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# A secure place: Attachment patterns and socioeconomic status

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# A secure place: Attachment patterns and socioeconomic status

## **Abstract**

Attachment patterns have been studied cross-culturally for decades providing a basis for understanding universal human development. Current attachment research suggests that within-group differences, such as socioeconomic status (SES), may be more significant than differences between cultures in the development of attachment style. Interpersonal attachment styles have been shown to affect cognitive, emotional, and behavioral functioning across the lifespan. Socioeconomic status has also been related to cognitive, emotional, and behavioral functioning across the lifespan. Socioeconomic status in the United States involves factors including access to resources such as housing, education, and health care that may be linked to the developmental process of attachment. This literature review includes an examination of the current body of attachment theory research, an exploration of socioeconomic status in the United States, and a discussion of the possible relationship between attachment and SES. The discussion on attachment patterns and socioeconomic status in the United States offers an investigation into remaining questions around how SES impacts attachment and informs the developmental process. The concluding summary considers implications for intervention and suggestions for future research.

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Running header: ATTACHMENT AND SOCIOECONOMIC STATUS

A SECURE PLACE: ATTACHMENT PATTERNS AND SOCIOECONOMIC STATUS

A THESIS SUBMITTED  
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APPROVED: Shahana Koslofsky, Ph.D.

## ATTACHMENT AND SOCIOECONOMIC STATUS

**Table of Contents**

ABSTRACT.....	4
ACKNOWLEDGEMENTS.....	5
INTRODUCTION .....	6
ATTACHMENT OVERVIEW.....	9
The Strange Situation.....	11
Attachment Styles .....	13
Attachment Measures.....	14
Other Attachment Considerations.....	16
Attachment and Development.....	17
Attachment & health development .....	18
Attachment & social and emotional development .....	19
Attachment & cognitive development and academic achievement .....	21
Cross-cultural Patterns of Attachment .....	23
Intra-cultural Differences in Attachment .....	24
SOCIOECONOMIC STATUS OVERVIEW.....	27
Individual and Collective Indicators of Socioeconomic Status .....	28
Socioeconomic Measures.....	30
Socioeconomic Status in the United States.....	32
Socioeconomic Status and Development.....	34
SES & health development .....	35
SES & social and emotional development.....	37
SES & cognitive development and academic achievement .....	38

## ATTACHMENT AND SOCIOECONOMIC STATUS

DISCUSSION.....	40
Attachment and SES Developmental Links.....	41
The Resource Factor .....	43
The Stress Factor.....	45
The Resiliency Factor .....	47
Bidirectional Effects .....	48
CONCLUSION.....	49
REFERENCES .....	53

## ATTACHMENT AND SOCIOECONOMIC STATUS

### **Abstract**

Attachment patterns have been studied cross-culturally for decades providing a basis for understanding universal human development. Current attachment research suggests that within-group differences, such as socioeconomic status (SES), may be more significant than differences between cultures in the development of attachment style. Interpersonal attachment styles have been shown to affect cognitive, emotional, and behavioral functioning across the lifespan. Socioeconomic status has also been related to cognitive, emotional, and behavioral functioning across the lifespan. Socioeconomic status in the United States involves factors including access to resources such as housing, education, and health care that may be linked to the developmental process of attachment. This literature review includes an examination of the current body of attachment theory research, an exploration of socioeconomic status in the United States, and a discussion of the possible relationship between attachment and SES. The discussion on attachment patterns and socioeconomic status in the United States offers an investigation into remaining questions around how SES impacts attachment and informs the developmental process. The concluding summary considers implications for intervention and suggestions for future research.

**Keywords:** Attachment, development, socioeconomic status

## ATTACHMENT AND SOCIOECONOMIC STATUS

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## ATTACHMENT AND SOCIOECONOMIC STATUS

### **Introduction**

The World Health Organization (WHO) posits that the social determinants of health are primarily responsible for the inequity of health status seen within and between countries (WHO, 2013). Social determinants of health, as defined by the World Health Organization, are “the circumstances in which people are born, grow up, live, work, and age,” and how these circumstances impact health outcomes (WHO, 2013). These circumstances are often governed by the distribution of wealth and include access to resources such as nutrition, housing, education, employment, and health care (WHO, 2013). Collectively, access to these resources in the United States is greatly determined by socioeconomic status (SES), defined by the American Psychological Association as the “social standing or class of an individual or group...often measured as a combination of income, education, and occupation” (APA, 2013). Socioeconomic status is increasingly being recognized in research literature as a significant contributor to developmental and health outcomes and the impact of SES on various developmental processes, such as the process of interpersonal attachment, is a subject of current study.

As a developmental process that shapes human maturation from infancy onwards, interpersonal attachment has been widely researched in a variety of contexts. Attachment theory, as developed by John Bowlby and Mary Ainsworth, describes the importance of the infant-caregiver relationship as fundamental in social development and subsequent relational functioning (Ainsworth & Bowlby, 1991). First formally recognized in the works of Bowlby and Ainsworth in the 1950s and 60s, attachment theory has generated a proliferation of research that continues to shape the understanding of the capacity for relationship and influences on the interpersonal process.

## ATTACHMENT AND SOCIOECONOMIC STATUS

Attachment may be described as an evolutionary adaptation of infant-caregiver closeness towards increased protection and therefore survival (Cassidy & Shaver, 2008). The biological basis of attachment behavior has been organized into a system of specific behaviors that lead to predictable outcomes of evolutionary consequence (Cassidy & Shaver, 2008). The effects of early attachment patterns can be seen in cognitive, emotional, and behavioral functioning across the lifespan (Cassidy & Shaver, 2008). It is theorized that children develop internal working models of early attachment figures that lay the groundwork for how the child views self, others, and the world. There is a complex interplay of factors affecting the development of attachment including individual differences in infant and caregiver, and the conditions of the environment (Cassidy & Shaver, 2008).

Decades of research on cross-cultural patterns of attachment have provided hypotheses on the universality of attachment theory and its applications (Cassidy & Shaver, 2008). The need for increased attention to the cultural context of attachment processes is highlighted in current attachment research, and in particular the need for further study of the within-culture differences that have not historically received attention in cross-cultural studies (Rothbaum et al., 2000). Factors such as familial history, intergenerational trauma, and socioeconomic status are important within-culture considerations with implications for the attachment process.

Socioeconomic status is recognized as a significant factor in a number of developmental domains related to cognitive, emotional, and behavioral functioning across the lifespan, yet there is a lack of research specifically regarding SES and the attachment process. John Bowlby recognized conditions of danger or stress for the infant, such as hunger, pain, or the presence of threatening stimuli, and the subsequent behavior of the mother as an influence in the formation of attachment (Cassidy & Shaver, 2008). Therefore socioeconomic status conditions of housing

## ATTACHMENT AND SOCIOECONOMIC STATUS

environment, safety of living conditions, and availability of caregivers may also be of importance in the attachment process.

In the understanding that social factors influence health outcomes, it is important to study social factors affecting attachment processes as it may provide expanded opportunities for additional methods of assessment and intervention to improve health outcomes. Healthy interpersonal attachment is an indicator of healthy adult functioning and health status and by further understanding factors related to the development of interpersonal attachment, there may be furthered opportunity for targeted interventions.

The aim of this literature review is to examine the current knowledge of attachment theory, explore the potential relationship between attachment and SES, and provide suggestions for future research and targeted interventions. The background contains an overview of attachment theory including attachment measures and attachment styles, and an overview of socioeconomic indicators in the United States. An investigation of the literature on the cultural context of attachment processes, both inter- and intra-cultural considerations for attachment theory, and social factors in the development of attachment is included. The discussion section will include hypotheses related to the role of SES on a caregiver's ability to form a secure attachment and on children's ability to form attachments. In further understanding the impact of attachment on development and the impact of SES on development, remaining questions around the impact of SES on attachment and how SES informs the developmental process are discussed. The concluding summary includes implications for the applicability of attachment theory, intervention, and suggestions for further study.

## ATTACHMENT AND SOCIOECONOMIC STATUS

### **Attachment Overview**

“It is in the crucible of the child’s first relationships that, for better or worse, the self is originally shaped.” (Wallin, 2007, p. 59).

John Bowlby described attachment as the complex process of the infant-mother bond that lays groundwork for the development of the child (Karen, 1998). This interpersonal attachment process may be defined as a powerful survival impulse or mechanism in human evolution, a biological imperative, and the nature of this process is described in attachment theory (Myers, 2008). Attachment plays an important role throughout the lifespan and the following overview will describe the history and development of attachment theory.

In the 1950s, the prevailing psychoanalytic and social learning models used secondary-drive theory to explain the nature of the infant-mother bond (Cassidy & Shaver, 2008). It was proposed that the infant experienced satisfaction in feeding and in turn began to associate pleasure with the mother’s presence (Cassidy & Shaver, 2008). A British psychoanalyst and researcher, John Bowlby, was unsatisfied with these theories as he learned of animal studies demonstrating newborn animals connecting to other animals or objects that did not provide food (Cassidy & Shaver, 2008). Austrian zoologist Konrad Lorenz (1935) observed geese becoming attached to parents or objects that did not feed them, and American psychologist Harry Harlow (1958) observed rhesus monkeys under stress preferred a cloth covered object that offered contact comfort over a wire-mesh object that provided food (Cassidy & Shaver, 2008). Human observational studies of this nature followed suit as it was recognized that babies formed connections to others who did not feed them (Cassidy & Shaver, 2008). Bowlby consulted with colleagues from various fields including evolutionary biology, ethology, and cognitive science in

## ATTACHMENT AND SOCIOECONOMIC STATUS

his proposal of a biologically based desire for relationship closeness rather than the secondary-drive explanation (Cassidy & Shaver, 2008). Bowlby formally introduced his theory of attachment in a series of works including “The Nature of the Child’s Tie to His Mother” published in the *International Journal of Psychoanalysis* (1958), and his trilogy (1969/1982, 1973, 1980) *Attachment and Loss* (Cassidy & Shaver, 2008).

Bowlby described an “attachment behavioral system” designed by evolution to increase survival and reproduction (Wallin, 2007). He noted three instinctual responses including proximity to a protective figure, using the protective figure as a base to explore the outside world, and returning to the protective figure when in distress (Wallin, 2007). Proximity to a protective figure includes “seeking, monitoring, and attempting to maintain” connection via methods such as crying, clinging, and crawling (Wallin, 2007). The protective figure(s) may be one or many, relative or non-relative, though the infant preference for the primary figure is frequently the mother regardless of the extent of her involvement with the child (Wallin, 2007). When the child’s attachment figure is regularly available to provide protection, the child often feels free to explore the surrounding environment (Wallin, 2007). In establishing this trust, the child is able to both explore the outside world and return to the attachment figure for comfort when threatened (Wallin, 2007). In situations of danger or fear, both internal and external, humans have evolved to seek security in the company of another person regarded as a protective figure (Wallin, 2007). Seeking security from another is a common trait of other primates but distinct from many other species that seek safety in a place, such as a burrow underground, rather than from another (Wallin, 2007). When a human infant senses loud sounds or experiences separation from the mother or another threat to survival, the proximity seeking behavior is triggered to seek protection for survival (Wallin, 2007).

## ATTACHMENT AND SOCIOECONOMIC STATUS

Bowlby's research team included an American-Canadian psychologist, Mary Ainsworth, who conducted observational studies of attachment patterns in Uganda in the 1950s and in Baltimore in the 1960s (Cassidy & Shaver, 2008). Over a two year period in villages near Kampala, Uganda, Ainsworth observed attachment patterns in infants and published her findings in 1967 in her book, *Infancy in Uganda* (Crain, 2011). Ainsworth described infant patterns in attachment and how they use their mother as a secure base to explore (Crain, 2011). The results of her observational studies furthered the development of attachment theory and her data was used in Bowlby's continued work (Cassidy & Shaver, 2008). When Ainsworth returned to the United States from Uganda, she conducted a further detailed study of 23 middle-class mothers and their babies in Baltimore to expand on and replicate her findings from the Uganda study (Crain, 2011). Her studies contributed significantly in the development of attachment theory and inspired continued research on attachment patterns (Crain, 2011). Since Ainsworth's initial studies, her attachment research methods have been replicated hundreds of times by scientists all over the world (Siegel, 2010).

### **The Strange Situation**

In Ainsworth's Baltimore study, she developed a procedure called the Strange Situation to observe infants and their mothers (Crain, 2011). The Strange Situation as used in the Baltimore study was a brief procedure that consisted of two mother-child separation situations in a playroom at Johns Hopkins University (Crain, 2011). In the first situation, the mother left the baby with a stranger (a female graduate student in the case of the Baltimore study) and the baby was left alone in the second situation (Crain, 2011). The separations lasted three minutes but were shorter if the baby displayed excessive distress (Crain, 2011). From this observational

## ATTACHMENT AND SOCIOECONOMIC STATUS

study, Ainsworth and her coworkers noted three distinctive patterns including securely attached infants, insecure-avoidant infants, and insecure-ambivalent infants (Crain, 2011).

In the Strange Situation, securely attached infants would use the mother as a base to explore the new playroom environment and their exploration would decrease and they were visibly upset when the mother left the room (Crain, 2011). When the mother returned to the room, they would greet the mother and remain close for a brief time before returning to exploratory play (Crain, 2011). Insecure-avoidant infants would begin to explore the new playroom environment without using the mother as a secure base (Crain, 2011). These babies did not become visibly upset when the mother left the room and they did not seek proximity upon return (Crain, 2011). If the mother picked them up, they turned their gaze or bodies away from her and tended to ignore or avoid her presence (Crain, 2011). The insecure-ambivalent infants barely explored as they were so preoccupied with the mother (Crain, 2011). They were distraught when the mother left the room and ambivalent upon her return as they would reach out and then push away (Crain, 2011).

Cross-cultural research has shown that the Strange Situation produces the same three patterns around the world from various studies in China, Israel, Japan, the United States, and in Africa and Western Europe (Crain, 2011). The patterns are typically classified in research as (A) avoidant, (B) secure, and (C) resistant or ambivalent (Cassidy & Shaver, 2008). In addition to the three patterns Ainsworth first noted, a fourth category, (D) disorganized or disoriented, was later recognized as another type of insecure classification (Crain, 2011). Researchers Mary Main and Judith Solomon examined 200 Strange Situation cases in the 1980s and noted particular behavior from some infants that didn't quite fit into Ainsworth's original three categories (Crain, 2011). The researchers noticed that some children would attempt to greet the mother on her

## ATTACHMENT AND SOCIOECONOMIC STATUS

return to the playroom but would display fearful behavior such as freezing in a seemingly “trance-like state” (Crain, 2011, p. 62).

Ainsworth noted that the mothers of infants classified as securely attached had been rated as sensitive and responsive to their babies’ signals in prior home observations (Crain, 2011). The insecure-avoidant infants’ mothers had been rated as relatively insensitive and rejecting, and the insecure-ambivalent infants’ mothers had been rated as inconsistent in their behavior towards the child (Crain, 2011). From her observational studies, Ainsworth described secure attachment as an outcome of maternal sensitivity and responsiveness to the child’s needs and her findings have been replicated in numerous further studies by other researchers (Crain, 2011).

### **Attachment Styles**

In general, research indicates around 50%-70% of the human population develops a secure attachment pattern (Crain, 2011). A secure attachment pattern is marked by trust and intimacy and is considered a hallmark of healthy adult relational functioning (Myers, 2008). Secure adults have a generally positive self-image, sense of self-worth, and an ability to give and receive love in relationships (Myers, 2008). Insecure attachment patterns are often divided into various patterns including avoidant, preoccupied or anxious-ambivalent, dismissive, resistant, and disorganized among other patterns (Myers, 2008; Crain, 2011). While the labels for similar patterns may differ and attachment styles have been categorized in several ways by various researchers, the distinct categories of secure (indicating healthy functioning) and insecure (indicating distressed functioning) remain in attachment classification systems. As infant attachment patterns have been connected to adult relationship functioning in numerous studies, it

## ATTACHMENT AND SOCIOECONOMIC STATUS

is important to understand both how these patterns develop and what factors may contribute in addition to the mother-infant relationship.

The mother-infant relationship is generally regarded as the most significant factor in the development of secure attachment. Prior home observations in the Baltimore study revealed that the mothers of secure infants had been attentive and available to respond to their babies' cries and the babies used the mother as a secure base to explore the home (Crain, 2011). Ainsworth postulated the mother's responsiveness had allowed the baby to develop trust in the protection from the mother which offered the baby the courage to explore (Crain, 2011). Additionally, the infants' distress at the mothers' departure and their greeting upon the mothers' return indicated the need for proximity for protection (Crain, 2011). Regarding the insecure-avoidant infants, Ainsworth postulated that the infants could not trust their mothers for protection and therefore attempted to block their need for their mother and developed a defensive avoidant response (Crain, 2011). Later studies showed this attachment pattern may result in adult relationships marked by distrust and fear of rejection (Myers, 2008). The insecure-ambivalent infants appeared uncertain in their maternal bond, at times reaching for their mother and then pulling away, and Ainsworth proposed this was in response to their mother's inconsistent availability (Crain, 2011). This early ambivalence may manifest as a lack of trust in adult relationships, and attachments marked by a sense of unworthiness, anxiety, and possessiveness (Myers, 2008).

### **Attachment Measures**

There are numerous attachment measures that have been developed since the Strange Situation for assessing attachment patterns in children and adults. The Adult Attachment Interview (AAI) originally developed in 1984 by Carol George, Nancy Kaplan, and Mary Main,

## ATTACHMENT AND SOCIOECONOMIC STATUS

is a commonly used semi-structured interview that assesses adult representations of attachment (Cassidy & Shaver, 2008). The AAI has been used in several longitudinal studies in the United States indicating significant links between infancy attachment patterns and subsequent adult attachment patterns (Cassidy & Shaver, 2008). In these studies, Strange Situation behavior was recorded for participants at age 12 months, and 19-21 years later the Strange Situation behavior was predictive of participants' AAI classification (Cassidy & Shaver, 2008). In addition, a significant link between a parent's AAI classification and their infant's Strange Situation classification has been demonstrated and replicated in numerous studies (Cassidy & Shaver, 2008). A parent's AAI classification has been linked to their ability to provide the sensitive and nurturing caregiving to establish a secure attachment (Cassidy & Shaver, 2008). The findings indicate parental attachment style is an important factor in an infant's attachment style and these patterns may be passed down from generation to generation (Cassidy & Shaver, 2008).

The Attachment Q-Set is another measure of attachment developed in 1987 by Everett Waters and Kathleen Deane (Waters, 1987). The measure consists of 90 items and has been used to test the validity of the Strange Situation classifications across age, culture, and in clinical populations (Waters, 1987). It was developed to further examine the relationship between secure base behavior and attachment styles, to better define the behavioral manifestations of the secure base concept, and to explore secure base behavior and attachment security differences beyond infancy (Waters, 1987). The Attachment Q-Set is currently in its third revision and continues to be used by attachment researchers (Waters, 1987).

## ATTACHMENT AND SOCIOECONOMIC STATUS

### **Other Attachment Considerations**

The understanding from attachment theory generates many questions. In the development of attachment patterns various studies have considered the child's relationship with the father or other caregivers, the child's innate characteristics, how attachment in infancy is related to adult relationship functioning and how it is measured, and questions around how other variables may foster or inhibit secure attachment. The complex discussions of these questions are beyond the scope of this literature review specifically investigating socioeconomic status and a potential relationship with attachment patterns in the United States. However, a brief description of the current research related to these questions is warranted.

The role of the father and other caregivers were explored in Bowlby and Ainsworth's original developments and Bowlby originally discussed a hierarchy of attachment relationships with the mother as the primary caregiver (Cassidy & Shaver, 2008). While the mother was generally viewed as the primary attachment relationship, it was acknowledged that the biological mother does not need to be in that role and attachment patterns are developed with others who interact closely with the child (Cassidy & Shaver, 2008). Studies of child-father and child-caregiver attachments found that greater sensitivity in caregiving was associated with more secure attachment patterns as has been found in child-mother studies (Cassidy & Shaver, 2008). Research suggests that when fathers are engaged in caregiving activities, there is little difference in child-mother and child-father relationships (Cassidy & Shaver, 2008). Studies have also shown that children who become securely attached to their mothers typically form secure attachments with another family member or caregiver (Cassidy & Shaver, 2008).

## ATTACHMENT AND SOCIOECONOMIC STATUS

As attachment relationships are co-created between child and parent or child and caregiver, the child's innate characteristics such as temperamental attributes have been considered in attachment studies. Researchers Brain Vaughn, Kelly Bost, and Marinus van Ijzendoorn reviewed data from over 50 published studies including over 60 nonclinical samples of children and found the results inconsistent and contradictory (Cassidy & Shaver, 2008). The reviewed studies included all of the major temperament theories in attachment and it was concluded that secure versus insecure attachment could not be explained by temperament constructs and attachment constructs were not sufficient to explain differences in temperament (Cassidy & Shaver, 2008). Their conclusions have since been affirmed by further studies on attachment and temperament (Cassidy & Shaver, 2008).

Further research is needed to explore the complicated relationship of temperament and attachment as current studies indicate both attachment and temperamental differences are modified by the environment as well as the behavior of caregivers (Cassidy & Shaver, 2008). As developments in neuroscience offer new ways to measure the physiological dimensions of temperamental differences, new ways of measuring attachment patterns will continue to develop understanding of attachment processes (Cassidy & Shaver, 2008).

### **Attachment and Development**

Decades of research support attachment theory in the prediction of outcomes of child development (Cassidy & Shaver, 2008). Attachment impacts development in a variety of domains including health, socioemotional development, and cognitive and academic attainment (Cassidy & Shaver, 2008). Bowlby suggested an internalization of "working models" that children develop based on their primary relationships and carry into subsequent situations and

## ATTACHMENT AND SOCIOECONOMIC STATUS

relationships (Sroufe, 1988). From these early representational understandings which are still studied today, to advancements in neuroscience that have allowed for a broadened understanding of the impact of early attachment relationships on developing neural systems, attachment theory remains at the forefront of our understanding of childhood development and psychological outcomes including social, emotional, cognitive, and behavioral indicators. In addition to parental attachment style, studies have found additional factors to concurrently impact the development of attachment patterns. Social, environmental, biological, psychological, cultural, and other factors are considered in attachment studies as related to the impact on maternal sensitivity, the developing infant, and the co-creation of the relationship.

**Attachment & health development.** Attachment patterns have been used to indicate risk factors for the development of disease and chronic illness (McWilliams & Bailey, 2010). In a study using data from the National Comorbidity Survey Replication (N=5645), cross-sectional samples were used to investigate adult attachment ratings and health conditions (McWilliams & Bailey, 2010). Study participants were rated using a self-report measure of adult attachment style and a self-report measure of 15 health conditions (McWilliams & Bailey, 2010). The results indicated avoidant attachment patterns were positively associated with pain conditions and anxious attachment ratings were positively associated with a range of cardiovascular system conditions including stroke, heart attack, high blood pressure and ulcers (McWilliams & Bailey, 2010). Secure attachment ratings were unrelated to the health conditions and the findings were supportive of the theory that insecure attachment is a risk factor for the development of disease and chronic illness (McWilliams & Bailey, 2010).

## ATTACHMENT AND SOCIOECONOMIC STATUS

Relational experiences during childhood may create neurobiological vulnerabilities that lead to poorer health outcomes in adulthood (Hertzman, 1999). This relationship has been termed “biological embedding” by Hertzman as he examines evidence of the effects of early biologic damage that leads to later adverse health outcomes (Hertzman, 1999). He describes how the quality of early life experiences contribute to subsequent differences in health status through differences in brain development and the conditioning of immune defense systems that depend on communication with the developing brain (Hertaman, 1999).

The health benefits of secure attachment have been studied cross-culturally with findings reporting secure attachment as a health protective factor (van Ijzendoorn & Sagi-Schwartz, 2008). Studies have indicated secure attachment as protective factor against malnutrition in infancy and early childhood, and insecure attachment as a precursor to stress related illness in later childhood and adulthood (Cassidy & Shaver, 2008).

**Attachment & social and emotional development.** Longitudinal studies suggest that early attachments set the stage for future social relationships (Shonkoff, 2000). This occurs as young children acquire the ability to form mental representations of early attachment which guide their expectations about the availability and responsiveness of potential friends and partners (Shonkoff, 2000). Securely attached children are more likely to develop positive expectations for close relationships and have an easier time developing positive, supportive relationships with teachers, friends, and others compared to their insecurely attached counterparts (Shonkoff, 2000). Insecurely attached children may have more difficulty with trust and establishing intimacy in relationships (Shonkoff, 2000). There is also evidence that securely

## ATTACHMENT AND SOCIOECONOMIC STATUS

attached children form a more balanced self-concept, develop more advanced memory processes, and have greater emotional regulation abilities (Shonkoff, 2000).

Secure attachments play an important role in shaping the systems that cause children's reactivity to stressful situations and in their ability to regulate emotions (Shonkoff, 2000). Early attachment can affect the neural circuitry that governs behavioral stress responses in the offspring (Shonkoff, 2000). Studies indicate stress in young children is intimately linked with social experiences as the presence of caregivers who are warm and responsive in stressful situations prevent elevations in stress hormones, whereas insecure attachment relationships are associated with higher cortisol levels in potentially threatening situations which over time may lead to difficulties in adaptive stress responses (Shonkoff, 2000). The importance of sensitive modeling in child development is highlighted in attachment theory and provides a basis for understanding how children develop emotional regulation skills and coping skills for managing stress and trauma.

The field of "interpersonal neurobiology" as termed by Dr. Dan Siegel is an interdisciplinary approach to understanding of the neural systems that shape attachment and the role of early relationships in shaping the developing brain (Siegel, 2010). Interpersonal neurobiology attempts to bridge common findings from various fields of study to offer a comprehensive understanding of human development and experience (Siegel, 2010). In a book published in 2006 as part of a series in interpersonal neurobiology, Dr. Louis Cozolino writes:

In contemporary society, the real challenges are multitasking, balancing the demands of work and family, information management, and coping with stress. We need to maintain perspective, pick our battles carefully, and remain mindful of ourselves in the midst of countless competing demands. What prepares us best for these demands? In some ways,

## ATTACHMENT AND SOCIOECONOMIC STATUS

it is the same thing that prepared our ancient ancestors for survival in their world: early nurturance, which plays a vital role in the development and integration of the diverse systems within our brains. Optimal sculpting of the prefrontal cortex through healthy early relationships allows us to think well of ourselves, trust others, regulate our emotions, maintain positive expectations, and utilize our intellectual and emotional intelligence in moment-to-moment problem solving. We can now add a corollary to Darwin's survival of the fittest: Those who are nurtured best, survive best. (p. 14)

**Attachment & cognitive development and academic achievement.** The development of secure attachment in infancy has been associated with a number of cognitive and academic outcomes in later life. In a study investigating the relationship between attachment and children's play, securely attached children were better able to integrate an experimenter's suggestions and were found to have greater "executive capacity" scores which was described as a "quantitative measure of how the level of sophistication of symbolic play was affected by instruction from an experimenter" (Meins & Russell, p. 69, 1997). The results offer potential evidence that securely attached children may have a capacity for greater social responsiveness and social flexibility (Meins & Russell, 1997).

The association between attachment and school-related cognitive functioning was longitudinally examined in a sample of 108 school-age children (Moss & St-Laurent, 2001). The quality of mother-child attachment patterns and child cognitive engagement were evaluated through a separation-reunion procedure occurring when the children were six years old and then again at eight years old (Moss & St-Laurent, 2001). Children's mastery motivation and academic performance were assessed and the analysis indicated secure children had higher scores than

## ATTACHMENT AND SOCIOECONOMIC STATUS

their insecure counterparts on communication, cognitive engagement, and mastery motivation assessments (Moss & St-Laurent, 2001). Avoidant and ambivalent children were lowest on mastery motivation (Moss & St-Laurent, 2001). The results support the relationship between attachment processes and cognitive functioning in children (Moss & St-Laurent, 2001).

In a study of 418 undergraduate students, the relationship between parental support and academic achievement was interpreted in the context of attachment theory and provides evidence for the ongoing role of early relationships in continued achievement (Cutrona, Cole, Colangelo, Assouline & Russell, 1994). The study examined parental social support through a self-measure and grade point averages obtained from the university registrar (Cutrona et al., 1994). Results indicated parental social support significantly predicted college grade point average when controlling for academic aptitude using American College Testing entrance exam scores (Cutrona et al., 1994).

A literature review exploring attachment and cognition considered numerous studies on attachment patterns and cognitive ability and educational achievement (De Ruiter, van Ijzendoorn, 1993). The review supports the notion that attachment quality impacts children's cognitive development and secure attachment bonds enhance children's cognitive competence (De Ruiter, van Ijzendoorn, 1993). The authors of the review concluded that the modeling of sensitive behavior in problem solving situations with children allows for healthy development of self-esteem, motivation, intellectual curiosity, attention, persistence, and problem solving skills (De Ruiter, van Ijzendoorn, 1993).

## ATTACHMENT AND SOCIOECONOMIC STATUS

### **Cross-cultural Patterns of Attachment**

There are four main hypotheses in attachment theory that have provided a reference for cross-cultural research (van Ijzendoorn & Sagi-Schwartz, 2008). The “universality hypothesis” proposes all infants are predisposed to become attached to one or more caregivers regardless of culture, except in perhaps cases of severe neurophysiological impairments in an infant (van Ijzendoorn & Sagi-Schwartz, 2008). The “normativity hypothesis” suggests secure attachment is normative in terms of frequency and healthy developmental outcomes (van Ijzendoorn & Sagi-Schwartz, 2008). The “sensitivity hypothesis” describes attachment security as dependent on maternal or other primary caregiver’s responsiveness to an infant’s cues (van Ijzendoorn & Sagi-Schwartz, 2008). The “competence hypothesis” proposes attachment security leads to differences in ability to regulate emotional experience, develop cognitive abilities, and establish healthy relationships with others (van Ijzendoorn & Sagi-Schwartz, 2008).

In an analysis of cross-cultural research on attachment, the universality hypothesis appeared to be most strongly supported (van Ijzendoorn & Sagi-Schwartz, 2008). This suggests that however attachment may be conceptualized culturally, the biologically based desire to seek proximity to a caregiver Bowlby described is indeed a universal human phenomenon (van Ijzendoorn & Sagi-Schwartz, 2008). Cross-cultural evidence for the normative hypothesis is also strong, indicating secure attachment is a desired developmental outcome across cultures (van Ijzendoorn & Sagi-Schwartz, 2008). Evidence for the sensitivity and competence hypotheses are modest and suggest these constructs may have distinct culturally bound components (van Ijzendoorn & Sagi-Schwartz, 2008).

## ATTACHMENT AND SOCIOECONOMIC STATUS

### **Intra-cultural Differences in Attachment**

A meta-analysis of cross-cultural differences in attachment using Ainsworth's Strange Situation showed intra-cultural variation was nearly 1.5 times cross-cultural variation meaning that within group differences such as socioeconomic status may account for more variation in attachment outcomes than differences between cultures (van IJzendoorn & Kroonenberg, 1988). The researchers analyzed data from 32 samples representing eight countries and 1,990 Strange Situation classifications (van IJzendoorn & Kroonenberg, 1988). Prior research on cross-cultural differences relied on incomplete data and lacked empirical evidence to support the notion of large cross-cultural differences compared with intra-cultural differences (van IJzendoorn & Kroonenberg, 1988). The researchers noted that previous studies concluded with the exclusion of data within countries, did not address the intra-cultural variation in relatively diverse countries such as the United States, and there was an absence of analysis in the range of sampling distributions (van IJzendoorn & Kroonenberg, 1988).

The meta-analysis using the Strange Situation differed from previous studies in that it compared individual samples with a global distribution derived from all available samples (van IJzendoorn & Kroonenberg, 1988). Sample data from multiple studies was compiled by county or continent to reduce the risk of unreliable distributions of individual samples and distributions within regions were considered to more accurately compare differences (van IJzendoorn & Kroonenberg, 1988). Three types of analyses were performed on the data including an index of variability to assess significant deviations within samples, Pearson's chi-squared test to evaluate inter- and intra-cultural differences, and correspondence analysis to investigate differences in sample profiles (van IJzendoorn & Kroonenberg, 1988).

## ATTACHMENT AND SOCIOECONOMIC STATUS

Results of the analysis showed significant intra-cultural differences and a number of instances found samples from one country were more similar to those from other countries than they were to samples from within the country (van IJzendoorn & Kroonenberg, 1988). Frequencies of A (avoidant), B (secure), and C (resistant) attachment classifications from the 32 samples found secure attachment as the most common however the article states, “whether or not this implies that patterns of secure attachments (as understood in US research) predominate in all rearing environments cannot be established in the absence of data obtained outside the Strange Situation” (van IJzendoorn & Kroonenberg, 1988). The differences in the distributions of the non-US and US samples were nearly zero and while some cross-cultural differences were observed, particularly a higher frequency of classification A in Western Europe and classification B in Japan and Israel, the intra-cultural differences were found to be more significant overall than cross-cultural differences found in the analysis (van IJzendoorn & Kroonenberg, 1988).

A later study focusing on cultural patterns and attachment suggests attachment theory is bound in Western cultural values and meaning and hence the universality hypothesis of attachment theory used in cross-cultural studies of attachment patterns may be misguided (Rothbaum, Weisz, Pott, Miyake & Morelli, 2000). The study compares the three core hypotheses of attachment theory including sensitivity, secure base, and competence in Japan and the United States. (Rothbaum et al., 2000). The assumptions of attachment theory include maternal sensitivity leads to secure attachment, secure attachment in the infant serves as a base to explore the external world, and secure attachment leads to later secure relationships (Rothbaum et al., 2000).

## ATTACHMENT AND SOCIOECONOMIC STATUS

In the comparison of attachment patterns in Japan and the United States, it was found that sensitivity, secure base, and competence were viewed differently in Japan and the United States and thus using these measures as a basis of secure attachment may be biased (Rothbaum et al., 2000). Western ways of thinking emphasize the child's autonomy, exploration, and individuation and thus attachment theorists rooted in these values may use measures of sensitivity, secure base, and competence to model secure attachment whereas those values may not universally explain observed patterns of attachment and observed consequences (Rothbaum et al., 2000). The review pointed to a problem with a reliance on current assessment practices for attachment patterns, such as the Strange Situation and the Attachment Q-Set designed by Western investigators, and how reliance on this understanding of attachment may be misinterpretation and misunderstanding between cultural groups (Rothbaum et al., 2000).

The authors suggest an indigenous approach to attachment study as cultural differences in attachment categories from current attachment practices may be reported without giving appropriate attention to the cultural meaning of the categories (Rothbaum et al., 2000). The researchers identified differences in conceptualizations of maternal sensitivity, secure base, and competence often found in the United States (fostering a bond to promote exploration and autonomy) versus conceptualizations often found in Japan (fostering a bond to promote loyalty and interdependence). These differences in conceptualization of the hypotheses of attachment theory and in the meaning of adaptation between cultures underlies challenges to the universality of attachment theory and the authors maintain the tenets of attachment theory may be of greater value when understanding culture-specific forms (Rothbaum et al., 2000). In addition to the generativity and testability of attachment theory, the authors propose a new generation of attachment research that is both more culture-conscious in measurement and focusing on

## ATTACHMENT AND SOCIOECONOMIC STATUS

differences within cultures (Rothbaum et al., 2000). The authors note their conclusions were based largely on US samples of Caucasian middle-class participants and the historical, social class, and the impact of other differences within cultures may rival differences among cultures (Rothbaum et al, 2000). The authors propose further study of these within-group differences, such as socioeconomic status, in the pursuit of a more context-conscious theory of attachment (Rothbaum et al, 2000). While socioeconomic status has been implicated as having a potential role in attachment patterns, few studies have explored any potential relationship in depth. The next section will provide a background on socioeconomic status in the United States and an overview of the links between socioeconomic status and human development.

### **Socioeconomic Status Overview**

Socioeconomic status is a determinant of human functioning across the lifespan, including development, health, and wellbeing (American Psychological Association, 2007). Socioeconomic status may be defined as an intersecting measurement of education, occupation, and income, used to identify the social standing of an individual or group (American Psychological Association, 2007). There is discussion among researchers over the use of the terms socioeconomic status and social class. While the terms are both used to describe social differences of individuals or groups, the term socioeconomic status is not synonymous with social class. Social class has historically been used to describe social standing as an immobile classification. Individuals were generally considered fixed in a particular class from birth until death. Social class boundaries were considered essentially permanent in one's lifetime due to social standing at birth.

## ATTACHMENT AND SOCIOECONOMIC STATUS

While it remains true that social standing at birth is often a determinate of adult socioeconomic status, there is also greater recognition that social position is not necessarily a permanent fixture in one's lifetime. As societies have advanced there have become opportunities for individuals to acquire resources beyond the social situation one was born into and shifts in socioeconomic positions are not uncommon. The terminology does not minimize the impact of the social situation at birth or the relative difficulty in acquiring resources, but rather further recognizes the societal changes that have offered increased understanding of social differences. The term socioeconomic status provides a measurement of individual or population characteristics that influence social standing but are not necessarily permanent throughout one's lifetime. Socioeconomic status encompasses the complex and dynamic social distinctions that may be flexible over time and vary within individuals and populations (American Psychological Association, 2007). Thus, the terms socioeconomic status and social class have different meanings, however some research continues to use the terms interchangeably. For the purposes of this review, I will use this term socioeconomic status to indicate a measure of education, income, and occupation as specified.

Current literature related to socioeconomic status reveals the extended understanding of the complex social dynamics underlying many challenging health problems. There are numerous articles on socioeconomic status and health including psychiatric disorders, cardiovascular disease, obesity, child development, parenting, and conduct problems among other topics relating how education, income, and occupation contribute to health risk factors and outcomes (American Psychological Association, 2007). Socioeconomic status has been related to cognitive, emotional, and social functioning and has been linked in studies of attachment patterns

## ATTACHMENT AND SOCIOECONOMIC STATUS

though not clearly linked. Socioeconomic status is measured by one's social and economic situation at a given stage in life and includes a variety of factors.

### **Individual and Collective Indicators of Socioeconomic Status**

Indicators of SES at the individual level typically include income, education, and occupation and various combinations of these factors may be used (Adler & Ostrove, 2006). There is not a universal measure for socioeconomic status and researchers continue to discuss which formulas are most valid for the construct of socioeconomic status. The 2012 US Census includes data on income, education, and occupational attainment. Since these are the factors most commonly considered in socioeconomic status research, these factors will be explored in this overview of SES in the United States. Typically, income indicators may be divided into low, middle, and high classifications with varying levels within each category depending on the study. The Census Bureau does not have an official definition of "middle class" but it does have measures related to income distribution which will be further discussed in this overview (US Census Bureau, 2012).

At the societal level, distribution of wealth across cities and states due to sociopolitical factors are additional influences on individual SES as well as associated health outcomes (Adler & Ostrove, 2006). Studies indicate that SES indicators in cities (average income, unemployment rate, homelessness etc.) predict morbidity and mortality better than individual SES indicators (Adler & Ostrove, 2006). It is important to understand both individual and environmental factors of SES.

A measure of community-level SES can provide information about exposures to

## ATTACHMENT AND SOCIOECONOMIC STATUS

hazards such as environmental contaminants and risk of crime, as well as access to recreational and institutional resources such as education and health care (Bradley & Corwyn, 2002). There is evidence that the neighborhood a child resides in is associated with health, achievement, and behavioral outcomes (Bradley & Corwyn, 2002). Studies indicate that lower SES neighborhoods are associated with higher crime rates, an increase in lead exposure, and an increase in health risk factors such as obesity, smoking, and conduct problems (Bradley & Corwyn, 2002). Higher SES neighborhoods are associated with higher school preparedness and achievement (Bradley & Corwyn, 2002).

Research indicates access to institutional resources, social support networks, and community collectiveness all contribute to lifestyle, wellbeing, and in turn impact parenting (Bradley & Corwyn, 2002). Resources may provide education and tools to increase parenting skills, social support networks may provide parental support and increased wellbeing, and community cohesion may help reduce the risk of morbidity and maladaptive functioning (Bradley & Corwyn, 2002).

### **Socioeconomic Measures**

One of the measures of income inequality is the shares of total income received by households or families (US Census Bureau, 2012). In this measurement, households are ranked from lowest to highest on the basis of income and then divided into equal population groups and the groups are then divided by the overall combined income (US Census Bureau, 2012).

Another measurement is an index of income concentration known as the Gini index (US Census Bureau, 2012). The Gini index incorporates income data into a single statistic which summarizes the distribution of income across the total income distribution (US Census Bureau,

## ATTACHMENT AND SOCIOECONOMIC STATUS

2012). The Gini index ranges from zero which would indicate absolute equality, to one which would indicate absolute inequality (US Census Bureau, 2012). Since the Gini index was available for comparable measures of income inequality in 1993, the index has increased 5.2 percent and the long-term trend has been toward an increased index indicating increased income inequality in the United States (US Census Bureau, 2012).

In part these changes in income inequality reflect shifts in demand for labor on the basis of education and skill, such as higher demand for increased technological skill, and wage distribution has become considerably more unequal with workers at the top experiencing large gains and those at the bottom significant losses (US Census Bureau, 2012). Additionally, changes in household composition such as an increasing average age of first marriage and increase in the divorce rate of in the United States has affected income distribution as non-married households tend to have fewer wage earners (US Census Bureau, 2012).

In many current studies, the established domain of SES includes education, income, and occupation and is measured by determining a combination of these factors. Studies using only one indicator of SES may potentially provide misleading results due to the limited data, however using multiple measures may not significantly explain data more than a single parameter as use of multiple measures may blur differences in specific associations (Winkelby et al., 1992). Using composite measures typically involves additional costs and time of collecting data on several SES parameters so a well-chosen single parameter may be a preferred method in SES research (Winkelby et al., 1992).

Education is often regarded as a more stable measurement of SES than income or occupation (Winkelby et al., 1992). Education is a commonly used indicator as it is available for all individuals regardless of current employment status, and it is relatively stable after early

## ATTACHMENT AND SOCIOECONOMIC STATUS

adulthood and easily reported (Winkelby et al., 1992). Education as an indicator also allows opportunities for meta-analyses as it is often available data in many population studies (Winkelby et al., 1992). A limitation in using education as the primary indicator of SES is the potential to miss relevant changes in individual situations including job losses and economic downturns (Winkelby et al., 1992). The SES indicator(s) used in studies typically depend on the nature of the investigation, and the financial and time constraints of investigators (Winkelby et al., 1992). As a single factor, educational level may predict outcomes over income or occupation, although no SES measure can be valid in all situations and populations (Winkelby et al., 1992).

### **Socioeconomic Status in the United States**

The income inequality in the United States reflects a vast gap in the distribution of wealth between individuals considered high SES and individuals considered low SES. Between 1969 and 1997, the share of income controlled by the top five percent of households increased from 16.6 percent to 21.7 percent (US Census Bureau, 2012). The top one-percent of the wealthiest individuals hold one-third of the total wealth in the United States, and the wealthiest five-percent hold more than half of total wealth (Cagetti & De Nardi, 2008). In stark contrast to the small percentage of the US population owning over half the total wealth in the United States, it is estimated that 15 percent of the US population lives below the federal poverty line (US Census Bureau, 2012). Poverty thresholds were developed in 1963-1964 by a social science research analyst for the Social Security Administration, Mollie Orshansky, and the dividing lines are annually updated by the US census Bureau as a way to identify the groups with the least resources (Fisher, G.M., 2008).

## ATTACHMENT AND SOCIOECONOMIC STATUS

The 2012 US census estimated that there are 46 million people considered to be living in poverty, classified in low SES, in the United States and the poverty rate in the US for people under age 18 is 22 percent (US Census Bureau, 2012). The poverty rate for people age 18 to 64 is 14 percent, and nine percent for people aged 65 and older (US Census Bureau, 2012). The overall poverty rate measured in 2012 was 2.5 percent higher than in 2007 which was the year before the most recent economic recession in the United States (US Census Bureau, 2012).

Educational attainment was also categorized in the 2012 Census ranging from educational levels of less than a high school degree to graduate degree completion (US Census Bureau, 2012). It was estimated that 12 percent of the US population does not have a high school level of education, 30 percent have a high school diploma or GED, 17 percent have some college/no degree, 10 percent have an associate's degree, 20 percent have a bachelor's degree, and 11 percent have a graduate or professional degree (US Census Bureau, 2012). Educational attainment is a commonly used factor of SES in studies due to influences of higher education regardless of income and occupation (Winkleby, Jatulis, Frank, and Fortmann, 1992). Influences include problem-solving strategies, values, life-style behaviors, and the development of social, psychological, and economic skills (Winkelby et al., 1992). Studies have indicated that these influences may offer beneficial outcomes and may provide protection from adverse influences (Winkelby et al., 1992).

The relationship between social disparities and health has been recognized in research literature since 1916 when the US Public Health Service published an investigation of economic deprivation and ill health (Krieger, Williams, & Moss, 1997). Since that time, while numerous studies have explored relationships between health and socioeconomic status, the measures of

## ATTACHMENT AND SOCIOECONOMIC STATUS

SES used in various studies have been inconsistent (Krieger, Williams, & Moss, 1997). Data published in US vital statistics have often been stratified by age, sex, and race without consideration of the collective effects of socioeconomic status (Krieger, Williams, & Moss, 1997). The lack of consistent socioeconomic measures is problematic in research as it offers little justification in data analyses and the lack of a clear theoretical construct increases the difficulty in comparison analyses (Krieger, Williams, & Moss, 1997). The further development of appropriate measures of socioeconomic status is important for continued evaluation of the relationship between SES and health inequities (Krieger, Williams, & Moss, 1997).

While current research has explored socioeconomic status and a variety of factors in overall health status and outcomes, particularly health outcomes such as physical, psychological and social outcomes, there has been relatively little research exploring any potential relationship between socioeconomic status and attachment patterns. As attachment patterns have been studied extensively and potential relationships to health outcomes have been explored including outcomes such as physical, psychological, and social outcomes, studies have indicated that attachment patterns may contribute to a variety of health outcomes and factors in overall health status. In the following discussion, a review of literature exploring socioeconomic status and attachment patterns in the United States will be considered to explore potential associations and outcomes.

### **Socioeconomic Status and Development**

An extensive literature review of socioeconomic status and child development (Bradley & Corwyn, 2002) discusses how SES impacts development in a variety of domains including

## ATTACHMENT AND SOCIOECONOMIC STATUS

health, socioemotional development, and cognitive and academic attainment (Bradley & Corwyn, 2002). The impact of SES is at multiple levels including both family and neighborhood factors and the effects of SES are moderated by children's own characteristics, family characteristics, and external support systems (Bradley & Corwyn, 2002). The review covered research on SES and well-being and the research indicates that SES is associated with developmental outcomes in children with effects beginning prior to birth and continuing into adulthood (Bradley & Corwyn, 2002). Hertzman (1999) offers the hypothesis that "systemic differences in the quality of early environments, in terms of stimulation and emotional and physical support, will affect the sculpting and neurochemistry of the central nervous system in ways that will adversely affect cognitive, social, and behavioral development" (Hertzman, 1999, p.89) He describes this "biological embedding" as a best fit model for the complex interactions between human development and the material and psychosocial conditions over a lifetime (Hertzman, 1999). Research demonstrates socioeconomic status is a major contributing factor to child development in a variety of ways including access to material resources, social resources such as education and health care, and environmental factors such as stressful housing conditions and exposure to trauma.

**SES & health development.** Research suggests that low-SES and the inequalities in low-income neighborhoods relate to a wide range of health problems (Liu, 2011). Individuals tend to less frequently use health care services and receive poorer-quality care, have higher infant mortality, poorer physical and mental health, and infrequently utilize mental health services (Liu, 2011). Health behaviors such as smoking, lack of exercise, and poor diet have also been associated with low-SES (APA, 2007). Developmental health problems related to

## ATTACHMENT AND SOCIOECONOMIC STATUS

socioeconomic status may stem from poor prenatal care, poor nutrition during pregnancy, and maternal stress and lifestyle factors such as living within exposure to excessive environmental toxins (Bradley & Corwyn, 2002). Low-SES infants are more likely to suffer injuries and die and in childhood, and low-SES is associated with a number of health conditions including respiratory illnesses, dental caries, higher blood lead levels, iron deficiency, failure to thrive, and sensory impairment (Bradley & Corwyn, 2002). These childhood outcomes result in adverse outcomes in adulthood even when controlling for SES when measuring adult outcomes (Bradley & Corwyn, 2002). One study found SES measured in middle childhood and adolescence was related to health status at age 23 even after controlling for SES at age 23 (Bradley & Corwyn, 2002).

Access to resources is one of the most cited linkages between SES and health status and includes access to adequate nutritional sources and access to health care (Bradley & Corwyn, 2002). Low-SES children are more likely to have poorer nutrition and less medical care than higher-SES counterparts (Bradley & Corwyn, 2002). Poor nutrition may lead to poor health outcomes and inadequate medical care may lead to failure to obtain immunizations and treatment for medication conditions (Bradley & Corwyn, 2002). Research indicates that social status differences in health and developmental problems of low-SES children remain even when there is universal health coverage (Bradley & Corwyn, 2002). This may indicate that other factors including environmental exposures, parental educational level, parental stress, and parental feelings of helplessness or an external locus of control may contribute to poorer health outcomes for low-SES children (Bradley & Corwyn, 2002).

Inadequate housing is an additional often cited factor influencing health development as children in low-SES families are more likely to live in dilapidated or overcrowded housing that

## ATTACHMENT AND SOCIOECONOMIC STATUS

may contribute to increased illness and injuries (Guo & Harris, 2000). Issues such as inadequate heating, leaky ceilings, pest infestations, and mold problems are potential causes of the link in quality of the home environment and children's health (Guo & Harris, 2000). Quality of housing has additionally been linked to children's intellectual, social, and emotional functioning (Bradley & Corwyn, 2002).

**SES & social and emotional development.** Social and emotional development is related to socioeconomic status as evidence suggests low-SES children more often display maladaptive social functioning and psychiatric disturbance (Bradley & Corwyn, 2002). Research indicates that it is not clear which SES factors may or may not directly contribute to these observed differences, however it is clear that low-SES children are more likely to experience more developmental problems than affluent children (Bradley & Corwyn, 2002). The Infant Health and Development Program showed that 40% of children born prematurely who also lived in chronic poverty had deficits in at least two areas of functioning by age three (Bradley & Corwyn, 2002). Research also found that the quality of the home environment was correlated about 0.40 with the number of developmental deficits in adolescents from five different sociocultural groups (Bradley & Corwyn, 2002).

Studies on SES and behavior have reported a higher prevalence of emotional and behavioral problems among low-SES children and adolescents than their middle-SES counterparts (McLoyd, 1998). Low-SES is also a risk factor for externalizing problems such as physical fighting and difficulty getting along with others, and low-SES children are more likely to have other risk factors such as family discord and parental mental illness (McLoyd, 1998).

## ATTACHMENT AND SOCIOECONOMIC STATUS

**SES & cognitive development and academic achievement.** Numerous studies have documented the relationship between socioeconomic status and cognitive and academic attainment as also beginning in infancy (Bradley & Crowyn, 2002). Research evidence links poverty and low parental education with lower levels of school achievement and IQ in childhood and SES has been one of the most consistent predictors of early high school dropout (Bradley & Crowyn, 2002). Higher SES has been linked with increased verbal language ability (Bradley & Corwyn, 2002). Studies indicate the various measures of SES including parental income, education, and occupation all have varying degrees of influence on children's development (Bradley & Crowyn, 2002).

A study examining socioeconomic status and chaos in the home and the longitudinal stability of general cognitive ability suggests that SES and chaos in the home both account for independent sources of shared environmental influences related to general cognitive ability (Hart, Petrill, Deater Deckard, & Thompson, 2007). Maternal educational attainment was used as the SES indicator, and household chaos was rated using a parent-report questionnaire (Hart et al., 2007) The results indicated the effects of the environmental influences on cognitive ability also account for part of the longitudinal stability of cognitive ability in childhood (Hart et al., 2007).

Another study specifically looking at verbal and nonverbal cognitive development, examined whether SES and chaos in the home mediated the shared environmental variance (Petrill, Pike, Price, & Plomin, 2004). The study used data from the Twins Early Developmental Study to estimate genetic influence using a twin study design (Petrill et al., 2004). Cognitive development was assessed using the McArthur Scales of Language Development and the Parent Report of Children's Abilities, and SES and household chaos were assessed through a

## ATTACHMENT AND SOCIOECONOMIC STATUS

questionnaire (Petrill et al., 2004). The results suggest that SES and chaos mediate a significant and independent portion of the influence of the environment on cognitive development (Petrill et al., 2004).

Households with more financial resources may be better able to provide educational material and experiences such as a variety of books and cultural exposure. Low-SES children are more likely to experience difficulty in school which may lead to the development of conduct problems or withdrawal behaviors (Bradley & Corwyn, 2002). Maternal education level has been shown to be a predictor of child intellectual attainment and parental occupation has also been found to contribute to opportunities and stimulating materials for cognitive development (Bradley & Corwyn, 2002).

Researchers have assessed the impact of SES on numerous indicators of cognitive functioning during childhood including IQ test scores and specific measures of verbal ability that offer a predictor of school performance and literacy (McLoyd, 1998). In a number of studies that controlled for maternal characteristics such as IQ and education, results indicate significant effects of SES on children's cognitive and verbal skills (McLoyd, 1998). Family income has been shown to be a more powerful predictor of IQ scores than maternal education (McLoyd, 1998). However, this finding has been contradicted in other studies indicating the mother's education level has a more significant effect on children's scores than income (Lacour and Tissington, 2011). Another study found the positive impact of family income on children's cognitive development was much larger among children in families with incomes below or near the poverty line than among children in middle-class or affluent families (McLoyd, 1998).

The connection between SES, stimulating experiences, and children's cognitive functioning is well established (Bradley & Corwyn, 2002). The National Longitudinal Survey of

## ATTACHMENT AND SOCIOECONOMIC STATUS

Youth and the National Household Education Survey indicates that children from low-SES families have less access to a variety of different recreational and learning materials from infancy through adolescence as they are less likely to go on vacations, visit a library or museum, attend a theatrical performance, or be given lessons directed at enhancing their skills (Bradley & Corwyn, 2002). Additionally, schools in low-SES neighborhoods may have fewer resources and parental involvement, as well as lower achievement expectations from parents and teachers (Mc Loyd, 1998). Access to educational and cultural resources mediates the relation between SES and children's intellectual and academic achievement from infancy through adolescence as these experiences provide learning opportunities as well as serving as a motivational base for continued cognitive development (Bradley & Corwyn, 2002).

### **Discussion**

“The active ingredient in the environment that's having an influence on development is the quality of the relationships that children have with the important people in their lives. That's what it's all about.” - Jack P. Shonkoff, M.D.

As it is understood that caregiver availability and responsiveness including emotional attunement and sensitivity are important ingredients in the development of secure attachment, there are ways in which SES may impact attachment development as factors associated with SES may impact caregiver availability and responsiveness. Low-SES is associated with an increased risk of illness, decreased nutrition, less safe living environments, and less educational and health care resources (McLoyd, 1998). These factors may affect caregivers by increasing stress, and draining energy and the availability to provide the nurturance and support needed in the attachment bonding process. A caregiver in a low-SES environment may be more likely to face

## ATTACHMENT AND SOCIOECONOMIC STATUS

prolonged illness and greater susceptibility to adverse outcomes following illness. In high-SES environments, caregivers are less likely to be exposed to potential stressors such as neighborhood crime and more supportive resources may mitigate the effects of caregiver stress and illness by offering preventative services, timely treatment, and follow-up care. The following discussion will explore the potential links between attachment and SES.

### **Attachment and SES Developmental Links**

In a meta-analytic study including more than 2,000 Adult Attachment Interview classifications in samples of parents from different countries, it was found that mothers from low-SES displayed more insecure attachment styles and unresolved loss and trauma (van IJzendoorn & Bakermans-Kranenburg, 1996). Another attachment study using a large nationally representative sample of American adults found adult attachment associated with several sociodemographic variables including income that had not been previously studied (Mickelson, Kessler & Shaver, P.R., 1997). The research in this area offers special attention to early childhood development with the understanding of socioeconomic differences in the quality of early life experiences that play a role in the development of attachment and subsequent development (Hertzman, 1999).

Socioeconomic status may affect access to resources, education, nutrition, maternal availability, and the amount of trauma and stress parent and child experience (Bradley & Corwyn, 2002; McLoyd, 1998). Research indicates all of these influences may impact the development of secure attachment. Educational resources that may offer tools and techniques for fostering secure attachments and relationships between parents/caregiver and children may not be readily available for low-SES families. The result of compromised nutrition and subsequent

## ATTACHMENT AND SOCIOECONOMIC STATUS

child physical development has been linked to an increased likelihood of insecure attachment, negative affect, and limited motivation in the child (Bradley & Corwyn, 2002). The chronic stress associated with unstable employment or persistent economic hardship can lead to diminished self-esteem, a diminished sense of control over one's life, anger, and depression which in turn may impact a caregiver's availability and sensitivity (Bradley & Corwyn, 2002).

Factors such as health literacy, locus of control, and health behaviors are important factors related to SES and may contribute to caregiver ability to support secure attachment bonding (Liu, 2011). The National Network of Libraries of Medicine defines health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions." Education is an important contributor to health literacy and those of high-SES are more likely to have higher health literacy and a better sense of mastery in their health care. When an individual is able to make informed choices about their health, they may be more likely to make informed choices in parenting and provide appropriate nurturance.

Individuals in high-SES environments are also more likely to have a better sense of control in their lives and an internal rather than external locus of control (Liu, 2011). A mother who has a sense of her own efficacy in the childrearing process may be more likely to respond sensitively and attend more consistently to her child's needs therefore fostering secure attachment. Having an internal locus of control is also a protective factor as having a sense of mastery over psychological or physical distress may both have an impact on health outcomes and be related to the onset and course of various illnesses (Liu, 2011). Perceived health status and locus of control may impact the caregiving process as it has been documented increased psychosocial stress may interfere with caregiving processes.

## ATTACHMENT AND SOCIOECONOMIC STATUS

Higher rates of maternal depression are associated with lower-SES (McLoyd, 1998; Liu, 2011) and, while individuals from all SES backgrounds may experience depression, the lack of resources also associated with low-SES compounds the problem as it may be more likely that caregivers in low-SES environments do not receive adequate treatment and support, and may suffer more consequences and disruptions in caregiving ability. Depression or other illnesses may affect the energy and availability of caregivers and as lower-SES is associated with a higher prevalence of a number of health conditions, the compounded factor of less access to resources related to treatment and support may make it more likely for disruptions in attachment processes during caregiver illness. Caregivers from higher-SES backgrounds generally have access to more supports including more available healthcare resources, higher quality educational systems, and more advanced community resources so the effects of caregiver illnesses such as depression may be mitigated by more available support resources.

The main mechanisms thought to connect SES and child development include access to resources and stress reactions (Shonkoff & Phillips 2000). Research indicates that internal locus of control, optimism, social support, self-esteem, and coping strategies are observed as moderators in the SES and health relationship, with social support in particularly strong relation to psychological health (Shonkoff & Phillips 2000). Individual characteristics may either increase or decrease resources or increase or decrease harmful stressors (Shonkoff & Phillips 2000). The finding that SES and child development relations may differ by race offers another example of a moderator that likely involves either access to resources or exposure to stress (Shonkoff & Phillips 2000). The discrimination often faced by members of minority groups both reduces the likelihood of accessing resources and increases the likelihood of experiencing stress (Shonkoff & Phillips 2000).

## ATTACHMENT AND SOCIOECONOMIC STATUS

### **The Resource Factor**

Material and structural conditions contribute to differential prevalence rates of unemployment and inadequate housing across socioeconomic groups which may increase parental stress and decrease parental responsiveness (Shonkoff, 2009). In addition, infants with difficult temperaments who are in low-resource environments tend to form insecure attachments (Shonkoff, 2009). Resources related to SES such as employment, housing, education, and health care may be related to attachment bonding in various ways.

Numerous studies highlighting connections between impoverished housing and learning environments and low educational achievement has well established the relationship between SES and academic performance (APA, 2007). Influences of SES that impact attachment bonding are in the home and in daycare and school environments (Evans, 2004). The National Institute of Child Health and Human Development reports the ratio of children to caregivers is lower in high-income centers and caregivers in low-income centers may show less warmth, responsiveness, and sensitivity (Evans, 2004). Research has additionally revealed that staff in low-income centers may speak in less cognitively complex ways than staff in middle-income centers such as using verbal commands rather than initiating dialogue (Evans, 2004). The National Center for Education Statistics reports underfunded schools, overcrowding, dilapidated buildings, and a lack of books and educational toys is tied to the income profile of the study body (Evans, 2004). These issues highlight some of the challenges children and parents face and the accumulated stress that may interfere with attachment development.

Related to lowered housing and educational resources, lack of employment opportunities may result in difficulties for parents that may affect attachment bonding. Underemployed or

## ATTACHMENT AND SOCIOECONOMIC STATUS

unemployed parents are more likely to experience chronic stress which is an indicator of poorer health outcomes and may present challenges to the attachment process in terms of caregivers' ability to both provide emotional resources as well as financial resources (McLoyd, 1998).

Additionally, inadequate health care resources such as lack of access to health education, preventative care, medical treatment, mental health services, and community health resources may affect attachment processes as children and caregivers experiencing illness may not receive adequate treatment and support and may therefore be more likely to experience more severe or prolonged consequences. Caregivers may deteriorate in their ability to provide a secure base for bonding due to decreased physical and emotional capacity related to various illnesses.

Access to food is another resource related challenge and research indicates food insecurity may be related to mental health concerns in caregivers (Liu, 2011). It is proposed that low-income mothers living in unstable situations may be more likely to experience depression or psychosis and in turn these mental health conditions may contribute to ongoing conditions of food insecurity (Liu, 2011). Depression can interfere with a mother's ability to be a secure attachment figure as she may likely have more difficulty providing the necessary ingredients to form a secure attachment such as emotional attunement, warmth, and appropriate responsiveness (Teti, Gelfand, Messinger, & Russell, 1995). Mothers who are experiencing depression are also less likely to shop for food and prepare meals and may be more likely to lack access to transportation and have funds available to purchase food (Liu, 2011). Maternal depression may interfere with the mother's self-care in various ways such as preparing her own meals and her getting adequate sleep which in turn may impact the quality of care the mother is able to provide for her child (Belsky & Pasco Fearon, 2008). These problems may contribute to malnutrition in

## ATTACHMENT AND SOCIOECONOMIC STATUS

the caregiver and child and as a child's need for food is inconsistently met, this would likely indicate a compounding factor in the development of insecure attachment.

### **The Stress Factor**

Researchers propose stress is a significant factor in the difference in outcomes between low-SES and high-SES children (Shonkoff & Phillips 2000). Research documents disproportionately high rates of maternal depression among low-income households and chronic stress may be a contributing factor (APA, 2007). Low-SES families are more likely to experience threatening and uncontrollable life events such as exposure to environmental hazards and violence, and are at an increased risk of experiencing housing instability (Bradley & Corwyn, 2002). Greater stress in the environment may reduce the likelihood that one can engage in healthy activities and increase the likelihood of chronic stress and depression in both adults and children (Bradley & Corwyn, 2002). The concepts of allostatis and allostatic load explain the impact of stress and the physiological responses to stressor associated with low-SES and its cofactors such as inadequate housing and neighborhood violence (Bradley & Corwyn, 2002).

Allostatis refers to the physiological capacity to adjust to the demands of environmental stressors (Bradley & Corwyn, 2002). The constant turning on and turning off of stress-related physiological responses creates the allostatic load, including more long-term changes such as persistent blood pressure elevation (Bradley & Corwyn, 2002). Research indicates that allostatic load is connected to various biological and behavioral differences including growth, metabolism, immune system functioning, and cognitive functioning (Bradley & Corwyn, 2002). There is evidence for dysfunctional hypothalamic-pituitary-adrenal axis activity and serotonergic function which may lead to increased psychological distress and impaired immune system functioning

## ATTACHMENT AND SOCIOECONOMIC STATUS

(Bradley & Corwyn, 2002). Longitudinal research indicates that the physiological changes associated with chronic stress can increase the risk of caregiver illness including anxiety and depression, which can negatively impact caregiver sensitivity and in turn lead to poor attachment development (Bradley & Corwyn, 2002). Children exposed to chronic stress or trauma may additionally have more difficulty in developing secure attachment relationships as they may have more difficulty being soothed by caregivers based on repeated early interruptions in the developing of attachment bonding (Bradley & Corwyn, 2002).

### **The Resiliency Factor**

Resiliency research has identified factors that may moderate the relationship between SES and child development (Shonkoff, 2009). These factors include characteristics that may help children cope with adversity related to low-SES such as increased exposure to trauma and chronic stress (Shonkoff, 2009). A wide range of individual factors have been implicated including self-esteem, locus of control, self-efficacy, optimism, stress reactivity, humor, coping strategies, cognitive ability, and communication skills (Shonkoff, 2009). Family characteristics such as structure, cohesiveness, shared values, consistency of rules, and the presence of supportive adults have also been identified as protective factors (Shonkoff, 2009). The availability of external support systems such as educators and community support provides additionally buffering against maladaptive stress reactions (Shonkoff, 2009). These factors may change the likelihood of accessing needed resources, change the likelihood of encountering stress, or change the reaction to stressful conditions (Shonkoff, 2009). It is important to note that the development of resiliency factors is linked to the development of secure attachment, and thus

## ATTACHMENT AND SOCIOECONOMIC STATUS

further highlighting the importance of the connection between attachment and the development of positive coping strategies to moderate the effects of socioeconomic status on development.

### **Bidirectional effects**

Research indicates that certain SES factors may be related to attachment development and certain attachment outcomes may be related to subsequent SES. As previously discussed, SES factors such as access to resources and the amount of stress parent and child face may affect the development of secure attachment. Attachment development may also affect SES as insecure attachment is related to lower achievement and poorer developmental outcomes. For example, as insecure attachment is correlated with poorer social and academic outcomes, this may in turn translate to lower employment opportunities and lower SES as an adult regardless of SES as a child. Insecure attachment development may result in less developed coping skills and problem solving skills and therefore may present more challenges in overcoming SES barriers and mitigating the negative influences of low-SES.

Unresolved loss or trauma in caregivers may affect the development of secure attachment in similar ways as maternal depression may disrupt the attachment process (Cassidy & Shaver, 2008). A caregiver struggling with the effects of loss and trauma may have difficulty in connecting with their child, and difficulty providing adequate nurturance, responsiveness, protection and support (Cassidy & Shaver, 2008). Caregivers in low-SES environments are more likely to be exposed to more potential sources of loss and trauma including a higher prevalence of crime and violence in low-SES neighborhoods (McLoyd, 1998). Coupled with less access to resources such as health care including mental health and social services,

## ATTACHMENT AND SOCIOECONOMIC STATUS

caregivers in low-SES environments may be more likely to face additional challenges related to loss and trauma and greater ongoing stress which may in turn affect attachment processes.

Secure attachment appears to be a protective factor in ongoing health and social developments as secure attachment is associated with increased interpersonal relationship skills and better health outcomes. Secure attachment may therefore increase the chance of subsequent higher SES based on increased achievement factors and related job opportunities. Individuals with insecure attachment styles are more vulnerable to experiencing chronic stress, depression, and other health problems and may therefore have more difficulty in maintaining relationships and educational or employment positions. The resources available in high-SES environments appear to be a protective factor against some of the negative outcomes associated with insecure attachment as there are generally more opportunities for health care and options for educational or vocational pursuits. Through current understanding of the impact of attachment processes on development and SES on development, there appear to be bidirectional aspects in potential relationships between SES factors and attachment security.

### **Conclusion**

It is clear that both attachment and socioeconomic status are important constructs in understanding human development and subsequent functioning across the lifespan. The environments in which children grow and the quality of their relationships with adults and caregivers have a significant impact on their cognitive, emotional and social development (Shonkoff, 2009). The relationship between attachment and SES appears multifaceted and while researchers have examined numerous mechanisms linking attachment and development, and SES and development, it is not fully understood how the components of SES interact with aspects of

## ATTACHMENT AND SOCIOECONOMIC STATUS

relationships and environment in the course of development (Bradley & Corwyn, 2002). As different indicators of SES contribute to different aspects of development in differing ways, the relationships are complex with some indicators of SES moderating the effects of others (Bradley & Corwyn, 2002). Ongoing research in understanding how SES affects individual attributes and attachment patterns will further inform our understanding of development.

Limitations on SES research include the inconsistency of measures used in various studies to determine SES and lack of a continuous construct of SES across studies. Another limitation in SES research is the relative lack of data comparing middle and high-SES outcomes, and specific research on middle and high-SES populations. A majority of the research focuses on outcomes in low-SES situations for important reasons yet it is difficult to develop a full understanding of the differences in SES outcomes with limited data. It is also difficult to factor the complex interactions between genetics, health, relationships, and environmental factors that mediate SES influences (Bradley & Corwyn, 2002). However, there is substantial evidence that the developing child's brain may be harmed by poor nutrition, drug exposures, certain infections, environmental neurotoxins, and chronic stress (Shonkoff & Phillips 2000). Significant parent mental health problems, including maternal depression, substance abuse, and family violence are likely to disrupt attachment process and negatively impact child development (Shonkoff & Phillips 2000). These physical and psychological health determinants indicating adverse developmental impacts are more likely to arise in low-SES environments.

There is caution in interpreting this data to indicate causal factors between SES and attachment development. It is not parental income, education, or occupation that necessarily plays a role in attachment development as it is the skills and availability of caregivers that provide the fostering of secure attachment and protective health factors. When caregivers have

## ATTACHMENT AND SOCIOECONOMIC STATUS

the social support, training, and tools necessary for their own health and wellbeing, they are more likely able to act as a secure and reliable model for child development regardless of income, education, or occupation. Social support and caregiver wellbeing buffers against the effects of low-SES and skills training interventions designed to increase caregiver sensitivity and responsiveness may be effective across SES divides. Early education, health care, social services and family resources can promote the supportive environments and relationships that children need to thrive (Shonkoff, 2009).

Targeted interventions of problem solving skills and sensitivity training for parents may be beneficial in all strata of SES. These skill based interventions may help parents counteract the negative relational correlates of low SES and may help parents counteract the negative impact SES may have on their ability to foster secure attachment. It is also recommended that parents explore their own internal working models of attachment to better understand parenting behaviors (Berlin, Zeanah, & Lieberman, 2008). Neuroscience indicates providing supportive conditions for early childhood development is more effective and less costly than attempting to address the consequences of early adversity later in life (Shonkoff, 2009). An informed approach integrating understanding of attachment theory and socioeconomic status in interventions to promote emotional, social, and cognitive development will prepare children for success in school and later in the workplace and community (Shonkoff, 2009). It is recommended that children experiencing chronic stress receive specialized interventions as early as possible to target the cause of stress and offer protection from detrimental consequences (Shonkoff, 2009).

Future research calls for investigations into how social context such as socioeconomic status may moderate the relationship between individual differences such as coping responses to stress (Shonkoff, 2009). In this light, additional investigation into resiliency and socioeconomic

## ATTACHMENT AND SOCIOECONOMIC STATUS

status would be of particular importance. It is well established how to foster secure attachment yet in cases where secure attachment does not develop for various reasons, it is important to understand resiliency factors and how to promote these factors in children with attachment difficulties to allow for the development of subsequent secure attachments. Additionally, specific factors related to middle and high-SES environments such as caregiving resources in comparison to low-SES environments may provide further understanding of various SES positions and attachment as well as the potential bidirectional effects involved in attachment development and SES. Other areas of future research include the relationship of child development and socioeconomic status in the United States to further include cultural considerations, immigration status, and how these factors may impact parental behaviors and attachment outcomes.

## ATTACHMENT AND SOCIOECONOMIC STATUS

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