.

## 4.3     MATERNAL SEPARATION ANXIETY AND MATERNAL EDUCATION

Next, the association between a mother's level of education and her self-reported separation anxiety was examined. Based on the conflicting results of previous research, it was an empirical question how (or even whether) maternal education would relate to maternal separation anxiety. The only significant association between MSA and maternal education occurred at the 15-month measurement point, but was extremely small, $r = -.16$, $p < .05$. At 15 months, the higher a mother's education level, the lower her separation anxiety. Therefore, this question was not given much support in this sample of college–and graduate–educated mothers.

In order to examine whether the association between MSA and maternal education is stronger for first-time mothers, two sub-groups were identified: mothers of firstborn children and mothers of later born children. It was an empirical question how (or even if) the average MSA of the two groups would differ. A Fisher z-test was performed on the correlations between MSA and maternal education for the two groups (firstborn mothers' $M = 57$, laterborn mothers' $M = 58$). Results indicate that the correlations for the 2 groups do not significantly differ. Therefore, in this sample of well-educated women, prior experience with a firstborn infant has no effect on the association between current MSA and maternal education.

## 4.4 LINKS BETWEEN MATERNAL SEPARATION ANXIETY AND MOTHER-CHILD RELATIONS

### 4.4.1 Maternal separation and reunion behavior

To test whether a mother's separation and reunion behaviors in the actual childcare setting are related to her self-reported separation anxiety, correlations were computed between maternal behavior composites at 15 and 24 months (2 at departure and 2 at reunion) and Maternal Separation Anxiety at 15 months and again at 24 months. It was expected that concurrent associations between MSA and reunion behavior would be in the range of .3 to .5, and that associations between MSA and separation behavior would be in the range of .1 to .2. No significant results were found in this analysis at either 15 or 24 months. In this sample of well-educated, married, White, working mothers, there does not appear to be any association between self-reported MSA and either departure or reunion behavior in the child care setting.

### 4.4.2 Mother-infant attachment security

The next test concerned whether a mother's 6- and 15-month self-reported separation anxiety has any bearing on the concurrent and/or subsequent security of attachment her baby demonstrates with her. It was an empirical question how (or even whether) average MSA scores of mothers of infants with an Avoidant attachment classification would be higher than the average MSA scores of mothers of infants with a Resistant attachment classification.

Independent samples t-tests were run on MSA at 6 months (n = 141) and again at 15 months (n = 141) based on insecure attachment classification (Avoidant and Resistant ) at 15

months. Neither test detected a significant difference between group means. Therefore, there was not much support for this question.

As a follow-up to this finding of no differences in attachment insecurity related to MSA, all attachment classifications were compared on MSA. It is possible, as McBride and Belsky (1988) found, that MSA differences lie across the secure/insecure dimension, rather than in the type of insecurity. ANOVAs were computed on Maternal Separation Anxiety (MSA) at 6 months and again at 15 months by Attachment Classification at 15 months (*Strange Situation*). There was a statistically significant difference in MSA at 15 months (but not at 6 months) across the three attachment classifications (Insecure-Avoidant, Secure, Insecure-Resistant), $F(2,138) = 3.11$, $p<.05$. Post hoc comparisons revealed a significant difference between Secure (n = 101, *M* = 59) and Insecure-Resistant classifications (n = 27, *M* = 54). The Secure group of mothers scored higher than the Insecure-Resistant group. These results are opposite to the results of Lutz and Hock (1995), who found that mothers with an insecure adult working model of attachment had the highest MSA. MSA at 6 months was not significant, $F(2,138) = 2.43$, $p=.092$, although means were in the same direction.

### 4.4.3   Adding controls for maternal personality

Finally, tests were run to determine whether maternal separation anxiety is simply a proxy for general anxiety or depressive symptoms in its association with mother-child relations. There was only one instance when MSA had any correlation (in this case, a non-significant trend) with maternal behavior (6 month MSA and 15 month negative composite of reunion behavior). A hierarchical regression controlling for 6-month neuroticism and average depressive symptoms, using 6-month MSA to predict maternal reunion behavior at 15 months was not significant. None

of the 3 predictors (neuroticism, depressive tendency, MSA) significantly contributed to the prediction of maternal reunion behavior. Therefore, controlling for general anxiety and depressive tendency does not alter the poor predictive ability of MSA for maternal behavior.

# 5.0    DISCUSSION

This descriptive study offers insight into the prevalence and trajectory of maternal separation anxiety as well as its association with maternal personality, education, and mother-child relations. The data put the issue of maternal separation anxiety into the ecological context of well-educated, married, White, working mothers. The findings include descriptive statistics related to what MSA looks like in a sample of well-educated mothers, how it manifests itself over time, the extent to which it correlates with maternal personality characteristics, and whether MSA is uniquely related to mother-child relations.

Results of this investigation indicate that there is substantial variability in the maternal separation anxiety reported by well-educated, high-earning mothers. Despite the perception that this group of mothers have the resources available to them that would theoretically limit their maternal separation anxiety (higher education, greater access to quality care, and for some, higher income), there exists a full range of reported maternal separation anxiety. Therefore, even among college and graduate educated women, there is real concern expressed by some mothers about separating from their infant/young child.

In this affluent, well-educated sample, the average means, however, are lower than those found in studies with more demographically heterogeneous samples. Well-educated mothers may be more likely to doubt media reports about the negative aspects of non-maternal childcare, thereby reducing their MSA. Alternatively, well-educated mothers may rationalize about child

separations while completing the MSA measure and under-report their feelings about separating. Questions from the MSA measure such as, "My child will benefit from group experiences (i.e., nursery school, day-care, kindergarten) since they will provide him/her social experiences that he/she could not get at home," and "It is good for my child to spend time away from me so that he/she can learn to deal independently with unfamiliar people and new situations," may be endorsed at higher rates by mothers who have chosen to pursue higher education and greater economic independence themselves.

In this sample, significant decline in MSA after birth did not occur until sometime after 15 months. Mothers of 6- and 15-month-olds were similar in their reported MSA. The fact that a significant decline in MSA was detected between 15 and 24 months could be, in part, due to reduced infant separation anxiety, which lessens after 15 months (Kagan, 1974). If childcare drop-offs go more smoothly due to the child's reduced separation anxiety and accompanying reduction in anxious behavior (crying, clinging, general upset), as well as the dyad's increased experience with separating, mothers may feel less anxious about leaving their child in non-maternal care, and therefore report lower MSA.

The high correlation of MSA scores over the 3 measurement points (6, 15, and 24 months) indicates that there is great individual stability in MSA over time in this sample, which supports Hock and Schirtzinger's (1992) findings (8 months, 3 and 6 years), with the size of the correlations in the present study (average $r = .75$) being comparable to Hock and Schirtzinger's (average $r = .73$). Mothers hold onto their higher—or lower—rank order of anxiety, which could imply that some kind of personality feature in mothers maintains the stability.

In this sample of high-earning, well-educated mothers, maternal neuroticism and depressive symptoms has a small, but consistent, association with MSA, whereas other facets of

maternal personality did not. The overall magnitude of the associations for personality and depressive symptoms, however, was lower than expected (average $r = .21$). Generally, it appears that MSA is not simply an indicator of either maternal neuroticism or depressive tendencies. If this is the case, does MSA have something to do with traditional, stereotypical beliefs that are less evident in better-educated mothers? Even in this sample of well-educated mothers, the lower a mother's MSA at 15 months, the more likely she was to have a graduate degree. It may be that women who seek an advanced degree have been socialized to believe that they should pursue a career and not merely a job and/or that independence (personal and financial) is crucial to their self-determination.

The association between MSA and independence socialization has empirical support. Hock and Lutz (1998) found that maternal self-reported dependency accounts for a significant portion of the variance in MSA, and Lutz and Hock's (1995) research determined that women who remembered their own mothers as not encouraging independence reported higher MSA. This socialization process towards independence could weaken a mother's stereotypical ways of thinking about infant needs, and the role of a mother.

Or it could be that colleagues, partners, and other associates, both at the place of employment and within the greater social networks associated with the profession (professional organizations, networking opportunities) socialize or reinforce well-educated women to pay attention to the constructive aspects of non-maternal care and the positive socialization provided to children from non-maternal care. These foci challenge traditional beliefs about infant needs, potentially resulting in a decrease in the MSA well-educated women report. A final possibility is that for the mothers in this sample there is a good match between employment preference and employment status that has resulted in the lower than average MSA scores reported by this

sample. Overall, the well-educated mothers in this sample reported, on average, lower MSA than those in published studies with more heterogeneous samples, with the lowest scores more typical of the women with advanced degrees.

In the current study, there was no significant difference between mothers of firstborns and laterborns in the association between MSA and maternal education. Experience as a parent does not appear to be a factor for college-educated women in the association between maternal education and MSA. Socialization by parents and peers, knowledge and skepticism of childcare research, income differences, and accessibility to quality center-based care all may be more important than experience as a parent in regard to the association between maternal education and MSA. In other words, you are who you are regardless of experience as a parent: when a new baby is born, the mechanism(s) that produced MSA in response to the first child trigger those same feelings with subsequent births. Mothers who seek advanced degrees either start out as—or subsequently become less anxious about—separating from their infants and toddlers, regardless of previous experience with older children. Education does seem to be one key element or marker in the etiology of maternal separation anxiety.

From the perspective of construct validity, this study had little support to offer. There was no association between self-reported MSA and either maternal departure or reunion behavior in the childcare setting. A number of possible explanations can explain this outcome. The first is that the MSAS measure has problems capturing a mother's actual feelings about separation from her infant/young child. For example, some mothers may report that they feel one way, but display behaviors indicating that they feel differently when actually separating from their child. Some mothers may intellectualize their feelings about leaving their infant/child when responding to a questionnaire in a calm environment/context, but when in the child-care setting, during an

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actual separation, they may display behaviors suggesting anxiety or guilt. Questions from the MSA measure such as, "My child will benefit from group experiences (i.e., nursery school, day-care, kindergarten) since they will provide him/her social experiences that he/she could not get at home," and "It is good for my child to spend time away from me so that he/she can learn to deal independently with unfamiliar people and new situations," may especially appeal to mothers whose baby has problems with separations (producing lower MSA scores). However, when mothers are in the actual process of separating from their infant/child at center-based care (as opposed to leaving the child with a nanny at home, or with a neighbor), the emotions produced in the mother (perhaps triggered or heightened by the child's reaction to the separation) may result in behaviors that indicate a higher level of MSA. This would explain the lack of association between the self-reported MSA scores and the observation data.

A second possibility is that the observation measures have problems capturing behaviors a mother shows who scores high on the MSA questionnaire. Observational items include, "Before leaving, parent tries to interest child in an activity," and "Parent seems rushed," which may not be appropriate or accurate in trying to capture maternal separation anxiety. These behaviors may relate more to time constraints than to issues related to maternal separation anxiety.

Additionally, the behavior data in the larger study were collected by 692 different care providers on 594 infants and toddlers (NICHD CCDR-61). Especially without training, multiple caregivers no doubt see events differently and may provide disparate ratings of behavior. No information is provided about the amount of training, if any, these care providers received on the measure, only nominal instructions were provided to the caregivers, and there are no reliability data. The great number of caregivers involved in collecting data, along with the lack of

information related to their training and reliability, call into question the accuracy of the maternal drop-off and reunion data collected from caregivers at these center-based facilities.

Objective, but psychometrically strong, ratings of maternal behavior are required to validate the MSA measure. However, obtaining these ratings may be difficult. In center-based care, teachers have pre-existing relationships with the children in their care and the parents of these children. These relationships, with both the children and the parents, may create preconceived notions about the mothers' behavior, or bias the teachers in their opinions of the mothers' behavior in some other way. Previous maternal behavior, positive or negative, may influence ratings of the mothers' behavior during separations and reunions. Additionally, the main priority of teachers is caring for the children in their care. If other children have difficulty at departure, ratings of the observed child may be tainted, or the observation may be given short shrift by observers whose main goal is to keep a classroom running smoothly.

It could even be that separation and reunion behavior is not the best indicator of parenting that is affected by maternal separation anxiety. There are a number of reasons that a mother's behavior, particularly public behavior, may not reflect her self-reported MSA. First, an inhibited mother may not demonstrate a high level of MSA because her emotional and behavioral response style manifests itself in a reserved and composed nature in public, despite how she feels inside. Second, a mother of an infant/young child with a difficult temperament (fussy, does not handle separations easily), may actively downplay her emotions in order to present a calm demeanor at separations in an attempt to prevent upsetting the child further, which could also mask her true feelings about separating.

Finally, the lack of a relation between the self-report and observational measures could indicate that the anxiety a mother reports feeling when she separates from her child at center-

based care is simply not an influential and/or useful concept for parenting. Separation concerns or guilt may simply not have much bearing on the day-to-day style of care and interaction a mother provides her infant or young child. This lack of an association may be due to the transitory nature of separations at center-based care in relation to the greater amount of time mothers spend in the parenting role. Separations and reunions are merely brief periods in the course of a day with dozens of other mother-child bouts of interaction that have a greater bearing on the mother-child relationship.

In terms of infant-mother attachment classification, the pattern found in McBride and Belsky's (1988) research (mothers in avoidant relationships reporting the highest MSA; mothers in resistant relationships reporting the lowest) did not clearly emerge here. Neither did the finding in Stifter, Coulehan, and Fish's (1993) research that employed mothers who reported high MSA had a disproportionate number of infants with an avoidant attachment. In the present study MSA did not differ for mothers of toddlers with secure or avoidant attachments, although mother of toddlers with resistant attachments did score lowest.

A review of the multiple discrepant results highlights the fact that there is little consensus in the studies that have looked at maternal separation anxiety and mother-infant attachment classification. One explanation may be that over the span of the past two decades, maternal attitudes have changed related to the use of non-maternal care. Another explanation may be sampling. The McBride and Belsky (1988) sample (avoidant>secure>resistant), for example, was obtained in a rural area where there may be greater endorsement of traditional maternal roles and fewer professional women. The timing of MSA data collection could also be an issue. McBride and Belsky (1988) collected their MSA data at child ages 3 and 9 months, Stifter, Coulehan, and Fish (1993) at child ages 5, 10 and 18 months, and Wille (1998)—who found no relation

between MSA and infant-mother attachment—at child ages 6 and 18 months. Perhaps the differences in developmental milestones achieved by the infants and toddlers in these various studies could have influenced MSA scores, leading to disparate results. The measure of mother-infant attachment differed as well. McBride and Belsky (1988) and Stifter, Coulehan, and Fish (1993) both used the *Strange Situation*, whereas Wille (1998) used the *Attachment Q-sort*. These contradictory results seem to suggest that there is either error variance in the attachment/MSA data or sampling fluctuation that capitalizes on random differences in how attachment patterns relate to self-reported MSA.

A theoretical alternative is that there is a moderating variable at work that none of these studies has investigated. One moderating variable could be the degree of investment professional women have in the role of parent. Perhaps it is a positive sign for mother-infant attachment when professional women report disagreement (i.e., higher "anxiety") with MSA questions such as, "It is good for my child to spend time away from me so that he/she can learn to deal independently with unfamiliar people and new situations." This suggests a valuing of attachment among mothers who actually do have their child away from them for many hours each week. The reverse may be true of mothers who are busy with careers but express little anxiety about the impact of their separations on their child. Among women who work primarily out of economic necessity, as well as for women who choose to raise their children themselves, higher expressed separation anxiety may signal the enmeshment issues raised in the literature.

Another moderating variable could be child temperament. Mothers who report higher levels of MSA and have an infant/young child who is inhibited (has problems separating from his/her mother) may be more sensitive and responsive to their child's needs. Therefore, higher

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levels of self-reported MSA may be more adaptive to the attachment process when they reflect actual child needs, rather than strictly maternal beliefs.

In conclusion, the inconsistency of links between MSA and infant-mother attachment security argues that there may not be a direct association between MSA and mother-infant attachment, and that one or more moderating variables (in conjunction with sampling differences) account for the discrepant results.

Controlling for general anxiety and depressive tendency did not alter the (in this case poor) predictive ability of MSA for mother-child relations, either in terms of maternal separation and reunion behavior or infant-mother attachment. Thus, statistically removing more stable aspects of a mother's tendency to experience anxiety and distress did not yield a "purer" indicator of maternal ambivalence about her child's independence that had bearing on either her own behavior or the security of their relationship. There simply is not much connection between the feelings educated, White, working mothers report on the MSA subscale and their behavior around daily separations, and only a limited, perhaps even random, connection to attachment quality.

Despite the lack of significant findings in the present study, the results do tell us something about maternal separation anxiety among well-educated, working mothers-- specifically what variables it is not associated with--and provide some clues as to what other constructs MSA may be associated with, which does advance the knowledge base in the field of parenting research. In developmental psychology, very little research addresses parenting beliefs in general, or maternal beliefs in particular. Specifically, there is little research related to how a mother feels about separating from her child. In the present study, maternal separation anxiety does not seem to be capturing something about mother-child relations, but it may tell us

something about how well-educated mothers achieve in their careers. Well-educated mothers who report higher levels of MSA may choose to work fewer hours, arrange to work flex time, or choose slower career tracks in order to spend more time with their children (i.e., taking longer to make partner at a law firm, or achieve tenure at an academic institution). MSA may not be evident in a well-educated mother's parenting behavior, but may manifest itself in the career choices these mothers make.

## 6.0 CONCLUSION

In this sample of well-educated mothers, the construct of maternal separation anxiety appears somewhat problematic, with no strong or consistent links to any of the theoretically relevant variables examined in this study, other than, ironically enough, level of maternal education. The lack of consensus in the results of studies examining MSA implies that there may either be moderating variables at work in the association between MSA and maternal functioning, that the MSAS measure may not be a valid measurement tool of MSA, and/or that the construct of maternal separation anxiety may not be highly relevant to parenting within a well-educated and more or less well-off sample of mothers. One must consider the possibility that MSA is merely an indication that a mother wants to care for her own child at home, even if she also wants (or has) a career, or simply works in order to contribute to the household income.

## 6.1 LIMITATIONS

The data from this investigation provide only a set of snapshots of how a modest-sized sample of well-educated, married, White, working mothers report feelings of anxiety related to separating from their infant/young child at non-maternal care. The generalizability of these results is obviously limited to this population of well-educated, married, White, working mothers. The size

of the sample and its homogeneity likely limited its power to detect associations that characterize a broader segment of the population of working mothers.

The process by which the maternal behavior data were collected is also a limitation of this study. The large number of observers, question of whether training was provided to observers, caregiver pre-existing relationships with children and their parents and/or distractibility of caregivers, and the lack of inter-rater reliability statistics could have resulted in unreliable and/or inaccurate data being collected. Therefore, the data collected may not have been the accurate, objective data required to validate the self-report MSA measure.

Another limitation is that no child characteristics or circumstances were taken into consideration in this analysis. Child temperament may have an influence on the MSA a mother feels. Mothers of inhibited or difficult temperament infants/young children may experience more MSA than mothers of easy temperament infants/young children. Additionally, quality of center-based care may have an influence on the MSA a mother feels. Mothers leaving their child in a high quality center (e.g., centers having a positive reputation in the community, a long waiting list, accreditation by the National Association for the Education of Young Children (NAEYC), and/or the recommendation of a director from another center) may report lower MSA than those mothers leaving their children in a center that is of questionable quality. These center- and child-related variables may explain some of the MSA variance in this study. Therefore, the results of this study need to be interpreted with care.

## 6.2    FUTURE RESEARCH

If the results of this study are valid, maternal separation anxiety does not seem to merit more empirical attention, at least among well-educated mothers, and in relation to parenting. Maternal separation anxiety appears to be more relevant to less educated mothers who either stay home or work at lower paying jobs. However, there are two caveats to this position. First, if additional research is undertaken, researchers may need to look at day-to-day parenting in the home, especially independence socialization. MSA may be inversely related to independence-promoting behavior in the home. Second, although maternal separation anxiety may not be an especially useful concept for parenting among well-educated, working women, MSA may be a useful construct for gaining insight into maternal career development and/or employment behavior. If future research is conducted, it may be helpful to look at maternal employment decisions and career tracks.

Any future research should also be designed to examine aspects of both the mother's and the infant/child's temperament in order to detect any moderating influences of either variable on the association between MSA and mother-child interaction. Including these variables into analyses of MSA and mother-child relations may reveal moderating effects.

In may be possible to obtain a better understanding of maternal separation anxiety if future research were designed as a mixed-methods study of employed mothers. The MSA subscale could still be used, but could be administered as part of a more in-depth interview, so that researchers could provide item clarification when necessary and mothers could explain and elaborate on their responses. This approach allows the subjective meaning of the MSA questions to be explored rather than inferred. Finally, in order to conduct an accurate analysis of the validity of the MSA measure, trained observers could collect observational data of mothers and

children at home. Data from the home may explain differences in associations across samples between MSA and maternal characteristics by providing a basis for comparison to maternal disposition demonstrated at separation and reunion from one's child at non-maternal care. Designing future studies this way may provide information that explains the inconsistent findings in previous research on MSA and provide clues to the etiology and possible moderators of maternal separation anxiety that further understanding of this construct.

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