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EFFECTS OF DAYCARE ON QUALITY OF ATTACHMENT AND LATER
BEHAVIOR PROBLEMS

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for the degree of Master of Science in Counseling,
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By

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ABSTRACT

EFFECTS OF EARLY CHILDCARE EXPERIENCE ON QUALITY OF
ATTACHMENT AND LATER BEHAVIOR

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Master of Science in Counseling

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The purpose of this study was to investigate the relationship between a child's early care experience and later disruptive behavior. Neuro-psychobiological research and daycare studies support attachment theory and indicate the necessity for a child to have a single primary caregiver in the first years of life for healthy emotional brain development. Daycare centers may not be able to provide this critical one-to-one relationship. The implications of these findings are important because most mothers now work. This study surveyed teachers and parents of kindergarten and first grade students similar to the NICHD study by Belsky (2006). The results confirmed the hypothesis that there is a relationship between the number of hours spent in non-maternal care and later disruptive behavior.

CHAPTER ONE

Introduction

In the 1952 documentary, *A Two-Year Old Goes to Hospital*, James Robertson, a fellow researcher and colleague of the author John Bowlby, dramatically illustrated how distressing it was for a young child to be separated for just a few days from her parents. Back then, hospital policy routinely denied the parents access to their sick children as it was thought to be disruptive to the hospital routine. The deleterious effects of prolonged separation were not well understood at that time. In contrast, hospital staff today encourages parents to spend as much time as possible with their children while in hospital. The film had an immediate and lasting impact on how children are cared for while in the hospital. This new understanding about the distress a child experiences when separated from his or her parents created a shift in public consciousness about the emotional needs of the child when away from home and receiving medical treatment. Even though the distress had always been evident, it was not being recognized by many of the professionals caring for children.

Are we routinely creating this same distress by placing our children for long periods in daycare and then witnessing their distress with the same lack of awareness? Could we again not be seeing what is right in front of us? Patterns of surrogate parenting are commonplace today, especially since the normalcy of two income families. Anyone can observe the following trends in their own neighborhood.

Infants and very young children go to daycare and preschool on a daily basis while caregivers and parents witness their separation anxiety and acting out as a normal adjustment to a new situation. The child may cry at the door and cling desperately to

their parent and the well-intentioned daycare staff reassures mom or dad that their little son or daughter will be just fine as soon as they leave. Eventually the child does stop crying and begins to play. Noting that the crying behavior has stopped, the adults in this child's life may believe that he or she is beginning to adjust to the daycare environment successfully and that this is a good thing.

The apparent acceptance and adjustment to the long hours each day away from mom in daycare is interpreted as socialization. However, children may move off and play because this is what children do, especially if they need to feel soothed. Children adjust to their environment, whatever the environment. But there are some children that may not be so easily soothed. These children may continue to cry long after the parents leave. When this happens the child is usually regarded as "sensitive" and the parents are told to just give it time. And, in time the child begins to bond with the staff. The transition is a success. But is it really? What may actually be happening is that the child's feelings of hurt and grief at being routinely left by his or her mom may later emerge in a myriad number of delayed behaviors that parents, caregivers, and therapeutic professionals often fail to perceive as being the result of a broken attachment.

When a child is in daycare full-time, Monday through Friday, and is then picked up by the parents for the weekend, that child may experience an attachment break from the non-parental caregivers because whoever is with the child during the day is "mom". The baby or child that may now be bonded to the daycare staff leaves to go home with mom and dad each Friday afternoon. Many parents and caregivers seem to be insensitive to the importance of continuity in the infant or child's relationships. As long as *someone* is attending to their child, they assume all is well. They regard caregivers to be

interchangeable, and conventional wisdom assumes that the child transitions easily from one bonded relationship to another. However, the transition from the maternal relationship to the caregiver relationship may be a damaging one. The influential work on attachment by John Bowlby (1982) described the mother-child relationship as one of the most environmentally stable of human relationships, “So stable indeed are they as a rule that for babies to love mothers and mothers to love babies is taken for granted as intrinsic to human nature” (p. 242). Bowlby called this ongoing mother/child relationship “attachment”. One aspect of this attachment relationship is proximity maintenance. He describes what he calls a “shift in responsibility for maintaining proximity” that is common to all primates, including humans (p. 243). In the first few months the mother maintains *proximity* since the infant is helpless. As the infant becomes more mobile there is a slight shift in balance for maintaining this proximity through the child’s third year, although the mother is still responsible for most of the proximity maintenance. After the age of three, proximity maintenance is an increasingly more shared experience. Yet, “should the mother become alarmed, the first thing she does is to seek her child and clutch him to her” (p. 243). In proximity maintenance, it is the child that gradually moves away from the mother. The child slowly transitions towards independence until maintenance of proximity shifts entirely to the child as a young adult. For Bowlby, this slow transition is critical for the optimum development of the child. However, this delicate relationship with the young child and the mother may be regularly disrupted by the home, to daycare, to home again experience. “Proximity maintenance” cannot be established since the child is left powerless to begin his or her healthy shift away from the parent.

In Bowlby's view, attachment is the relationship between a child and one primary caregiver. This attachment, when secure, provides a source of safety in times of stress. How well the mother or caregiver succeeds in maintaining a sensitive attachment will later determine the quality of all of the child's relationships. This bond is thought to be critical in order for a child to develop a stable core self. Since this bond is so important, it is possible that the distress a child may experience when spending large periods of time away from his or her primary caretaker may be harmful to the security of the attachment relationship and future intimate relationships.

Insecure attachment has been correlated with aggression and with problems in maintaining or establishing relationships (Bowlby, 1973). Developmental researchers have recently theorized that links exist between internal working models and behavioral problems. Reactions to events are mediated by the child's emotional regulation skills and these skills effect how well children monitor, evaluate, and regulate their emotional reaction to events (Cassidy, 1994). An insecurely attached child may become "hardwired" toward a disorganized response to stress, and as a result, behavioral problems may develop (Bates & Bayles, 1988). Thus, placing an already insecurely attached infant or child in daycare may create another risk factor. Belsky (1988), in his initial NICHD study, associated non-maternal care with less secure attachment. This research was later criticized because "quality of care" was not factored into the equation. At the time it was argued that a child left for long periods in a low quality care facility would be at risk for behavioral problems (McGurk, Caplan, Hennessy, & Moss (1993). But, an in-depth follow-up longitudinal study by Belsky (2006) demonstrated that it was

“time in daycare” that proved to be a risk factor regardless of the quality of the daycare institution.

Some recent research supports the premise that daycare providers can become adequate primary caregivers (Marty, Readdick & Walters, 2005). This may be possible in certain optimum circumstances. In the book *What We Know About Childcare* (Clarke-Stewart, & Allhusen, 2005), the focus is on “quality of care” as the most important criteria necessary for determining the best environment for our children. However, most supporting research has been done in university settings or other high quality daycare centers using primarily middle class participants. Factors such as *low staff turnover, adult-child ratio, group size, physical environment, and educational programs* are important in providing an optimal developmental environment for children. But, in reality children are placed in a variety of daycare settings: family childcare homes, care by relatives, informal care environments, and daycare centers. Even in high-quality daycare centers, the average child’s daycare experience does not provide a single primary caregiver; three or more caregivers are the norm. If a daycare center has rotating caregivers, then the daycare center not any one individual may become the primary caregiver for the child. Still, some pro-daycare researchers continue to look for evidence to refute the “time in daycare” data.

Studies by Clarke-Stewart (1989) carried out in reaction to Jay Belsky’s 1988 NICHD study findings maintained that children spending long hours in daycare were more independent and assertive, not more aggressive and disobedient. However, the NICHD SECC 2003 follow-up study by Belsky (2006) revealed that this was simply not the case. According to this latest study, more time in non-maternal care predicted not

only higher levels of assertiveness, but also disobedience, defiance, and aggression in children at 54 months and later, when they reached kindergarten.

These studies bring to the forefront one of the problems with numerous child behavior and daycare studies: the data is based on observational methods that may leave room for subjective interpretation. Clarke-Stewart's study is a case in point as it involved researchers who did not have adequate expertise in assessment of attachment disorders, especially of Reactive Attachment Disorder. RAD children appear assertive and overly independent, yet ultimately become contemptuous of authority and of others (Snyder, 2004). Since children's observed behaviors are not always reliable markers of stress levels, a number of studies have measured saliva cortisol levels in children at home and in daycare (Watanura, Donzella, Alwin, & Gunnar, 2003). This research shows that the natural rhythm of children's cortisol levels is altered when in daycare, an indication that they may be in distress.

The reason for childhood distress can be best understood if you consider the biology of a baby or child. Babies want to be with their moms or primary caregiver because attachment is an innate human process (Hofer, 2006). We can make our daycare centers as stimulating, nurturing, socially gratifying, and educationally rewarding as possible, but they may never be able to consistently replace "mom". We have to ask ourselves what does a young child feel when his parents leave him with someone else for long periods each day? Of course, we can never know what each child placed in daycare would be like emotionally, behaviorally or intellectually had they stayed at home for the first three years. But we do know that something is wrong with too many of these children. With so much at stake, is it wise to routinely gamble with children's lifelong

emotional needs by putting their care of into the hands of non-parents? Or would it be safer to provide parents with information about the possible risks involved in letting others raise their children?

Statement of the Problem

The increase in aggressive and disruptive behavior in our schools may be a direct result of attachment breaks due to the high percentage of children in daycare rather than being home with mom. The diagnosis of children with ADHD and other behavioral disorders has soared in the last thirty years and it is estimated that about 5-10% of elementary school children have been identified as having disruptive behavior (Offord, Boyle, Fleming, Blum, & Grant, 1989). A 2004 Canadian study regarding a new policy on special education reported that behavioral difficulties have more than tripled during the past 15 years (Déry, Toupin, Pauzé, Pierrette, & Verlaan, 2004). In a recent survey of elementary school teachers in a mid-western inner city, it was discovered that 50% of teachers viewed disruptive behavior as the greatest mental health problem in their schools (Walter, Gouze, & Lim, 2006). Is there a correlation between the increase in behavioral problems in schools and the number of mothers working outside the home?

In 1970 there were 30 million women working in the U.S., but by 1997 this number more than doubled to 64 million women (U.S. Department of Labor, 1999). This increase in woman working corresponds to an alarming rise in child and teen suicides and in childhood depression (Elias, 1999 [as cited in Brandtjen & Verny, 2001]). Today it is not uncommon for infants as young as three weeks of age to be placed in daycare full-time (Gable & Zigler, 1986). Empirical evidence supports the importance of attachment in the early development of the right brain (Schoore, 2002), but this vital

information may not be well-understood by the childcare experts and mental health professionals that are influential in creating public policy.

Perhaps our society needs to be more willing to examine whether the economic advantages of two-parent incomes is worth the price of children's emotional stability. And perhaps, we need to ask why we seem to be willing to have institutions raise our children? In some situations, primarily in one-parent households, it is not always possible for a parent to stay home to raise their child. Our present welfare system discourages stay-at-home caregiving because of the burden on taxpayers and as a result lower-income single parents are now left with few options when it comes to supporting and raising their children. In severely abusive households, of course, children may be better off being raised by non-maternal caregivers. These unfortunate situations are all too frequent but this study addresses the common and universally accepted practice of placing children in childcare long before kindergarten. This practice may be based on common beliefs that (a) current lifestyles must be maintained and should not be reduced to accommodate parenthood, (b) parenthood need not interfere with a career, (c) daycare helps socialize our children, and (d) daycare is a feminist institution and opposition to daycare is often viewed as misogynistic. None of these beliefs were common thirty to forty years ago when mothers were expected to raise their children. The feminist, Betty Friedan, author of *The Feminine Mystique*, views daycare as necessary for women's economic independence. She believes "For women to have full identity and freedom they must have economic independence...it would be necessary to change the rules of the game to restructure professions, marriage, the family, the home" (1997, p. 520). Has our society replaced its reverence for the mother-child relationship with a post-modern

feminism that diminishes the uniqueness of that relationship to the detriment of the child's emotional development?

Purpose of the Study

The purpose of this study is to investigate the effects of daycare on quality of attachment by comparing the disruptive behavior of kindergarten and first grade children that attended preschool with children who stayed at home with their mothers for their first five years. This study hypothesizes that children placed in daycare full-time, children placed in daycare during their first year, and children who experienced more than one non-maternal care environment will display higher rates of disruptive behavior in elementary school.

Significance of the Study

Daycare is a controversial issue. Not much is being done to inform the public or develop public policy in this area despite the fact that studies have demonstrated the harmful effects of daycare on young children. Clearly more research needs to be done to support or disprove what is already known about attachment and the development of the right brain in children. This study is intended to add to the body of research on this important subject.

Terminology

Primary Caregiver - A caregiver, usually the mother, who maintains an intimate one-to-one relationship with an infant or young child during the day. This term is interchangeable with the usage of mother within the text.

Implicit Memory – An automatic or unconscious form of memory that aids the individual in performance of a task. Implicit memories are previous memories below awareness that influence the present experience.

Attuned – Refers to the term “attunement” whereby the caregiver and child share affective states. An “attuned caregiver” is one that can tune into the affect state of the child; the parent reads the affect state of the infant based on the infant’s behavior and then responds by nearly, but not quite, imitating the infant’s behavior (Stern, 2000).

Nonattachment – The inability of a child to form an attachment because of the unavailability of a primary caregiver in the child’s first years of life.

What the Research Shows

The following chapter will review recent research and literature on the subject of attachment theory, development of the right brain, early trauma, and how development *and* early trauma relate to the construct of attachment. Daycare studies on attachment, early trauma, and the emotional needs and neurobiological development of the child will be discussed. An indicator of attachment trauma resulting from early daycare experience can be found in disruptive behavior that shows up in school age children.

Chapter 3 will describe the design and methodology of this study in order to obtain specific data on disruptive behavior. The subsequent findings will be discussed and summarized as they pertain to the original hypothesis. The last chapter will discuss the author’s personal experience with the harmful effects of placing her children in daycare as well as the research findings of this study and its implications.

CHAPTER TWO

Literature Review

Introduction

The following literature review will begin with the seminal work by James Bowlby. His theory of attachment described an inborn system in the infant that ensures the infant's survival. Mary Ainsworth, a protégé of Bowlby's, added to the body of knowledge on the subject of attachment focusing on "quality of attachment". Ainsworth designed a well-respected study to test the quality of a child's attachment. It is called "The Strange Situation". This study has been replicated countless times and has demonstrated its validity and reliability in assessing secure attachment in infants.

Bowlby's theory of attachment was conceived from observations of children and infants and from studies of animal behavior, especially primates. This revolutionary theory is valuable as a psychological construct that describes the inner workings of the infant's brain, but it does not provide empirical evidence of the biological mechanisms that motivate behavior. Studies in animal psychobiology, neuroscience, MRI studies, and in infant psychiatry have provided scientific evidence to support Bowlby's theory. This body of research details the neuro-biological-development of the right brain, its effect on later maturation and behavior, and the necessity for an empathetic and attuned primary caregiver. A study on saliva cortisol levels in children at home and in daycare points to daycare as a source of distress for the young child.

There are well-respected researchers in the field of daycare who have very different views about the effects of daycare. Their views and their research is discussed and analyzed for how well they address the issue of what is best for children.

A Brief History of Attachment Philosophy

The psychological construct of attachment has been the topic of much research for many years. It began with the pioneering work by developmental psychologist, John Bowlby. Bowlby revolutionized child psychology with the introduction of his theory of attachment. Attachment theory described the importance of the mother and infant bond and the long-term impact to the infant or child when they experience a loss or separation involving this very critical emotional connection. Bowlby's theory was formulated by his own observations of young children separated from their caregivers during World War II and from case studies of children grieving from separation from their caregivers. These observations were integrated with animal studies on the phenomenon described as "imprinting" by ethologist, Konrad Lorenz, with the research by Harry Harlow on rhesus monkeys, to formulate the biological/environmental system called "attachment". Bowlby (1980) theorized that the infant child needs one primary caretaker to form a healthy attachment. He described attachment as the foundation by which humans internalize, externalize, relate and cope with all future relational experiences. According to Bowlby, this attachment relationship becomes the child's "internal working model" for all their later relationships. R.C. Fraley summarizes Bowlby's contribution.

According to Bowlby, the attachment system essentially "asks" the following fundamental question: Is the attachment figure nearby, accessible, and attentive? If the child perceives the answer to this question to be "yes," he or she feels loved, secure, and confident, and, behaviorally, is likely to explore his or her environment, play with others, and be sociable. If, however, the child perceives the answer to this question to be "no," the child experiences anxiety and,

behaviorally, is likely to exhibit attachment behaviors ranging from simple visual searching on the low extreme to active following and vocal signaling on the other. These behaviors continue until either the child is able to reestablish a desirable level of physical or psychological proximity to the attachment figure, or until the child "wears down," as may happen in the context of a prolonged separation or loss. In such cases of helplessness, Bowlby believed the child experiences despair and depression (Fraley, R.C., 2004).

Essentially, this internal working model is a schematic representation of the attachment relationship that becomes encoded in the infant's "implicit memory" (p. 14, Schore, 2002). This compilation of thoughts, memories, sensations and feelings created by the experience of seeking and being near the attachment figure becomes the template for future behaviors and relationships. Bowlby believed that children were better able to regulate their own emotional behavior and develop healthy coping skills if they were securely attached to their mother or their primary caretaker. He promoted the idea that the adult is the product of the individual's interactions with all of the significant figures of childhood, especially as it relates to the earliest childhood experiences (Bowlby, 1973). Thus, the baby makes an appraisal of himself or herself, based on the accumulation of subjective early experiences, as worthy and deserving of care and protection and, in addition, determines the attachment figures capacity to meet the infant's needs and be available to provide protection and care.

While Bowlby studied and wrote about the presence of attachment, Mary Ainsworth, focused her research on the quality of attachment (Ainsworth, 1978). She began her observations initially focusing on "maternal sensitivity". She devised her now

famous “Strange Situation” as a way of observing mother and infant interactions over the first year of life. In this test, Ainsworth and her colleagues observed 26 12-month old babies with their mothers in a room under various conditions (the Strange Situation). Each baby experienced a series of differing scenarios for a period of three minutes each, beginning with the baby and mom in the room alone. Then a few variations in each situation are introduced, including mom and a stranger entering and leaving the room at three-minute intervals. The researchers observed the infant’s reaction to the mother leaving; the infant’s reaction to the stranger; the infant’s ability to explore the room; and the infant’s behavior when the mother returns.

The results of the babies’ responses revealed three kinds of infant attachment styles; (a) secure attachment - securely attached babies show distress when the mom leaves, but are able to greet her happily when she returns. These infants will resume exploration once they are reassured of the mother’s presence. (b) Insecure Attachment (Anxious/Ambivalent) - These babies show great distress when the mom leaves and are alternately angry and ambivalent when she returns. The mother’s attempts to comfort the child were often met with listless and disengaged behavior by the infant. The babies seemed too anxious to explore when their mothers returned. (c) Insecure Attachment (Avoidant) - These babies did not cry when their moms left the room and intentionally ignored her when she returned. These infants were often preoccupied with playing with the toys in the room. It would seem that they were independent and did not require their mother’s presence, but their heart rates were elevated which was an indication of distress. They sought relief from their anxiety by focusing their attention on the toys in front of

them rather than seeking comfort from their mothers. This observation alone, shows us that the so-called adaptation of young children when mother leaves may be an illusion.

Later research by Mary Main (Main & Blanchard, 1979) added a fourth category (d) Insecure Attachment (Disorganized/Disoriented) - These babies were hard to categorize because they had contradictory behavior, approaching mother on her return with a tendency to avoid her when she approached. They also displayed other odd behaviors. Some babies responded to the mother's approach by rocking on their hands and knees; some would freeze with their arms in the air and have a trance like expression on their faces, while some babies would rise to greet their mom and then fall to the floor in a prone position. Other children would turn in circles, while still others would bang their heads. The disorganized and paradoxical behavior displayed by these infants is thought by researchers to explain how early abuse negatively affects the development of the right brain. This development is necessary for regulating responses to stress and affect modulation (Schore, 2002). What is so relevant about this study is that the mother's caregiving style was also carefully recorded. The babies labeled insecurely attached had mothers who were rejecting and cold. Mothers with securely attached babies were more attuned and sensitive to their babies needs.

Psychobiological Attachment Studies and Animal Research

Underlying the psychological constructs of attachment theory are studies that answer some basic questions about human attachment. An article by Myron A. Hofer (2006) on the psychobiological roots of early attachment, reviews previous animal research to provide an understanding of the biological processes that produce attachment.

In the articles Hofer reviewed a number of experiments on newborn rats demonstrated the separation response as seen in infant monkeys and humans and investigated the effects of separation with regard to specific internal regulators. Hofer summarized research that now helps to answer the question “ Why is early maternal separation stressful and how can early relationships have lasting effects” (p.85)? The various studies by Hofer and his colleagues revealed multiple inner regulators within mother-infant interactions that explained how the course of the development of the offspring might be affected by different mother-infant patterns of interaction.

One of the patterns of interactions described by Hofer and his colleagues described how infant rats, like infant primates, “show a complex biphasic protest-despair response to maternal separation” (Hofer, 2006, p. 85) similar to the separation-loss response described by Bowlby.

Apparently, maternal separation interrupted a complex system of regulatory influences that, added together, provided the needed environment for the rat pups to thrive. They found that various behavioral, biological, and sensorimotor responses were affected by differing mechanisms within the infant-mother interactions. For example, maternal warmth was found to directly effect the pup’s activity level, while it was discovered that an adequate supply of milk provided needed levels of nutrients that stimulated receptors in the stomach lining. These receptors connected to the brain and in turn regulated the pup’s heart rate.

Hofer and his colleagues found other effects of separation and the specific regulators that would prevent them. Using an electroencephalograph, the researchers studied the rat pups sleep/wake state. Separated pups had sharply decreased slow-wave

sleep that was disturbed by frequent short awakenings. Hofer found that smooth transitions between sleep/wake states were regulated by the rhythm of maternal milk and tactile interactions. In this instance it was not level, but rhythm, that was needed. Also, the pup's behavioral response to being moved to a novel test chamber was mitigated by sufficient levels of tactile stimulation. It was found that "graded levels of tactile stimulation produced graded levels of quieting the pups" (p. 86).

Another pattern of interaction investigated was the early termination of the relationship of the rat pups and their mothers. The normal timetable for rat pups to be weaned from their mothers is between 21 to 30 days. The pups were weaned at 15 days which allows them to survive, but deprives them of maternal regulation during this period of their development. The rats were later assessed for vulnerability to a known stressor that produced gastric ulcers in 50% of normally reared adults. There was no difference in adult rats, but 80% of the early-weaned rats exposed during early adolescence developed ulcers. These ulcers were deeper and larger than those occurring in adults. Yet, no normally reared rats developed ulcers in adolescence (Hofer, 2006).

Surprisingly, the early-weaned rats were less vulnerable in later adulthood than normally weaned rats. Hofer surmises that when all maternal regulators are withdrawn early it causes an alteration in the developmental paths of a number of physiological and behavioral systems that results in a changing pattern of vulnerability over the life span (Hofer, 2006). Over time the normal stress response is short-circuited in the pups, this may serve as a protective factor against heightened vulnerability created by early weaning. Thus, the pups are hardened to the environment. This could be similar to RAD and other maladaptive coping mechanisms that create dissociative states and adult

pathology in humans that have experienced early trauma. It seems to forewarn us of the potential for more “hardened” humans in future generations.

What Hofer is suggesting is that the experimental results of these animal studies can be applied to human development from childhood to adulthood. We can now see “how the psychological constructs of the attachment ‘bond’ and the ‘traumatic’ effect of maternal separation originate, in one case, in an unusual form of rapid early learning and, in the other, in the unexpected developmental regulatory functions being carried out in specific mother-infant interactions” (Hofer, 2006, p. 87).

The Right Brain: Attachment and Posttraumatic Stress Disorder

The vital importance of a secure attachment on the emotional development and subsequent behavior of the child might be better understood when attachment is described in terms of the maladaptive stress response of Posttraumatic Stress Disorder or PTSD.

In a review of current trends in attachment research, Allan Schore (2002) an Assistant Clinical Director of Psychiatry and Bio-behavioral Sciences at UCLA, integrated recent advances in attachment theory, affective neuro-science, developmental stress research, and infant psychiatry, to determine the possible developmental precursors of posttraumatic stress disorder. His compilation of research attempted to reveal why some individuals develop chronic pathological reactions to catastrophic life events, while others exposed to the same or similar traumas do not develop these same reactions. According to Schore, current thinking on the etiology of PTSD hypothesize that it is not only the nature of the traumatic event that creates the disorder, but what an individual brings to the event.

Schore (2002) states that this hypothesis brings us back to the central theme of Bowlby's theory of attachment; the infant's capacity to cope with stress as it is regulated by the attachment relationship determines the individual's response to later traumatic events. This attachment relationship is in place to insure the survival of the species (Bowlby, 1969). Schore maintains that adaptive and maladaptive responses to stress stimuli are the result of the maturational pattern of the neural circuitry of the developing right brain. He states that unregulated pre or post-natal stressors profoundly impact later mental health. In his paper, Schore presents the growing body of experimental studies in the field of psychobiology that investigated "the influence of maternal factors on the ontogeny of the limbic-hypothalamic-pituitary-adrenal axis" (p. 10) and stress responses. The limbic-hypothalamic-pituitary-adrenal axis (LHPA axis) is the brain working together with the endocrine system in order to regulate and manage the body's response to stress (Davies, 2004).

Trauma and the Right Brain

The early developing right brain houses the neural circuitry of the body's stress system. This hemisphere of the brain controls the vital human functions that support stress and survival response (Schore, 2002). Recent MRI studies showed that brain volume increases rapidly in the first two years of life. Normal adult brain volume is established by the age of two and infants under the age of two show higher right brain dominance (Matsuzawa, Matsui, & Konishi, 2001). The infant's developing brain is vulnerable to less than optimal circumstances in the environment during this period of rapid brain growth. The experience-dependent maturation of the right brain is thus directly affected by the attachment relationship (Schore, 2002). He states that

...it is now being emphasized that specifically a dysfunctional and traumatized early *relationship* is the stressor that leads to PTSD, that severe trauma of interpersonal origin may override any genetic, constitutional, social, or psychological resilience factor, and that the ensuing adverse effects on the brain development and alterations of the biological stress systems may be regarded as “an environmentally induced complex developmental disorder” (p. 11).

The developing right brain dominates social, emotional, and bodily information processing as this environmental data is woven into the autonomic, limbic, and arousal systems of the infant. Schore (2002) suggests that traumatic attachments, “expressed in episodes of hyper-arousal and dissociation, are imprinted into the developing limbic and autonomic nervous systems of the early maturing right brain”(p. 11). Psychoneurobiological studies now have evidence to show that prenatal and post natal distress cause a short-circuiting of the right pre-frontal cortex. This ‘blunting’ of the neuro-circuitry leads to affect dysregulation such that “traumatic attachments, occurring in a critical period of organization of the right brain, will create an enduring vulnerability to dysfunction during stress and a predisposition to posttraumatic stress disorders” (p. 11).

Right Cortical Regulation and Attachment

In Bowlby’s conceptualization of the attachment system he surmised that there was a neuropsychological control system that was in charge of regulating automatic attachment behaviors. Schore’s own studies determined that this control system was situated at the highest point of the limbic system in the ventromedial cortex located in the right orbitofrontal area of the right brain. This prefrontal control system “acts in the highest level of control of behavior, especially in relation to emotions” (Schore, 2002, p.

14). The orbitofrontal cortex also sits at the top of the pyramid of control functions in the autonomic nervous system (ANS). It is the control center for involuntary bodily functions that are in response to the body's current emotional state.

In an environment that promotes secure attachment this system will be remain malleable under stress and able to maintain homeostasis between sympathetic and parasympathic activities. This means that when an organism is faced with a novel, meaningful or stressful event, the sympathetic system becomes aroused; the heart rate increases, and there is a corresponding increase in sweating and mental activity. But, once the event is deemed safe, the ANS quickly shifts back to a normal relaxed state (Schore, 2002). This orbitofrontal control system also regulates autonomic responses of the individual to other humans that can be described as the internal radar that picks up intuitive messages or "gut feelings" (p. 14) as well as providing the capacity to have empathetic responses to the emotional states of others (Schore, 2002). If this internal radar is short-circuited because of early childhood distress, the individual will have a diminished capacity to read and respond appropriately to their own feelings, as well as limiting their capacity to experience empathy for others.

Neurobiology of a Secure Attachment

This critical period of organization of the right brain as it relates to PTSD directs us back to the basic function of the primary caregiver in the infant's first years. The infant is unable to regulate the emotions related to experience without the help of a primary caregiver. This primary caregiver provides the necessary one-on-one connection that aids the infant in regulating the emotions accompanying distress until the child can begin to wire in his or her own regulating system. This does not happen if there is

prolonged separation or prolonged distress that is not alleviated consistently by a caring mother or primary caregiver. When this does not happen the right brain does not make the necessary developmental connections to other parts of the brain, especially the prefrontal cortex. The neuronal structural changes that need to take place for affect regulation become deficient, dulled, or atrophied which result in the child's inability to regulate the intensity and duration of emotion and affect in times of distress (Schore, 2002).

The good-enough mother of the securely attached infant permits access to the child after a separation and shows a tendency to respond appropriately and promptly to his/her emotional expressions. She also allows for the interactive generation of high levels of positive affect in co-shared play states. These regulated events allow for an expansion of the child's coping capacities, and account for the principle that security of the attachment bond is the primary defense against trauma-induced psycho-pathology (Schore, 2002, p. 15).

What is also noteworthy is that this research has determined that there are sex differences in infant brain development. Male infants have a delayed rate of cerebral maturation that creates more vulnerability to less than ideal conditions, especially during the first years of life. Apparently, the limbic system of males and females displays different connectivity patterns, which makes males more susceptible to relational abuse (Schore, 2002).

Cortisol Levels - Valid and Reliable Markers of Psychological Stress

Recent evidence shows that children of all ages have an established rhythm in cortisol production that is highest in the morning and lowest in the evening (Gunnar &

Donzella, 2002). In the various studies measuring children's saliva cortisol levels in daycare, it was noted that cortisol production rose significantly throughout the day rather than dropping as it would in a home setting. This rise in cortisol production was consistently highest in children under 36 months (Vermeer & IJzendoorn, 2006). Overall, afternoon cortisol levels were 71- 90% higher in daycare than at home, regardless of the quality of the daycare setting.

Cortisol is the primary hormonal product involved in a variety of complex biological processes that regulate stress and emotions by way of the hypothalamic-pituitary-adrenocortical (HPA) axis. According to research by Krishbaum and Hellhammer (1994), increases in saliva cortisol levels are considered to be valid and reliable markers of physiological stress and emotions (Watanura, et.al, 2003). Cortisol levels increase due to internal and external threats to an individual's well being and chronic stimulation of the HPA axis in animals has been linked to compromised health, immune function and related stress responses. The animal studies on rhesus monkeys focusing on maternal separation revealed that repeated separations resulted in an increase in cortisol levels and other long-term physiological changes (Gunnar & Donzella, 2002). Results from animal models translate to humans. There is increasing evidence that a child's early caregiving experience will profoundly effect the neurobiological development of the child. Adverse early experiences, specifically, maternal separation or separation from the primary attachment figure, affect functioning of the HPA system (Schore, 2002). This malfunctioning of the HPA system creates permanent damage to the right brain functioning of the child that continues throughout his or her life.

Attachment and Daycare Studies

In a study by Mary Main (Main & Blanchard, 1979), children 1-2 years of age were observed in 3 high quality day care centers as well as a laboratory setting. The children in each daycare experienced 2 or more caregivers per day. The first part of the study observed each child's social-emotional behavior after drop off by the parents in the daycare center and then rated them for avoidance behavior at the time of reunion with parents. Within a six-week period each child was observed again, but this time in the laboratory strange situation with the parent. The observers had no knowledge of strange situation behavior and inter-observer reliability was $r(30) = .87$, using the avoidance scale in Ainsworth's strange situation. Avoidance behavior in the two settings was strongly correlated. Here, we have data to support the fact that parent/child separation in the day-care setting affects the child similarly to the laboratory setting. Curiously, the data also revealed that social-emotional behavior was negatively correlated to avoidance behavior when there was more than one non-parental care situation. Those children who spent time in substitute care away from their parents as well as attending day care, showed greater *social-emotional adjustment* and less avoidant behavior towards parents. So, does this tell us that children who spent time away from parents in more than one setting are better adjusted or just better adapted to being away from their parents? Is that necessarily a good thing in a child?

Using Phase I data from the NICHD Study of Early Child Care, a study was performed using 1,364 children from birth to sixth grade to explore maternal attachment behavior (McCartney, Tresch-Owen, Booth, Clarke-Stewart, & Vandell, 2004). This study analyzed ratings by mothers and caregivers of children's internalizing and externalizing problems at age three and then regressed them individually on a set of

fifteen predictor variables. The research focused on “insecurity” as a risk for developing behavior problems and “security” operating as a protective factor, with the quality of attachment between child and primary caregiver as the mediating force. The findings of the study determined that there were correlations between attachment insecurity and behavior problems.

The 1988 study by Jay Belsky and Michael J. Rovine at Pennsylvania State University combined results from 2 longitudinal studies of infant and family development to determine if an infant’s experience of prolonged non-maternal care within the child’s first year could be associated with increased risk of insecure attachment to the mother and insecure father-son attachment in the case of sons. They performed an analysis of Strange Situation data taken when the infants were 12 and 13 months old. This data revealed that infants exposed to 20 or more hours of non-maternal care per week showed more avoidance of mother on reunion and were more likely to be considered insecurely attached. Mothers who worked full-time (35 hrs/week or more) had sons who were more likely to be insecurely attached to their fathers. An alarming 50% of boys were rated insecurely attached to their fathers when the mother worked full-time. These boys were also more likely to be insecurely attached to both parents. Infants that experience non-maternal care for more than 20 hours per week are 1.6 times more likely to be insecurely attached.

The data on the infant boys is particularly interesting since boys are more likely to be labeled disruptive in a classroom setting. This also makes sense in light of the research described by Schore (2002) that demonstrates that males have delayed rates of

cerebral maturation as infants. This makes them more vulnerable to conditions that impair the developing brain.

The Daycare Controversy

In the book, *What We Know About Childcare*, Alison Clarke-Stewart & Virginia D. Allhusen (2005) chronicle the changing cultural landscape in America with respect to women in the workforce and the critical need for quality daycare. Clarke-Stewart * determines that child-care outside of the home is an unavoidable part of the American experience and defends a woman's right to work and to have a career. This book shows all sides of this controversial subject while promoting the positive aspects of daycare as an acceptable and even preferred alternative to stay-at-home care. Clarke-Stewart scrupulously describes the best daycare settings and informs parents about what to look for when shopping for high quality care for their child. Yet, her perspective does not address "time in care" issues but instead considers parental *needs*, especially a woman's desire for a career, as equivalent to the child's emotional needs and neurobiological development.

In the chapter devoted to the effects of daycare (pp. 83-104), Clarke-Stewart evaluates relevant daycare issues including physical health, intellectual development, social competence and behavioral problems. These issues will be explored in light of recent scientific data now available on right brain development and attachment. They provide examples of a common perspective that may lack sensitivity to the inner world of the infant.

* Since Alison Clarke-Stewart is referenced in earlier studies and figures prominently in the daycare research, only her name will be used when referring to excerpts and statements made in and about the book.

According to Clarke-Stewart, children in daycare are sick more often because they are exposed to more pathogens from the other children. The risk of ear infections for children in daycare at one year or younger was twice that of children staying at home (pp. 84-86). This increase in illnesses may also be due to the stress of the daycare environment that may lower the child's own immune response and leave the child more vulnerable to infection. Regardless, in view of the critical emotional needs of the infant an increase in illness may be a troublesome risk factor because it places another stressor on the infant. Babies and young children depend on the emotional relationship they have with their primary caregiver even when they are healthy, so experiencing discomfort and pain associated with illness may be detrimental to the sick child in daycare.

Children already encounter daily distress in the daycare environment, as evidenced by the elevated cortisol levels. This stress can only be compounded by illness. When a child is ill, most mothers at home will maintain proximity with the sick baby and will be there to provide comfort and closeness. Thus, the baby feels cared for. Too often though children are packed up and delivered to the daycare center, despite being ill, since their mothers must go to work. How does a child experience this distress? As mentioned earlier, the child's affective experiences during the first and second years of life with their mother are imprinted in the orbital frontal cortex (Schoore, 2002). These relational experiences become the internal working model for the child and establish the child's view of himself, of others, and the world (Brandtjen, & Verny, 2001). Thus, a child may make a self-appraisal based on the care and attention that he or she experiences. This appraisal may follow the child into adulthood. What view of the world and of herself must the child be forming when she may not feel cared for?

The average daycare has a caregiver-child ratio of 4:1 with children generally experiencing two or more caregivers per day (Blanchard & Main, 1979). High quality daycare centers strive for a 3:1 ratio. It is not possible to expect that even a high quality daycare will be able to provide a single, consistent, continuously present, non-maternal caregiver that will be as emotionally available for the sick child as the child's own mother. This doesn't mean that the baby's nose will not be wiped or their diapers changed. But babies need much more. "It is the emotional availability of the caretaker in *intimacy* which seems to be the most central growth promoting feature of the early rearing years" (Emde, 1988 [as cited in Brandtjen & Verny, 2001]). But the primary caretaker (the mother) has been replaced with rotating caregivers that have other children to attend to as well. Thus, the intimacy needed in the infant-caregiver relationship cannot be duplicated in an institutional or group setting to the detriment of the child's neurological development and emotional well being (Brandtjen & Verny, 2001).

The concern Clarke-Stewart expressed regarding the increased frequency of colds and ear infections was that it could lead to lowered language and cognitive development (p. 85). Throughout her book she expressed her concern in the area of cognitive abilities and language development. These cognitive delays may be real and easily measurable, and yet, may actually be the outward expression of an additional stressor on an already distressed child. Daily chronic distress is traumatic to the child and as a result he or she may be more anxious, have difficulty concentrating, and focus on non-verbal cues. This distress causes the child to operate from the lower brain centers and prevents the child from operating out of the neocortex, which is responsible for higher brain function (Brandtjen & Verny, 2001).

Next, Clarke-Stewart shifts her attention to the subject of intellectual development in daycare. Research has demonstrated that children in high quality daycare centers, although, not in-home care or with babysitters, scored higher on memory comprehension and verbal skills. Some research shows that children have better cognitive function when they attend daycare, but this research focused primarily on children from “less stimulating homes.” The intellectual stimulation provided at good quality daycare centers can be a positive addition to maternal care for the child aged three years and older for a *few* hours a day. In this kind of a limited setting there is no attachment break because the mother is still present for most of the day. However, the most high functioning and secure child is the one who developed intelligence from interacting extensively with the mother. Very young children cannot internalize these interactive lessons of communication, trust, empathy, sharing, and exchanging with strangers as well as they might with a primary caregiver with whom they feel safe and loved (Siegel, 1999).

As previously stated, it is in the first few years of life during which the development of the right brain is taking place. Armed with this knowledge, is it wise to emphasize early cognitive learning over the development of a healthy self-regulating emotional system? Yet if both parents are working full-time this is precisely what is likely to occur. Since children in daycare are constantly kept busy with stimulating activities and routines. Per Clarke-Stewart, daycare children learn to write their names, string beads, sing songs, and recognize shapes and colors (p. 87). However, are these skills evidence of greater intellectual functioning? Many parents believe that they are providing their children an enriched environment only to discover that the child is later

diagnosed with ADD* or ADHD once they reach school age. What may actually be happening is that the chronic daily stress of daycare may stimulate high levels of cortisol over an extended period of time and thus reduce the size of the hippocampus. The stress of a chaotic and inadequately nurturing environment on a daily basis can result in “deficits in working memory indicative of hippocampal dysfunction” and that “infants and toddlers now in daycare may well have a life long learning disorder” (Brandtjen & Verny, 2001 p. 276). The hippocampus simultaneously mediates, and at the same time, is affected by the stress response causing it to atrophy if the stressor is too severe.

When addressing the areas of social competence, Clarke-Stewart does not interpret the findings from an attachment perspective. This is an important distinction because certain behaviors are inappropriate in a young child and may signal developing pathology, yet look good to an inexperienced observer. She states research in which children in daycare were observed to be “more self-confident, outgoing, assertive, verbally expressive, and self-sufficient – and less distressed, timid, and fearful in new situations and with strangers” (p. 89). Children with reactive attachment disorder can act superficially friendly and appear outgoing and verbally expressive to an untrained observer, but they may not be bonded to anyone. They will easily engage in conversations with strangers. This behavior may not be a sign of good social skills but a need to manipulate for attention and affection on the child’s terms (Snyder, 2004). And, also, children that have given up expecting to be with their mother may look independent or more grown up since we are expecting them to be big boys or girls and not need adults. What else can a child decide when their parents are not around? Some

* This was this researcher’s personal experience

researchers believe these children may act cooperative and good as a way to decrease the “possibility of another rejection” (Brandtjen & Verny, 2001 p.252).

The social competence Clarke-Stewart discusses in the previous section may demonstrate the adaptability of children in the environment. Children quickly understand what behaviors gain them approval, especially when they figure out that mom will not be available. Children find other ways to get nurtured or they may give up trying (Brandtjen & Verny, 2001). Perhaps, this explains the seemingly contradictory results of earlier studies of middle-class infants in high quality daycare centers by Blehar (1974) and Blanchard and Main (1979). Blehar’s study used 30-month-old children that had been in daycare for an average of 4.5 months. These children scored more than 2 times higher in avoidance behavior upon reunion with mother than did home-reared children. But, a follow up study (Blanchard & Main, 1979), using infants between 1 and 2 years of age that experienced longer time in daycare showed lower scores for avoidance behavior and higher scores for social-emotional adjustment. Some of these infants had been in daycare since birth, while the average time was 12 months. The longer they were in care the less they reacted to reunion with mom and the better adapted they were to their new “home”, the daycare center. Brandtjen and Verny (2001) suggest that, according to Bowlby’s research, the children have “detached” and appear cheerful and unafraid of anyone that is attentive to them. Lieberman and Zeanah’s 1995 study (as cited in Brandtjen & Verny, 2001) have defined these behaviors as being the result of “nonattachment”.

Clarke-Stewart includes the 2003 NICHD study that showed “time in care” as the major contributor to negative externalizing behaviors of children in daycare, but considers it, once again, as primarily a “concern” for parents. She describes the media as

“taking advantage” of these startling results calling the news presentations a “media blitz” that “ratcheted up parents’ worries that they were doing damage to their children by having them in daycare” (p. 92). Clark-Stewart’s concern does not seem to include the internal experience and feelings of the child, nor does she discuss *why* the children were more aggressive and disobedient. Her focus is on the externalized behavior that becomes problematic due to the inevitable reality that both parents must work. She advises those parents that must leave their children in daycare for more than 45 hours per week to supplement the daycare with a nanny at home (pp. 92-93). Perhaps Clarke-Stewart does not understand attachment theory since adding yet another non-maternal caregiver could create more distress for the child.

In responding to concerns about daycare and the potential damage to the mother-child relationship, Clarke-Stewart states, “fortunately, research has shown that infants whose mothers work full-time do form attachments” (p. 93). However, this statement appears to diminish the unique and delicate nature of the mother-child relationship. Babies continue to love their mothers even when they are left in daycare. Many researchers believe it is the quality of the child’s relationship to the mother, the chronic distress of prolonged separation from the mother, and the lack of emotional regulation that the mother provides, that affects the development and neurobiological maturation of the child’s brain (Brandtjen & Verny, 2001). Simply “forming an attachment” may not be enough.

Clarke-Stewart calls into question the validity of the Strange Situation in order to evaluate the adequacy of the mother-child relationship of children in daycare. She notes that, until recently, researchers relied on the Strange Situation to assess the quality of the

child's attachment even in the daycare setting. Strange Situation studies generally confirmed that children in daycare were more likely to be categorized as "insecure" (p. 94). She cites current research that suggested that the Strange Situation was not a valid measurement of attachment in the daycare setting. This hypothesis was based on heart rates of infants' that had been assessed as insecure-avoidant using the Strange Situation. The research showed that infants in daycare that had been assessed as insecure-avoidant had lower heart rates than insecure-avoidant children raised at home. It was concluded that these children were erroneously classified as avoidant because the infants did not find the separations from mother sufficiently stressful (p. 95).

There is, however, a different perspective to the apparent lack of response to the mother. It may be that the children assessed insecure-avoidant in the daycare setting had already "detached" and "dissociated" as a function of the level of stress being experienced (Brandtjen and Verny, 2001). As previously mentioned, these children might now be "attached" to the daycare environment and no longer as reactive to the departure and arrival of their mother. Is it also conceivable that these children have become "hardened" as an adaptive response to abandonment similar to the short-circuiting of the stress response receptors of the early-weaned rats in Hofer's (2006) experiments?

NICHD Study of Early Childcare- Time in Care, not Quality of Care

Jay Belsky's previous childcare studies drew a great deal of criticism from other researchers because it was noted that these studies did not sufficiently rule out *quality of care* as an important risk factor. It was argued that the only reason child-care in the first

year of life increased levels of aggression, disobedience, and increased rates of insecure attachment was because the children studied were experiencing low-quality care.

In response to the criticism, the latest longitudinal NICHD study spent millions of dollars to effectively implement and measure “quantity, quality, and type of care while examining these factors separately, additively, and interactively” (Belsky, 2006, p. 100). Repeated measurements of the quality of the child’s family environment and the quality of the non-maternal care were made at 6, 15, 24, 36 and 54 months of age. The child’s socio-emotional and cognitive-linguistic development was measured during laboratory visits at 15, 24, 36, and 54 months, as well as by teacher and parent reports in kindergarten. Basic demographic information was obtained to measure the quality of the child’s family rearing environment, socio-economic status, family functioning and maternal well-being. The quality of the mothering was gathered by observational and maternal reporting. Various established instruments were administered to assess each child’s cognitive and linguistic development, social competence, and behavior problems.

There were a number of developmental findings as a result of NICHD SECC research, but for the purposes of this study, only one will be addressed - the “time in care” findings. The “time in care” findings were consistent whether the child attended a low quality or a high quality non-maternal setting. The results of the study determined that “more time in non-maternal care across the first 4.5 years of life was found to predict at age 54 months and later in kindergarten higher levels of assertiveness (e.g., talks too much, bragging/boasting, argues a lot), disobedience/defiance (e.g., talks out of turn, disobedient at school, defiant-talks back to staff, disrupts school discipline), and

aggression (e.g., gets into many fights, cruelty-bullying-meanness, physically attacks others, destroys own things)” (Belsky, 2006, p. 105).

These behaviors are not simply “concerns” for parents to ponder in their search for a high quality daycare, but represent undeniable evidence that “...quality of care, as so long asserted, does not explain these potentially disconcerting effects of what has become a widespread experience for American children and that the effects detected concern truly aggressive behavior, not just independence and assertiveness” (Belsky, 2006, p. 105). Belsky concluded that the net effects of time in daycare resulted in corresponding cognitive and linguistic advancements *and* disobedient behavior. Apparently, the more time in daycare the smarter and angrier the child becomes. What is noteworthy about this study is that these results have been replicated in other countries with very similar results. Parallel large-scale studies were conducted in England and Northern Ireland. As in the NICHD SECC study, these two British studies adhered to stringent statistical controls that covered a wide range of factors very much like the American study, and, they produced similar findings.

Synthesis of Literature Review

The preceding research review was intended to provide a strong base for evaluating the positive and negative effects of daycare on a child’s brain development and emotional needs. This review was also intended to emphasize a possible lack of concern about this critical issue by prominent researchers in this field. There is now compelling evidence to support the connection between James Bowlby’s theory of attachment that describes the critical early needs of the child and the recent neuro-psycho-biological research on infant brain development. The review also showed that

disruptive behavior resulting from a child's early non-maternal care often shows up later in kindergarten and first grade. The NICHD SECC 2003 study was a longitudinal study that enlisted 1364 children and their families when the child was one month old. Mothers were contacted and recruited through local hospitals within weeks of giving birth. The NICHD SECC study involved repeated measurements over a nearly five year time period using laboratory observations and parent and teacher reports. One of the specific findings of this research was that the effects of long hours in daycare resulted in later behavior problems once the children reached school age. For purposes of this study "behavior problems" will be evaluated as "disruptive behavior".

Since disruptive behavior in grade school was found to be a marker of poor attachment due to the child's time in non-maternal care, the design of the present study will measure disruptive behavior in children in kindergarten and first grade. The issue of daycare is highly controversial and has the potential to affect generations of children. More studies are needed to augment the existing research in attachment and child behavior.

CHAPTER THREE

Methods

Introduction

The purpose of this study is to investigate the relationship between a child's earliest care experience and later behavior in elementary school. It is anticipated that children placed in non-maternal care full-time, children placed in non-maternal care during their first year, and children that experienced more than one non-maternal care environment will display higher rates of disruptive behavior in elementary school than those children that did not have these early caregiver experiences. In order to measure whether this association does indeed exist, a correlational study was designed that compares data from a parent's survey with a teacher report rating each child's behavior on a score of 1 to 10.

Sample

The sample selected in this research was the kindergarten and first grade children from elementary schools located within the researcher's neighborhood. The participants of the study were the parents of each child and each child's teacher who would be asked to complete the actual surveys.

Prior to beginning the study, it was first necessary to get formal approval from the local school district as well as from the principals of each school. Once the approval process was completed, the teachers were contacted by email or phone inviting them to participate. Six first grade teachers and 2 kindergarten teachers in 3 of the 4 schools contacted volunteered to participate with a total of 175 students.

Of the 175 surveys distributed, 98 responses were received. 81% of the surveys distributed were in English and 19 % were in Spanish. Some of the parents surveyed

were of Latino descent, but were fluent in English, so they were given a questionnaire in English to complete. There is no accurate ethnic data collected and the exact ages of each child are unknown. The approximate age range was estimated to be between 60 to 78 months.

Instruments

The instruments used for this study were a teacher rating scale of student behavior and a parent survey about their child and the child's household. The participating teachers were each given a two page form (Appendix A). The first page of the form briefly explained the purpose of the study, defined "disruptive behavior", and listed the targeted behaviors. Prior to rating each child, each teacher was instructed to assign each student a number on the scoring sheet and transfer this student number to the questionnaire to be sent home with each child. This was for identification purposes since the names of the children were unknown to the researcher. Page two of the form was a scoring sheet that instructed the teacher to rate each child on disruptive behavior from "low" to "high" as on a continuum. The scoring sheet contained rows numbered from one to 20 (more rows were added for the kindergarten classes), one for each student. Each row had ten small circles corresponding to the "low to high" scale. The teacher was asked to mark one circle indicating the level of disruptive behavior of that particular child on average in the classroom. Each child received only one score from the teacher. This was a subjective assessment based on the teacher's experience of the child in the classroom according to the listed targeted behaviors. In order to make this subjective assessment as valid as possible the researcher began the study 3 month's into the school year so as to make sure each teacher had adequate opportunity to assess each child accurately.

Each child was sent home with a packet that contained: (1) a consent form to be signed by the parent that explained the purpose of the study, the confidentiality of the data, and that participation in the study was completely voluntary, and (2) a three page survey that contained questions specific about their child as well as basic questions regarding the household (Appendix B). The first question on the parent survey focused on establishing whether or not their child experienced any non-maternal care on a regular basis prior to entering kindergarten. If the answer was "No", then the parent skipped the daycare questions entirely. If the parent answered "Yes", they were then asked (1) when their child began this care, (2) the average hours per week of non-maternal care the child experienced, (3) the total number of non-maternal caregiver environments their child experienced (4) the perceived benefits of the care, and (5) the perceived quality of care ("not good" to "outstanding"). All parents were instructed to rate their child on a variety of personality traits (shy vs. outgoing, cooperative vs. defiant, calm vs. angry, quiet vs. hyperactive, fearful vs. fearless, demanding vs. goodnatured, needy vs. independent, and poor concentration vs. good concentration). Lastly, the parents were asked to provide some demographic information on their child regarding sex, birth order, and the type of household (single-parent, dual-parent, blended, foster care etc.). There were a total of eleven questions on the parent survey.

Research Design

This is a quantitative study to assess the possible positive or negative effects of a child's early caregiving experience on quality of attachment as it shows up in later disruptive behaviors. It is hypothesized that (1) the more time the child spends in non-maternal care in the first five years, (2) the earlier the child entered non-maternal care, and (3) the more non-maternal care environments the child experienced would result in an increase in disruptive behavior in elementary school. This is a correlational design study using two different reports to assess the relationship between early care experience and later behavior. The individual variables of "daycare experience" (age at start of care, average time per week in care, and number of different caregiver environments) from the parent survey, were compared with the single variable "score of disruptive behavior", as provided by the teacher report on each student in their class. The key questions regarding "age in care" and "time in care" were formulated as equal interval choices (ex. "1 to 6 months of age" and "1 to 5 hours per week") rather than asking for actual ages and times, as it was thought by this researcher that the equal intervals would provide the parent easier age and time cues.

Procedures

In order to study the relationship between early care experience and disruptive behavior, this researcher created a non-standard behavior assessment and a parent report as a means to measure only the care experience and the one behavior (disruptive). This study does not *directly* assess the quality of the attachment relationship between mother and child, but seeks to assess a possible relationship between disruptive behavior and the maternal or non-maternal care experience. Therefore, attachment assessments such as the Strange Situation (Ainsworth & Wittig, 1969) would not be relevant. The Child Behavior Checklist (Achenbach, 1991; Achenbach, Edelbrock, & Howell, 1987) was one of the behavior assessments used in the NICHD study but since only one behavior was to be analyzed, it was deemed more comprehensive than was necessary for the purposes of this study.

Once the survey forms were adopted and the necessary approvals were granted, the researcher contacted the kindergarten and first grade teachers in the four local elementary schools. A letter was drafted stating the purpose of the proposed study and was delivered either by hand or through email to the teachers inviting them to participate.

Each teacher was sent sample copies of the consent form and both questionnaires. The consent form and parent survey were translated into Spanish for the Latino parents. The researcher briefly visited the students in each classroom in order to make them aware of the paperwork that was to be sent home. The instructions asked the parents to return the consent form and the questionnaire in the envelope provided to their child's teacher. The following week the researcher picked up the completed teacher rating scale and all

completed parent questionnaires and consent forms that had been returned to the classroom by the students.

The data was coded and analyzed using the Pearson product-moment correlation coefficient to compare the variable (disruptive behavior score) with each variable of early care experience.

CHAPTER FOUR

Results

Introduction

Are we putting children's emotional health and development at risk by placing them in non-maternal care before they are ready? Is there a relationship between the increase in school related behavior problems and the increase in children placed in non-maternal care over the last three decades? It was hypothesized that children placed in daycare full-time, children placed in daycare during their first year, and children who experienced more than one non-maternal care environment would display higher rates of disruptive behavior in elementary school. This chapter will describe the population studied, describe the statistical analysis performed to evaluate the data, and the present subsequent findings.

Sample

Six first grade teachers and two kindergarten teachers participated in the study and a total of 175 questionnaires were sent home for parents to complete. Fifty six percent of the parents responded (N = 98). The non-translated (English) surveys sent home totaled 134 with a 59 % response rate (n = 79). Of the 41 Spanish surveys sent home, 22 were returned. However, since three of the 22 were incomplete, they were not included in the data. The total response rate for the Spanish survey was 46 % (n = 19). The lower response rate for Latino parents may be due to a number of factors: (1) the wording in the questionnaire may have been unclear, (2) the Latino parents may have had less education and found the survey more difficult to complete, or (3) due to cultural considerations, these parents may have been more uncomfortable responding than did the

English-speaking parents. Three scores were missing from the teacher ratings so the total number of scores was 172. A t-test was performed on the total teacher ratings scores ($n=172$) with the number of surveys returned ($n=98$). The results $F(2, 170) = 1.564$, $p = .138$ show that the disruptive scores for those parents who did respond did not significantly differ from those that did not. Thus, we can conclude that our response sample is representative and did not differ systematically from the parent surveys that were not returned.

Results for each hypothesis

The study investigated the possible relationship between disruptive behavior and prior daycare experience. A two-tailed Pearson product-moment correlation was performed between scores of disruptive behavior and three variables of daycare experience: (1) time in care (2) age in care, and (3) number of daycares attended. There was statistically significant effect on disruptive behavior with two of the “experience” variables: “time in care” $r = .370$, $p = .000$ and with “number of daycares”, $r = .390$, $p = .000$. A frequency distribution was performed on “time in care” that showed 35.7% of the children did not attend any daycare while 21.4% of the children spent 35 hours per week or more in daycare. Part-time care, ranging from 6-10 hours per week, was the next highest at 12.2%. The frequencies for the number of daycare environments experienced showed 38.8% (no daycare), 33.7% (1-daycare), 19.4% (2-daycares), 7.1% (3-daycares) and, 1% (4-daycares). The results of this study support the hypothesis that a child’s early care experience increases later disruptive behavior, specifically in relation to the amount of time the child spent on average each week and the number of non-maternal environments experienced. There was no relationship between disruptive behavior and

“age in care” nor was there a relationship between behavior and sex of the child. Further analysis revealed a statistically significant positive relationship between disruptive behavior and receiving any non-maternal care prior to entering kindergarten, $r = .284$, $p = .005$. An analysis of variance (ANOVA) was performed on disruptive behavior and the variables “time in care” and “number of daycares”, $F(2, 95) = 9.934$, $p = .000$, $R^2 = .173$. These results show the two variables “time in care” and “number of daycares” are significant and can account for 17% of the information needed to fully predict disruptiveness.

Synthesis

There was a positive relationship between disruptive behavior as reported by a child’s teacher and the child’s earliest care experience as reported by the parent. The average time per week spent in daycare *and* the number of daycare environments experienced by the child was also a predictor of disruptive behavior once the child entered elementary school. The relationship between “time in care” and behavior supports earlier daycare studies, and specifically the NICHD SECC study. The “time in care” finding was especially interesting in that 84% of the parents surveyed rated the quality of their child’s daycare experience as “very good” to “outstanding.” These results do not show that “quality of care” as reported by the parents was a factor in later behavior problems.

CHAPTER FIVE

Discussion and Conclusion

Summary

The purpose of this study was to investigate the relationship between a child's early care experience and later disruptive behavior. Research in neurobiology, child psychiatry, and animal behavior strongly indicate that a child's earliest care experience may have a profound effect on the emotional development of the child's brain, the child's ability to develop a healthy response to stress, and ultimately a child's sense of self. These studies support the theoretical framework of attachment and the biological necessity for a child to have a single continuous, and dedicated primary caregiver in the first three years of life. The implications of this research are significant although the economy now dictates that most mothers need to work. Daycare centers are not designed to provide the necessary one-to-one relationship each child needs.

This study surveyed teachers and parents of kindergarten and first grade students and its results support the hypothesis that there is a positive correlation between subsequent disruptive behavior and (1) the number of hours a young child spent each week in non-maternal care, and (2) the number of non-maternal environments the child experienced.

Discussion

It now seems evident that most young children in daycare experience chronic, daily distress. Chronic distress is known to create lifelong and pervasive disruption of children's neurobiological development and emotional health. This study attempted to measure disruptive behavior in relation to daycare and provided data that showed slightly

elevated levels of subsequent behavior in these children. Even this slight rise in disruptive behavior on a national level “may have broad-scale consequences (Belsky, 2006, p. 107).” But what does a rise in the rate of disruptive behavior really mean? It could mean that all children placed in full-time daycare may be harmed to some extent and less securely attached than they would have been had they stayed at home, because all of them experienced an attachment break when they were away from their primary caregiver too long. The result of this broken attachment later results in disruptive behavior, because as the biological studies show a break in attachment and the resulting distress can create less than optimal neurobiological and emotional development.

Obviously, there may be mitigating factors. The effects of daycare could be less harmful if the child had a healthy and “well-attuned” attachment with mom prior to entering non-maternal care and then returns home to an environment that is warm, secure and nurturing. Conversely, non-maternal care could be more damaging if the child is already insecurely attached, abused, or neglected and also experiences chronic distress and multiple broken attachments. There are also children that are placed in daycare so young and for so long that they may never form an attachment. They are the most damaged children. Unfortunately, this situation may not be uncommon today. These children may show more subsequent aggressive, depressive, and suicidal behaviors.

Even a securely attached child can make a negative appraisal of herself when dropped off at daycare each day since it is the mother that has decided to separate. In a healthy attachment it is the young child, herself, who begins the separation as she becomes ready. Children do not think like adults and are unable to internalize the necessity for their mother to leave them at daycare and go to work. The way that children

may resolve this dilemma is to decide that something is wrong with them. The needs of society and parents too often come before our children and may lead to devastating consequences. Perhaps signs should be placed on the door of daycare centers that state:

Warning! Placing your child in daycare for more than 20 hours per week may prematurely interrupt the vital mother-child relationship needed for the development of your child's healthy core-self. It may put them at risk for later serious behavior disorders and can permanently affect their emotional development.

Solving the Problem

I put both of my children in full-time daycare. I witnessed my daughter's severe separation anxiety and felt helpless. My son was diagnosed with ADD in elementary school. Both my children are grown and have now shared with me, as anecdotal evidence*, what it was like for them to go to daycare while I worked full-time. My daughter said she felt "desperate" and "unlovable" because I was always leaving her. My son said that when I dropped him off, he thought it was because he was "not very important". I could have made different decisions had I understood what was at stake and now believe that if parents knew that their children's emotional development was at risk, they would rethink whether they really need two incomes.

Prevention of harm is critical when it comes to children's emotional development. If public policy was based on science, perhaps we could come up with solutions that put the needs of children first. Institutionalizing children in daycare does not reflect well on a nation that supposedly embraces a philosophy of greatness. Staying home with our children during their early years needs to become a national priority, but this kind of commitment would require considerable sacrifice since many families are not able to sustain their lifestyle if one parent stayed at home to raise the children. Unfortunately, our consumer consciousness may not mesh with a philosophy of sacrifice that would require we do without until our children are ready for school. Perhaps, the greater common good should prevail, not acquisition of goods.

The greater common good needs to become public policy within our communities as well. The current federal welfare programs that require single mothers to enter the work force when their children are young may be placing already "at risk" children in greater danger of developing dysregulated emotional response systems. It would be better to provide intensive parenting skills in addition to teaching these women occupational skills, so that when their children are ready these mothers can enter the work force.

Since prevention is key, it might be wise to put in place mandatory parenting training for boys as well as girls in high school. These programs could foster the notion

* Personal communication with my children

that fathers can be the primary caregiver, instead of the mother. Community programs that promote the needs of the child and encourage couples to work out their differences in therapy would reduce the divorce rate as well as the current epidemic of single parent households.

I am a feminist, but do not think that a woman's right to have a career should compete with the developmental needs of children. Attachment is a biological construct, not a social construct, it does not become obsolete because the cultural landscape has changed. Women have fought long and hard to have professional careers outside of the home and deserve to have these opportunities, but it is not working out in terms of the child's neurobiology. The dilemma over job and family will never be resolved if we continue to believe we are entitled to have both equally, and at the same time. We may need to re-define what we value because children need their mothers. In her book *The Whole Woman* (2000), feminist Germaine Greer wrote (in response to her earlier work), "... I argued that motherhood should not be treated as a substitute career; now I would argue that motherhood should be regarded as a genuine career option..."(p. 215). She goes on to say that motherhood should be viewed as a job that deserves adequate pay. Greer's comment points to the economic vulnerability of women in this position since stay at home mothers do not draw a salary, yet her statement ultimately diminishes the role of motherhood. Greer seems to view motherhood as a "career option" with daycare as the alternative. The studies on attachment and right brain development are convincing enough to warrant reinstating motherhood as the most important job in the world.

Why are we not looking at the research with a more critical eye? Why are we not erring on the side of caution when it comes to who is raising our children? Clarke-Stewart captured the prevailing consciousness of our society when she stated:

Professional women run a risk of experiencing a career derailment by taking the leap into parenthood...thus a mother's decision to stay home or to reduce her employment to part time while her children are young has financial ramifications not just in the short run, in terms of income sacrificed while she is at home, but also in the much-longer term, considering the negative impact on her lifetime earning potential once she returns to the workforce" (2001, p. 48).

She is absolutely correct and yet she is a researcher who turns out research that is interpreted to defend daycare. On what does society place a *higher* value; our individual careers, our lifetime earning potential, or raising happy, emotionally stable children? Ultimately, a society is judged by what it values.

Future Research

The longitudinal NICHD research by Belsky needs to be continued so that we can gather further data on the long-term behavioral effects of full-time daycare as it shows up in adolescence and adulthood. Also, science needs to devise more evidence-based tests that can measure children's distress levels and brain development. However, even before these studies are published, broad community action and education is needed in order to prevent another generation from being harmed.

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