Infant coping in day care:
Infant, family, and setting influences

by

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INTRODUCTION

With an increase in the number of women returning to the work force before their child's first birthday, the demand for infant care is one of the fastest growing areas of child care. In the United States between 1976 and 1985, the proportion of children under the age of one with mothers in the work force rose 57% (Hofferth & Phillips, 1987). Current statistics indicate that 50% of mothers of babies 1-year-old or younger are employed and 66% of working mothers with children younger than three work full-time (Children's Defense Fund, 1989). In the state of Iowa the employment rate of mothers is somewhat lower, with 49% of mothers with children under six working outside the home (Children's Defense Fund, 1990). If current trends continue, 14.6 million preschool children will have mothers in the work force by 1995, 73% more than the number in 1980 (Hofferth & Phillips, 1987).

Along with this dramatic increase in the rate of maternal employment is the increased need for child care. Since increasingly large numbers of infants are being cared for by someone other than their mothers, research is being conducted in order to determine the effect of this social phenomenon on infants. While many children are cared for in settings other than in centers, the number of children in center care has shown a dramatic increase.

Recent research focusing on the effect of infant day care on the child's development has looked at later developmental functioning. Little research has investigated the daily adjustment of infants to their day care environment. Research has shown that early experiences affect later development. Rather than focusing on measuring an infant's development after they have experienced day care, this study attempted to examine the coping abilities of infants while they were enrolled in center-based day care and the variables that predicted more optimal coping. The coping behavior of infants in day care may help researchers further identify variables that affect individuals functioning later in life. The purpose of this study then, was to examine the influences of characteristics of the infant, the family, and the day care setting, on the infant's ability to cope in their day care environment.

REVIEW OF LITERATURE

The review of pertinent research will include a discussion of the effects of infant day care including specific research dealing with cognitive development, later adjustment to school, social development, and infant's attachment to the mother as the outcome measurement variable. The quality of child care has been shown to be an important variable in the affect of infant day care. Research focusing on the dimensions of the quality of care will highlight structural, dynamic, and environmental dimensions of care.

The review of literature will introduce coping and more specifically, infant coping. Determinants of infant coping and goodness of fit will be discussed within the context of infant coping. Since coping in day care is affected by more than just the quality of care, family dimensions are also discussed in relation to the effect they have on infants in day care.

Effects of Infant Day Care

Outcome measures

The affects of infant day care have been studied with conflicting results. Traditionally, researchers have looked at a variety of child outcome measures: cognitive development, later adjustment to school, social development, and infant's attachment to the mother.

Cognition Andersson (1989) and Rubenstein, Howes, and Boyle (1981) looked at the cognitive development of infants who had been in day care versus infants who had not. When testing the children at age 3 1/2 yrs., children who had been in day care as infants showed more complex speech and had higher scores on the Peabody Picture Vocabulary Test (Rubenstein, Howes, & Boyle, 1981). Andersson (1989) tested 119 8-year-olds and found that children entering day care at an early age (before 2 yrs.) performed significantly better on cognitive tests and received more positive ratings from their teachers in terms of school achievement and social-personal attributes. The sample used by Andersson included children

from Sweden, where high child care standards and opportunities for paid parental leave during early infancy characterize high quality child care.

School adjustment Research done on the adjustment of children with prior infant care to elementary school have found conflicting results. Andersson (1989) and Vandell and Corasaniti (1990) both used samples of eight-year-olds (in Sweden and Dallas, Texas, respectively) but their findings were very different. Andersson (1989) found positive developmental outcomes associated with extensive infant child care, including enhanced verbal skills, less anxiety, and greater persistence and independence. In direct contrast, Vandell and Corasaniti (1990) found that extensive infant care was associated with negative ratings by parents, teachers, and peers. Other variables associated with extensive infant care were poorer academic and conduct grades, and lower standardized test scores (Vandell & Corasaniti, 1990). A factor that is cited as influencing the different outcomes is the quality of the infant care experienced by the children. Sweden is known to consistently offer high quality programs with specialized training of caregivers and excellent adult-child ratios, while the state of Texas (at the time of the study) had only minimal child care standards.

Two other studies that looked at children's adjustment to school in the context of previous day care experience were Hegland and Rix (1990) and Howes (1988). Looking at separate measures of assertiveness and aggressiveness as suggested by Clarke-Stewart (1988), Hegland and Rix (1990) found no differences in the social, assertive, or aggressive behaviors of children, when comparing children with previous day care experience. Howes (1988) reported that stable and quality day care positively predicted later school adjustment.

Social development There have been several studies suggesting that early day care may have negative consequences on later social development in children (Belsky, 1986, 1988; Clarke-Stewart & Fein, 1983; Schwarz, Strickland, & Krolick, 1974). Belsky reports in several of his reviews (Belsky, 1986, 1988) that early infant care may be associated with diminished compliance and cooperation with adults, increased aggressiveness, increased tendency for avoidance of mother, and possibly even greater social maladjustment in the preschool and early school years. Schwarz, Strickland, and Krolick (1974) concluded that children with more

day care experience were more likely to be aggressive, motorically active, and less cooperative with adults, when they reached preschool age.

Clarke-Stewart (1988) suggests that "in my evaluation of available evidence, Belsky's proposition that children who were in infant day care are socially maladjusted is not empirically supported." (p. 304). She points out the possibility that the pattern of avoidance observed in those studies reflects greater independence or maturity in day care children rather than disturbed behavior. She also reports that measures of noncompliance used in those studies cited in Belsky (1988) included assertiveness, which she feels is not a component of noncompliance since it is not the same as active disobedience.

On the other hand, a recent study found that children who had attended day care full-time were more sociable at preschool age than children who had been enrolled part-time (Field, Masi, Goldstein, Perry, & Parl, 1988). The researchers suggest that the time spent in day care was related to positive social behaviors regardless of the age of entry into childcare. Children with more experience in day care showed less watching, less solitary play, and less teacher comfort-seeking, as well as more cooperative play and positive affect (Field et al., 1988). Caldwell and Freyer (1982) and Rubenstein and Howes (1979) also report positive outcomes from day care experience. They conclude that the longer the children have been in care the higher the social adjustment (Caldwell and Freyer, 1982). Rubenstein and Howes (1979) found higher developmental levels of play and more positive affect in center care.

Because of these conflicting results, researchers should consider the variation in infant day care and base their results on specific components of the setting that relate to the outcome measures. The study of the effect of infant day care should consider the quality of the setting; the curriculum, the interaction with the caregiver, adult-child ratio, and group size, rather than whether or not the child had been in care.

Attachment Most of the current research has focused on the concern that the daily separation of the mother and infant may interfere with the infant-mother attachment relationship. Research on infant-mother attachment has been based largely on the theory by Bowlby (1969), who suggests that the attachment

relationship between the infant and the primary caregiver is best predicted by the quality of the infant-mother interaction. More specifically, mothers who are sensitive to their infants' needs and behavioral cues, and respond appropriately to them, are thought to facilitate the development of secure attachment and a sense of trust (Ainsworth, Blehar, Waters, & Wall, 1978; Belsky, Taylor, & Rovine, 1984).

Interruption of the attachment process by maternal employment has been the focus of many studies. According to Brazelton (1986), the attachment process is an important period of intense communication between parent and infant, during which the parent provides the baby with affective and cognitive information that forms the base for the infant's learning about the world. He argues that use of child care prior to 3-4 months prevents the establishment of a bonding relationship between the parents and the infant. Belsky and Rovine (1988) report that extensive nonmaternal care initiated in the first year of life is associated with patterns of insecure attachments between infant and mother, when attachments were classified according to Ainsworth's "Strange Situation" (Ainsworth, Blehar, Waters, & Wall, 1978). Barglow, Vaughn, & Molitor (1987) and Belsky (1988) also concur that repeated, daily separation from mother for more than 20 hours a week, during the first year of life, constitutes a "risk" factor for the development of avoidant infant-mother attachment relationship. A recent study by Braungart, Stifter, and Belsky, (1990) re-examined the "Strange Situation" video tapes of 83 infants. They found that when looking at infants labeled as insecure-avoidant during the final separation and reunion episodes with mothers, those infants who experienced nonmaternal child care for more than 20 hours a week were significantly more upset and engaged in less toy play than those infants who were experiencing less nonmaternal care (Braungart, Stifter, & Belsky, 1990).

Other researchers however, have found no evidence that nonmaternal care in the first year of life is a "risk" factor in forming attachment relationships (Chase-Lansdale, & Owen, 1987; Howes, Rodning, Galluzzo, & Myers, 1988; Owen, Easterbrooks, Chase-Lansdale & Goldberg, 1984). Chase-Lansdale and Owen (1987) found no association between mothers' work status and the quality of the infant's attachment to her when restricting maternal employment to full-time work

resumed early in the postpartum period. The study by Owen et al. (1984) found no evidence to support the notion that maternal employment alone diminishes the quality or disrupts the stability of the child's attachment to either parent. Howes et al. (1988) found that middle-class children attending either center or family day care homes were no more likely to be insecurely attached to their mothers than children cared for primarily by their mothers.

In a review of the effect of infant day care on attachment, Thompson (1988) reanalyzed data from Belsky and Rovine (1988) and Barglow et al. (1987) and found "no significant differences in the security of attachment between day care groups and normative attachment patterns identified by Ainsworth." (p. 275). He concurred that in those two studies infants with substantial day care experience showed a somewhat higher tendency to form avoidant attachment relationships but the difference was not great enough to be significantly different from the norm.

The "Strange Situation" paradigm developed by Ainsworth (1979), is the context used most often for the study of an infant's reaction to maternal separation. An infant's reaction to separation from the mother may be the infant's first experience in coping with stress (Compas, 1987). Despite individual differences, infants generally exhibit inhibition, fear, and distress upon separation. Since the distress is typically relieved by mother's return, it appears to the infant that their reaction prompted the mother's return. As a result, the behaviors shown by the infants in response to separation can be seen as the earliest form of coping displayed by the individual infant.

Although the primary purpose of the "Strange Situation" paradigm is to classify the quality of attachment between the infant and mother, the observed behavior can be seen as an example of infant coping (Hock & Clinger, 1981). Typically three patterns of behavior are observed: a) mild protest after the mother leaves, proximity seeking the mother when she returns, and easy response to the mother's efforts to comfort, b) serious distress after the mother leaves which is not easily soothed by the mother upon return, c) no protest when the mother leaves and avoidance of the mother upon her return. The observed responses can be viewed as reflecting a pattern of coping as a result of a stressful event, the mother's absence. In the case of the first example, the infant would be exhibiting effective or adaptive coping, the

second example may illustrate less effective coping, and the third example may reflect the infant either exhibiting truly avoidant behavior or not experiencing the event as stressful and therefore not being mobilized to cope (Clarke-Stewart, 1988; Compas, 1987).

Some researchers conclude that the avoidant infants, who are labeled as insecurely attached, are affected by the stressful situation but are unable to cope (or are coping ineffectively) so they show no observable behavior. Braungart, Stifter, and Belsky (1990) found that during the final reunion with mother, infants labeled as insecure-avoidant showed similar amounts of negative affect with infants labeled as secure, but played for significantly longer amounts of time with toys than did the secure infants. The authors (Braungart, Stifter, & Belsky, 1990) suggested that because infants classified as avoidant do not tend to seek proximity to their mothers upon reunion, they may be using toys, rather than their mothers to help modulate their distress.

Hock and Clinger (1981) argue that infants who fail to display distress when the mother departs may be better able to cope with uncertainty rather than being poorly attached to mother. In a similar argument, Clarke-Stewart (1988) suggests that infants who do not become upset at separation from the mother may have acquired adaptive coping strategies to deal with this stress. This has major implications in analyzing data on infants attending day care and their reactions to the "Strange Situation". Research reporting a higher percentage of infants in day care showing avoidant responses may be mistakenly labeling infants as avoidant when they are actually securely attached and are coping adaptively to the situation.

Almost exclusively, research on infant coping has looked at the "Strange Situation" as its tool to measure infant coping responses. Since infants are likely to encounter stresses other than separation from mother, using other means of measuring infant coping may be desirable. An alternative measurement of the affect of day care on infants may be measuring the effectiveness of their behavioral coping style while they are in infant care programs.

Quality of care indicators

Research to date has given us both conflicting results about the effects of infant day care and useful insights into characteristics of child care environments that influence an infant's development. The quality of the child care environment has been found to be predictive of developmental outcomes. In general, the structural, dynamic, and environmental characteristics of the child care setting determine the quality of the experience the children receive. Variables that have been found to affect the quality of care include; the group size, the ratio of adults to children, the education and training of the caregivers, and the turnover of the staff (Arnett, 1989b; Berk, 1985; Bredekamp, 1986; Howes, 1983; Jacobson & Owen, 1987; Phillips & Howes, 1987; Ruopp, Travers, Glantz, & Coelen, 1979). In infant and toddler care, the important variables are one adult to a small number of infants, consistent caregivers, and caregiver training in child development (Bredekamp, 1986; Howes, 1987).

Structural dimensions Research that has focused on staff training as an indicator of quality has found that the more specific child related training a caregiver has, the higher the quality of care provided for the children (Arnett, 1989b; Berk, 1985; Howes, 1983; Jacobson & Owen, 1987; Rubenstein & Howes, 1979; Ruopp et al., 1979). Howes (1983) found that social stimulation and responsivity in centers and home settings, and less negative affect and restriction in centers, were associated with more child related training. More educated caregivers engaged in behaviors that were more child-oriented and that provided young children with greater social and intellectual stimulation (Berk, 1985). Rubenstein and Howes (1979) found that twice as much interaction took place between the children and the head teacher than with the assistant teacher or volunteers, both of whom had less training. According to Clarke-Stewart (1987), children whose teachers are trained in child development perform better cognitively although they tend to be less social.

Dynamic dimensions McCartney, Scarr, Phillips, Grajek, and Schwartz (1982), in a study on age of entry into infant care, found less maladjustment in the early entry group that attended centers which were high in adult-child interaction. Children appear to profit from a verbally stimulating environment in which adult caregivers and children are frequently engaged in conversation (Phillips,

McCartney, & Scarr, 1987). Goossens and van IJzendoorn (1990) found that day care caregivers who were more sensitive during free play were more likely to have infants who were securely attached to them.

Environmental dimensions Phillips et al. (1987) report that many aspects of children's social competence and adjustment are affected by the overall quality of the child care environment. They suggest that since there is much variation in child care it should not be discussed as a uniform intervention and that an effort should be made to look at the processes that underlie the influence of child care quality. Lamb, Hwang, Broberg, and Bookstein (1988) concur and found that the quality of care received both at home and in alternative care settings was influential in predicting social skills. They report that the type of care was not influential in the observed social skills or the observed personality of the children, rather the quality of the care they received predicted social skills.

Family dimensions

Just as day care cannot be discussed as a uniform dimension, it also cannot be discussed in isolation. According to Phillips and Howes (1987),

> In reality, childrearing has become a collaborative endeavor with children moving back and forth--many on a daily basis--between their homes and child care. The effects of these two environments may be additive; they may compensate for each other; or some aspects of one may override aspects of the other in positive or negative ways. A full understanding of child development thus requires that both environments be examined. (p.11)

To understand the effects of day care on infants, researchers need to include family dimensions in their studies. Several studies provide support that the development of children experiencing day care is directly linked to their family structure, socioeconomic status (SES), home stimulation, and parental values (Clarke-Stewart, 1987; Goelman & Pence, 1987; Howes, 1987; Kontos & Fiene, 1987; Phillips, McCartney, & Scarr, 1987). Stress in the family has also been found to affect the infant's development, especially their attachment relationship (Gamble & Zigler, 1986; Vaughn, Gove, & Egeland, 1980). A study by Vaughn, Egeland, Sroufe, & Waters (1979), found that a change from secure to insecure

attachment across a six-month period (12 to 18 months) was associated with higher family stress scores than attachments assessed as secure at both 12 and 18 months. They propose that stress presumably taxes the mother's energies, leaving her less responsive to the infant (Vaughn et al., 1979). How well the mother copes with life stresses will undoubtedly affect the infant. It can be hypothesized that the ability of the mother to cope with stress will affect how well the infant will cope with stress, including day care.

Introduction to Coping

There has been no systematic effort made to conceptualize coping during infancy and childhood so adult literature must be drawn on to provide the basis for definitions and measurements (Compas, 1987). Traditional approaches to adult coping emerged from two separate and distinct literatures, animal experimentation and psychoanalytic ego psychology (Folkman & Lazarus, 1980). The animal model focused on the concept of drive or arousal with the emphasis largely on avoidance and escape behavior. The concept of coping, formulated within the tradition of psychoanalytic ego psychology, is mainly concerned with cognition, differentiating among a number of processes people use to manage troubled relationships. Current conceptualizations of coping have also been shaped by social learning theorists like Bandura and Mischel (cited in Kessler, Price, & Wortman, 1985) who have emphasized the process of reciprocal interaction between the person and the environment.

Defining the concept of coping is not an easy task. Generally, coping is thought to be the process by which we manage stress. However, there is not a consensus in the literature on the precise definition of stress. According to Rutter (1981), stress seems to apply equally to a form of stimulus or stressor, a force requiring change in adaptation (strain), a mental state (distress), and a form of bodily reaction or response. Because stress is not easily defined, the concept of coping also has an imprecise definition.

According to Levine (1983), coping has been used to denote a process utilized by an individual to deal with significant threats to his psychological stability and to

enable him to function more effectively. Zeitlin and Williamson's (1990) definition includes coping as the process of making adaptations to meet personal needs and to respond to the demands of the environment. Theorists have argued that these types of definitions, which include instinctive or reflexive reactions to threats as well as a variety of learned responses to adversive stimuli, are too broad and overinclusive (Compas, 1987; Garmezy, 1983).

An argument has been made by several authors (Lazarus & Folkman, 1984; Murphy & Moriarty, 1976) for the need to define coping as effortful or purposeful reactions to stress, excluding reflexive or automatic responses. Focusing on adaptational responses involving effort, as distinguished from instinctual mechanisms beyond the individual's volitional control, avoids the pitfall of defining coping so broadly that it includes everything that individuals do in relating to the environment (Lazarus & Folkman, 1984).

Lazarus and Folkman's (1984) definition of coping reflects this perspective; "We define coping as constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). They discuss that the methods used to manage stress include more than the traditional view of coping as mastery over the environment. Accepting, tolerating, avoiding, and minimizing the stressor are considered coping as well (Kessler, Price, & Wortman, 1985; Lazarus & Folkman, 1984). Coping is not limited to successful efforts but includes all purposeful attempts to manage stress regardless of their effectiveness (Lazarus & Folkman, 1984).

In the conceptualization of coping, it is important to remember that coping involves much more than problem solving and that effective coping serves other functions as well. We do not want to confuse coping functions with coping outcomes. A coping function refers to the purpose a strategy serves; outcome refers to the affect a strategy has. For example, the purpose of biting by a toddler might be to relieve stress (function), however, it could lead to negative consequences or punishment instead of stress reduction (outcome), so the desired outcome might not result from the coping strategy. In other words, functions are

not defined in terms of outcomes, although we can expect that given functions will have given outcomes (Lazarus & Folkman, 1984).

Rutter (1983) and Lazarus and Folkman (1984) make a distinction between two functions of coping. Coping that is directed at managing or altering the problem causing the distress, is problem-focused coping, while coping that is directed at regulating emotional response to the problem, is emotion-focused coping. In general, emotion-focused forms of coping are more likely to occur when an individual feels that nothing can be done to modify threatening, or challenging environmental conditions. Problem-focused forms of coping are more probable when such conditions are seen as amenable to change (Folkman & Lazarus, 1980). The means of meeting these objectives may involve both manipulation of the environment as well as intrapsychic processes.

When considering coping, it is necessary to consider the resources, styles, and specific strategies associated with coping (Leiderman, 1983). Coping resources are aspects of the self and the social environment that facilitate adaptation to stress (Compas, 1987; Folkman & Lazarus, 1980). Aspects of the self would include physical resources (health and energy), psychological resources (positive values and beliefs), and personal competencies (problem-solving and social skills). Environmental resources would include social networks and material resources.

Coping style refers to the way an individual habitually uses certain methods of coping in reaction to stress either across different situations or over time within a given situation (Compas, 1987). While the term coping style describes a characteristic way of behaving, it does not describe the specific behavior an individual will use in a particular situation. Specific coping efforts or strategies refer to the specific cognitive or behavioral actions used by an individual in the course of a particular stressful episode (Compas, 1987). These may vary across time and situation depending on the nature of the stressful encounter.

Coping in Infancy

Beginning in infancy, individuals are confronted by a steady stream of potentially stressful situations and feelings that require adaptation or coping.

Coping in the infant involves efforts to care for oneself and to respond appropriately to the demands of the environment. In order for an infant to cope, their basic requirements for nutrition, security, and a balance of activity and rest must be met. In addition, they also need their individual motivations, interests, and needs for achieving mastery fulfilled. Coping to meet the demands of the environment requires the child to negotiate the physical surroundings, interact with objects, and adapt to social expectations.

The very nature of the infant's dependence on adults for survival emphasizes the need to include the child's social context in understanding his or her coping resources, styles, and efforts (Leiderman, 1983). When considering the environment of the infant, the role of the family and the specific interactions of parents and child are powerful determiners of the social, emotional, and cognitive development of the child (Garmezy, 1983). Murphy and Moriarty (1976) note that the formation of a coping style is susceptible to environmental influence. The total dynamic setting, especially the mother-infant relationship, tends to determine the infant's coping responses. The presence of a helping person who understands when the infant is in a stressful situation often makes the difference between successful coping and psychological impairment (Call, 1974). Therefore, adaptive coping cannot be characterized by a description of the individual's skills or resources alone but instead lies in the relation between the child and the environment (Compas, 1987).

Levine (1983) has noted the importance of contingent relationships for the normal development of the human infant. Early learning, environmental mastery, and beginning self-concept comes from the growing capacity of the infant to cope with cycles of tension or stress that stem from the reciprocal interaction of the mother and infant. Human infants require not only an average expectable environment but also individually tailored care which takes into account their special psychological make-up. The absence of appropriate signals from the infant that would elicit a contingent caregiver response could lead to inappropriate maternal behavior in addition to preventing the infant from learning early coping responses.

Based on Bowlby's (1969) theory an assumption can be made that the quality of interaction between the caregiver and the infant will affect the coping-related

behavior of an infant in day care. Even the normal interaction between an infant and a caregiver can be a source of stress for the infant if signals are misread or by the overloading or lack of stimulation. Too much or too little stress can interfere with new learning unless the child has coping strategies to adapt to these situations. A child has a higher probability of coping adaptively in an environment where the caregiver is adept at meeting the child's needs and providing the right amount of stimulation needed by that infant.

Determinants of infant coping

Infants vary considerably with regard to their capacity to cope with environmental stress. The psychological and biological preparedness of the infant to respond to stress will limit their coping efforts (Compas, 1987). According to Rutter (1983) there is considerable evidence that infants and young children show wide individual differences in behavioral styles, specifically, in the "how" of their behavioral responses to differing situations. The infant's coping style may be influenced by their range of responsivity to stress, characterized by their temperament. Despite very limited direct evidence on either the extent or the nature of the contribution of temperament in modifying children's reactions to stress events (Rutter, 1983), temperament is frequently cited as playing a central role in influencing the child's coping responses (Compas, 1987; Kagan, 1983; Rutter, 1981).

The child brings to a setting characteristics that amplify, reduce, modify, or eliminate the stressors imposed on him by that setting. While there are obvious and important contextual variables aiding a child's coping (e.g. caregiver social support), optimal coping requires that the child take an active role in moderating his/her reactions to stress (Lerner & East, 1984). It is believed that temperament, defined by Thomas and Chess as the stylistic component of behavior (Goldsmith, Buss, Plomin, Rothbart, Thomas, Chess, Hinde, & McCall, 1987), is a key moderator of the infant's reactions to stress and the probability of the reactions in meeting the demands of his/her context.

Temperament may also vary the degree to which mediators external to the child, such as the social support provided by a caregiver, may occur or be effective

(Lerner & East, 1984). For example, infants with a predominantly negative emotional mood, a low stimulus response threshold, and high intensity reactions, may have less chance to elicit supportive caregiver behavior than one who has a positive mood and reactions of moderate stimulus response threshold and intensity. Similarly, because of the possession of particular patterns of temperament, an infant may be particularly vulnerable to developing negative outcomes in stressful situations unless they have a particularly sensitive caregiver, who is able to cope well with the potential stress evoked by having such a child.

An individual infant's temperament (activity level, approach-withdrawl, attention span, threshold, etc.) may also moderate their ability to be soothed or to self-soothe and to show adequate self-control. Soothability is associated with emotion-focused coping in response to external stimulation and the infant's ability to cope through such responses or to use other, external mediators (e.g. a caregiver) for soothing. Self-control or self-initiated inhibition may be used by the infant as a mode of coping. However, this means that they must be effectively able to guide their own behavior, to approach a desired object, and to inhibit action toward a prohibited one (Kopp, 1982). Individual differences in temperamental attributes would be explicit moderators of children's capacity for soothability and to their ability to show self-control.

Children differ in their sensitivity to the environment and individual differences are apparent in the ways children react once they are aroused or threatened. The basic features of cognitive and social development are likely to affect what children experience as stressful and how they cope (Maccoby, 1983). Empirical findings suggest that a person's cognitive appraisal of life events strongly influences their response (Rutter, 1983). The same event may be perceived by different individuals as irrelevant and/or positive, or threatening and harmful. "Although little considered in children, it is highly likely that a person's primary cognitive appraisal of the positive or negative meaning of particular life events will determine whether they are experienced as stressful" (Rutter, 1983, p. 26). Thus different children experience similar situations differently. For example, depending on the infant's cognitive appraisal of the situation (or stage of development), infants would experience separation from parents differently and consequently react differently.

Infants and young children must have a means to adapt or cope prior to the development of cognitive competencies. There must be some characteristics of responsivity that are noncognitive and mainly biological and behavioral (or biobehavioral) that serve to regulate early interactions with the environment (Lerner & East, 1984). Lerner and East (1984) suggest that temperament provides the child with the capacity for self-regulation prior to the full development of cognitive competence. Interindividual differences in temperament-like attributes such as tempo (e.g., biological rhythmicity) and activity level moderate the coping mechanisms present in infants. Such attributes modulate the style (and potentially the effectiveness) with which sensorimotor functions are performed by young infants.

Temperament may also mediate the effectiveness of social referencing by infants. Social referencing is a way in which infants cope with particular stressful situations (i.e., cognitively ambiguous ones) through the use of a cognitive mediator. Social referencing constitutes primary appraisal for the young infant, since it involves a means of placing an event into an evaluative category related to its significance for his/her well-being (Lerner & East, 1984). Social referencing involves the infant's reliance on emotional cues from the mother or caregiver to signal them about the emotional valence of an ambiguous situation. According to Lerner and East (1984) temperamental differences among infants in approach-withdrawl, attention span, and distractibility may moderate infants' attempts to and success at socially referencing the mother or caregiver in ambiguous, uncertain situations.

In conclusion, temperament has the potential to affect an infant's coping abilities in many ways. Individual differences in temperament attributes may moderate the infant's ability to receive support or effectively use support from a caregiver, their ability to soothe themselves or to be soothed, their capacity for self-control, the style and effectiveness of their behaviors, and their ability to use others for social referencing.

Goodness of fit

The degree to which coping is effective may depend on the goodness of fit between the child and the environment (Compas, 1987). For example, if a child's temperamental style is not effective in eliciting appropriate caretaking responses from the parents or caregiver, there will be a poor fit and the child's coping efforts will not facilitate successful adaptation to stressful encounters with the environment. Difficulties in coping are related not only to limited resources but to vulnerability to specific kinds or quantities of stimulation or to slow recovery from disturbed reaction. An infant's coping capacity depends on the resources of the child and the relation of the child's strengths to child's vulnerability to threats and obstacles.

The importance of individual and environmental factors that can influence vulnerability in relation to stress has now gained general acceptance, despite the speculation on the specific influences that account for differences in responsiveness to stress (Garmezy, 1983). When investigating the coping responses of children, Murphy and Moriarty (1976) found that "their susceptibility to difficulties varied from one to another, so that we were forced to think of a 'continuum of vulnerability' " (p. 402).

Rutter (1983) defines vulnerability and protective factors as factors which are largely inert on their own but which serve as catalysts when combined with acute stressors of some type. "Vulnerability" variables are catalytic variables that tend to increase the effect of stressors. "Protective" factors tend to reduce the effect of the stressors and are those attributes of persons, environments, situations, and events that appear to temper predictions of psychopathology based upon an individual's at-risk status (Garmezy, 1983). "Protective" factors provide resistance or resilience to risk and foster outcomes marked by patterns of adaptation and competence. The general pattern of findings is supportive of the suggestion that good personal relationships and social supports may mitigate the effects of stressful life events, and that a lack of such intimate relationships increases the adverse effects of stressors (Rutter, 1983).

The role of the family and the specific interactions of parents/caregiver and children are powerful determiners of the social, emotional, and cognitive

development of the child (Garmezy, 1983). Murphy and Moriarty (1976) state that "the experience of moderate challenge and frustration in the infants' relations with their mothers (within a context of satisfaction in the basic essentials of life) would evoke and/or reinforce a tendency toward an outreaching effort to reach goals in the environment" (p. 71). These findings suggest that a mother who views herself as self-reliant, who recognizes and responds to her own needs, and who balances these with needs of her infant does encourage different coping behaviors than those exhibited by infants of mothers who are perhaps so invested in their infant that they may (in subtle ways) encourage dependent behaviors (Hock & Clinger, 1981). Therefore, mothers, or caregivers in general, who are themselves coping well, will be of greater support for their infants than mothers who are not coping well.

The presence of a helping person who understands when the infant is in a stressful situation often makes the difference between successful coping and psychological impairment. Successful coping with the stress may augment, rather than detract from the internal psychological equilibrium of an individual. Indications of adequate coping in infancy are; good physical health, continued psychological and physical development, good eating, sleeping and toileting activity, and the absence of any distress symptoms. Another important indication of coping is active engagement in an on-going relationship with people in the environment that is associated with continued learning and with continued capacity to express negative and positive behavior appropriately.

Summary

The question of whether or not early experiences in life affect later childhood or even adult life has proved remarkably difficult to answer (Rutter, 1983). However, it is evident that some coping processes may increase the risk of maladaptation or disorder, while others may improve adaptation and reduce the risks of a deviant outcome (Garmezy, 1983). Through transactions with the environment, the child modifies previously acquired coping strategies and learns new ones. The acquisition of coping behavior is influenced by the child's developmental competence and temperament, the environmental demands, the child's experience in

managing these demands, and the environmental response to the child's coping efforts (Murphy & Moriarty, 1976). Other factors that can influence an infant's coping response are social support (from family and caregivers), age or developmental level, sex, prior experiences, and the genetic make-up of the infant. With experience, the child develops a unique coping style.

As yet, it is difficult to ascertain what, if any, long-term consequences could result as a function of the increasingly common practice of mothers working outside the home and infants attending day care. This is not to say that infant day care is bad for babies; however, we must be certain that the centers and caregivers are providing the infants with the early experiences that are necessary to encourage the acquisition of appropriate coping responses, while they are infants and in later life. More research is needed to isolate the variables effecting infant coping ability in day care.

This study attempted to describe typical coping behaviors of infants experiencing center-based day care. We looked at infant's sensorimotor behavior, their reactions to stress in the environment, and their self-initiated behavior which enables them to satisfy their need for mastery over the environment. Our second goal was to establish which, if any, infant characteristics (age, sex, age infant entered care, length of time in care, number of hours per week in care, number of changes in child care, temperament), family characteristics (mother's coping score, parent's education level, SES, occupation, income, age, marital status), and setting characteristics (ratio, group size, caregiver training, education, and experience, rating on interaction scale, rating on environment scale), influence infant coping ability.

Research Questions

The following research questions will provide the direction of this study.

A. What were the characteristics of infant coping in a day care setting, as measured by the Early Coping Inventory?

B. What characteristics of the infants' related to their coping ability in day care?

1. Did the temperament of the infant relate to their coping ability in day care?

2. Did the age, gender, age infant entered care, length of time in care, number of hours per week in care, number of changes in child care, the number of children in the family, the birth order of the infant, and additional regular weekly child care relate to infants' coping ability in day care?

C. What characteristics of the family related to infants' coping ability in day care?

1. Did mother coping relate to her infants' coping ability in day care?

2. Did parent occupation, education level, socioeconomic status, income, age, and marital status, relate to infants' coping ability in day care?

D. What characteristics of the day care environment related to infants' coping ability in day care?

1. Did the quality of the day care environment relate to infants' coping ability in day care?

2. Did the total group size, the number of caregivers in the room, or the ratio of infants to adults relate to infants' coping ability in day care?

3. Did caregiver interaction relate to infants' coping ability in day care?

4. Did caregiver training, education, and experience relate to caregiver interaction or the quality of the day care environment?

E. Which study variables contributed the most to the prediction of scores on the Early Coping Inventory?

F. Methodological Questions

1. Were ratings of infant coping behaviors by experienced caregivers similar to ratings of trained observers (who have observed those infants for 2 hours) using the Early Coping Inventory?

2. Were temperament ratings by caregivers similar to mother ratings of temperament, using the Infant Characteristics Questionnaire?

METHODOLOGY

Population Description

The population this sample was drawn from was the population of infants attending day care centers in Iowa. The sample was limited by geography to Des Moines and the surrounding area. According to the licensing consultant, there were 32 centers licensed to care for infants in Polk and Story counties. The sample was limited to day care centers and parents willing to participate in the study. Therefore, inferences from this study are limited due to convenience sampling.

Subjects

Subject selection

Initially, 32 day care centers were sent letters and 18 of the centers (56%) agreed to participate. Of those not participating; two centers had an inappropriate population (one-teen moms, one-no infants), two directors never returned telephone calls (one director had four centers, for a total of 5 centers), and four directors refused to participate (one director had three centers, for a total of 6 centers). One center changed directors and declined to participate after initially agreeing.

Of the available number of infants from the 18 centers (266), 112 mothers (50%) agreed to participate. Ninety-two mothers (82%) returned their questionnaires and from the returned questionnaires, 32 infants were randomly chosen to participate in the study. Children in two centers were not observed due to non-returned mother questionnaires and infants leaving the center. There were three centers in which four infants were chosen from two different infant rooms, two from each room. The average number of infants observed in each center was two (range 1-4).

Description of subjects

The subjects in this study were 32 infants attending 16 day care centers in three Iowa communities. There were 15 females and 17 males ranging in age from 4-19 months (M = 10.25, SD = 4.39). These infants entered day care at the average age of 10.2 weeks (range 4-28 wks; SD = 6.22). The infants spent an average of 38.8 hours per week (range 9-50 hrs., SD = 11.05) at day care, had been at the participating day care center for an average of 6.2 months (range 2-14 mos., SD = 3.44) and had been with their caregivers an average of 4.8 months (range 1-14 mos., SD = 3.29). The number of changes in child care that these infants experienced since they began child care ranged from 0-6 with an average of 1.4 (SD = 1.61). In addition to the time they spent at the day care center, 8 of the infants experienced additional regular care (were cared for by someone other than their mother on a regularly scheduled weekly basis; range 0-20 hrs, M = 2.7, SD = 5.74).

Twenty nine of the mothers of these infants were married or living with their partners, 2 were single, and 1 mother was divorced or separated. Mothers of the infants ranged in age from 20-39 years with an average age of 30.84 (SD = 4.44) while fathers ages ranged from 24-39 (M = 32.2, SD = 4.08). Thirty-one of the mothers were Caucasian and one mother was Asian. The number of children in the family ranged from 1 to 4 with the average number being 1.78, and the infant in the study was generally the first or second born. The average level of education completed by the mothers and fathers was a college education (ranged from high school diploma or GED, to graduate training). Mother's and father's occupations ranged from 3 (machine operators, semiskilled workers; for example, child care workers, truck drivers, self-employed farm laborers, file clerks) to 9 (higher executives, major professionals; for example, engineers, college teachers, doctors, lawyers) with the average for both being classified as 6.6 (technicians, semiprofessionals; for example, dietitians, opticians, sales managers). Using the formula provided by Hollingshead's Index of Social Status, which weighs parent education and occupation, the average SES for mothers was 45 (range 21-60, SD = 9.34) and the average SES for fathers was 44.86 (range 24-60, SD = 12.64). The

average family SES was 46.5 and the average family income was between $41,000-50,000 (range $11,000-above $75,000). The average number of hours the mother's worked was 38.78 (range 0-55 hrs., SD = 11.11). Two of the mothers were not employed outside the home.

All caregivers in the study were female (N = 31; one caregiver did not return her questionnaire) and ranged in age from 19-48 years with the average age being 29.1 years (SD = 8.86). Thirty caregivers were Caucasian and one caregiver was Native American. The average number of hours that the caregivers worked was 37.78 hours per week with a range of 15-40 hrs. (SD = 5.41). The education of the caregivers ranged from partial high school education to some graduate coursework with the average amount being a high school education and some specialized training. Seven caregivers reported degrees in the areas of Child Development and Early Childhood Education; 6 in Elementary Education; 8 listed other areas; and 10 did not respond to this question. When considering the amount of training specific to infant/toddler care, 3 caregivers reported no specialized training, 4 caregivers reported some inservice training, 8 caregivers reported occasionally attending workshops, and 12 caregivers reported that they regularly attend related conferences or take related coursework ($\underline{M}$ = 3.1, range 1-4) Three caregivers belonged to professional child development organizations and 23 caregivers viewed their position as a career rather than a temporary occupation. Experience was measured by the number of years the caregivers had worked with children (range 0-15 yrs., $\underline{M}$ = 5.25, SD = 3.86) and the number of years spent working specifically with infants (range 0-15, $\underline{M}$ = 3.72, SD = 3.78). The average number of months the caregiver had spent at their present center was 25.5 months (range 4-138 mos., SD = 30.39). The average number of infants in each group was 8.6 infants (range 4-12, SD = 2.41) and the number of caregivers usually in the room ranged from 1-3 ($\underline{M}$ = 2), making the average ratio 1 caregiver to 4 or fewer infants.

Procedure

Prior to starting this study approval was granted by the Iowa State University Committee on the Use of Human Subjects in Research.

Center recruitment

In the initial search for subjects for this study, letters were sent to the 32 day care centers that provide infant care in the Ames, Ankeny and Des Moines area. The letter explained the general purpose of the study and requested the center's cooperation in recruiting caregivers, parents and infants. Two to three days after the letters were received, calls were made to the centers to initiate direct contact and to answer any questions. Directors were asked to discuss the study with their caregivers to elicit their participation. Centers requesting additional information were sent copies of the specific questionnaires parents and caregivers would receive and information on how the data would be gathered through the direct observations. Written permission was obtained from a total of 18 participating center directors. A total of 21 infant/toddler rooms were observed (See Appendix A for Center Communications).

Mother recruitment

After the sample of day care centers was located, letters and permission forms were taken to the directors. These were sent home with the parents of the infants in each center. The letter to the parents described the general purpose of the study and the role they and their infants would play. Confidentiality was explained and their help and participation in the study was requested. The permission form had space for the infant's name, parent's name, address, phone number, parents signature, and a place for the parents to check that they were either interested or not interested in participating in the study, or that they would like more information and would like the investigators to call them to answer questions. As a reminder for the parents, a copy of that letter was posted near the center's sign-in sheet along with an envelope for returned permission forms. Directors were asked to place a list on the envelope of the names of all the infants so parents could check beside their

child's name after they had returned their form. Returned forms were collected from the centers by the researcher.

After the mothers gave their written permission, packets were mailed directly to the infant's home. Each packet included a letter that explained the observations of their infants that would take place in the child's day care center and requested mothers to complete an enclosed questionnaire. The questionnaire included an infant temperament rating scale, a coping scale for the mothers, and a questionnaire on family and infant demographics. A self-addressed stamped envelope was included to return the materials. The parents had approximately two weeks to complete the forms and return them. A reminder was sent after two weeks if the questionnaire had not yet been received.

Initially, a list of parents agreeing to participate at each center was compiled and two infants were to be chosen from each center. Then questionnaires would be sent to the mothers of the chosen infants. Because of the small number of positive replies from parents and difficulty in setting up observation times (due to infant, caregiver, and center schedules) all mothers agreeing to participate were sent parent questionnaires allowing for flexibility in choosing children. Infants to be observed were chosen randomly from those whose mothers had returned questionnaires (See Appendix B for Mother Communications; Appendix C for Mother Questionnaire).

Infant observations

After the questionnaires were completed by the mothers and returned, the infants to be observed were randomly chosen from each center. Calls were made to the directors to find out the infant's schedule and the name of the infant's primary caregiver. Times were then established for the observers to visit the centers. Each infant was observed with his/her primary caregiver in the center environment by two observers on two separate occasions for 2 hours each time. An attempt was made to schedule observations for each infant during a morning and an afternoon to prevent the time of day from confounding the outcome variable. However, due to scheduling difficulties, some infants were observed twice at the same time of day. The second observation was made within two weeks, with most infants being observed again the following week.

Observers gave the caregivers a questionnaire when they arrived for their first observation. Caregivers were also given a letter to explain the purpose of the study, observation strategies, and discuss confidentiality. The questionnaire contained a temperament rating scale for the infant, a coping scale for the infant, and questions on the caregiver's background in child care (including questions on the typical ratio and group size in their room). The scales were explained to them and they were asked to complete the questionnaire by the time the observers came for the second observation. The caregivers were told that they would be able to ask the observers any questions they had during the second visit to the center. The information was picked up by the observers the second time they came to the center to observe the infant (See Appendix D for Caregiver Communications; Appendix E. for Caregiver Questionnaire).

Caregivers were reminded that the purpose of the study was to observe the infant's typical behavior at the center and to go about their day as they normally would. The observers then moved around the room and center as they needed to, in order to observe the interaction between the caregiver and infant and the infant's coping skills (one observer coded caregiver interaction and environment, the second observer coded infant coping). Observers noted the group size and ratio during the time they were observing. Observers asked the caregivers about any information pertaining to the infant that they were not able to obtain in the two hour observation period. Immediately after observing for two hours the observers completed their scales, either for interaction and environment or infant coping. The procedure was the same for both observations of the infant.

Study Variables and Instruments

In order to understand an infant's coping ability in day care this study looked at characteristics of the infant, family and setting. The variables investigated in this study were infant temperament, mother coping, caregiver interaction, day care environment and infant coping. This section will describe these variables and the instruments used to assess them.

Infant characteristics

The characteristics of the infant were provided by the mothers, the caregivers, and by direct observation. The mother questionnaire provided: the age of the infant, the birth order of the infant, the gender of the infant, the age the infant entered care, the number of caregiving settings the infant attended, the length of time the infant had been present at this center, the number of changes in primary caregiver the infant had experienced, the length of time the infant had been with the present primary caregiver, the number of hours per week the infant spent in child care, and a rating of their temperament. The caregiver provided a rating of the infant's temperament and coping behavior.

Infant temperament The infant's temperament was assessed by both the mother and the caregiver using the Infant Characteristics Questionnaire (ICQ) (Bates, Freeland, & Lounsbury, 1979a). The scale contains 24 items rated on a seven-point scale, with the rating of 1 describing an optimal temperamental trait and 7 a difficult temperament. Factor analysis revealed four factors that were labeled fussy-difficult, unadaptable, dull, and unpredictable. Internal consistency was found to be .79 for fussy-difficult, .75 for unadaptable, .39 for dull, and .50 for unpredictable. The authors found interrater reliability correlations over 42 visits to be .92 for scale 1 (fussy-difficult), .72 for scale 2 (unadaptable), and .68 for scale 3 (dull). Test-retest reliabilities for the observers' ratings were also fairly high. These coefficients, computed over 2-10 day intervals and over 98-100 subjects, depending on missing data, were .59, .64, and .68 for scales 1-3, respectively. No data on interrater reliability or test-retest reliability was reported for the fourth factor, unpredictable (Refer to Mother Questionnaire, Appendix C).

In the present study, a correlational analysis revealed that temperament ratings by caregivers and mothers were not similar ($r = .04$, $p = .85$). Because of this low correlation between the two scores a decision was made not to use an average or composite score. Both mother-rated and caregiver-rated subscales and total temperament scores were included separately in the correlational matrixes; however, only the caregiver rated total temperament score was used in the final regressions.

Caregiver rated temperament was thought to be more objective because caregivers had more experience with a large number of infants, had more

opportunity to see different levels of temperament, and were able to compare the different temperament levels of infants at the same age and developmental level. Thomas and Chess state that a temperamental pattern does not change, but the social context can intensify or minimize its expression (Goldsmith, Buss, Plomin, Rothbart, Thomas, Chess, Hinde, & McCall, 1987). Therefore, it was concluded that a rating of temperament in the day care setting may be more salient than mother's perception of the infant's temperament in the home. The measurement of temperament was rated by the caregiver and was independent of the infant's coping score, which was rated by trained observers.

Internal consistency (Cronbach Alpha) was .85 for the total ICQ completed by the mothers and .92 for the ICQ filled out by the caregivers. Two items were omitted from reliability analysis for the caregiver completed temperament scale. These questions pertained to the infant's reactions to their first introduction to baths and solid food, of which the caregivers had no knowledge.

Family characteristics

Each infants' mother filled out a questionnaire on the family's demographics; including questions regarding the parent's educational level, occupation, marital status, age, income level, and race. Mothers also completed a Coping Inventory regarding their own coping abilities.

Mother coping The Coping Inventory (self-rated form) (Zeitlin, 1985) is a self-rated instrument used to assess the behavior patterns and coping skills a person uses to meet personal needs and to adapt to the demands of the environment. It has 48 items divided into two categories, coping with self and coping with the environment. The items are then divided into three dimensions; productive, active and flexible. These dimensions are used to describe an individuals coping style.

There is limited technical data available on this instrument. The authors listed test-retest reliability to be .74 when given to graduate students in a School of Education. Internal consistency was noted as .49 (1st testing) and .60 (2nd testing) (Refer to Mother Questionnaire, Appendix C).

In this study, internal consistency was found to be .86 for subscale one, .79 for subscale two, .72 for subscale three, .91 for subscale four, .81 for subscale five,

and .83 for subscale six. The total Cronbach Alpha was .95. The total score was used in analyses in this study.

Setting characteristics

The structural, dynamic, and environmental characteristics of the day care setting were considered in this study. The structural variables included the ratio of infants to adults, the group size, and the education, training, and experience of the caregiver. This data was provided by the caregiver. The dynamic variables, the sensitivity or interaction of the caregiver, was measured by the observers using the Caregiver Interaction Scale. The environmental variable is the score each setting received on the Infant/Toddler Environment Rating Scale.

Caregiver interaction The Caregiver Interaction Scale (Arnett, 1989a) is a global interaction scale designed to produce information related to various socialization practices that have been identified in research on parenting. The author (Arnett, 1989b) developed the instrument in Head Start centers and reached a criterion level of 80% agreement between observers. There is no additional information available on reliability or validity of this instrument. The scale consists of 30-items that produce four factors; positive interaction, punitiveness, permissiveness, and detachment. The positive interaction factor contained items concerning the warmth of the caregiver's interaction with children, her level of enthusiasm, and the developmental appropriateness of her communication with them. The punitiveness factor rated the caregiver for punishing, threatening, and harshly critical behavior toward children. The items on the detachment factor rated the extent to which the caregiver was uninvolved with and uninterested in the children, and spent her time in activities that did not include interaction with them. The permissiveness factor contained items reflecting a lax approach to children's misbehavior (See Appendix F).

For purposes of this study, some items were revised to make them more applicable to infants since this instrument has been typically used with toddlers and preschoolers. Additional categories were added to the Likert scale to increase the response choices from 1 to 4, to 1 to 5.

In this study, observers were trained to use the Caregiver Interaction Scale by the principal researcher. Training for the observers included discussions of the scale and clarification of all definitions. After the observers reached agreement on the definitions of terms on the scale, pilot observations were done on infants and caregivers not in the study. Comparisons were made between observer's ratings and the principal researcher and any necessary clarifications were made to assure similar view points and ratings.

Interrater reliability was checked every five observations, during this study, for a total of 10 occasions and resulted in an average of 80% agreement. Tests of internal consistency were made on all observations on the interaction of the caregivers. The overall Cronbach Alpha was .83 for the first observation and .95 for the second observation. For purposes of this study, the subscale scores and the total score for Time 1 and Time 2 were averaged and the average score was used for all analyses.

Environment The Infant/Toddler Environment Rating Scale (ITERS) (Harms, Cryer, & Clifford, 1980) was developed to assess the quality of center-based day care programs for children under thirty months of age. The scale consists of 35 items organized under 7 categories or subscales. Each item is presented as a 7-point Likert scale with indicators of four levels of quality: inadequate (1), minimal (3), good (5), and excellent (7).

The authors report interrater reliability at .84 by comparing the ratings of pairs of observers in 30 infant/toddler rooms. Test-retest reliability was assessed by a second visit to 18 of the previously visited classrooms three to four weeks after the original visit and was found to be .79. Tests of internal consistency were made on one observation from each of the 30 classrooms. The overall Cronbach Alpha was .94 for the first time and .95 for the second time.

Three assessments of the validity were carried out on the ITERS. Criterion validity was assessed by having two experts in the field of early childhood education observe in 12 infant/toddler rooms using their own assessment criteria to determine the overall quality of the programs. Agreement between the the expert ratings and ITERS scores were attained in 83% of the categorizations. Content validity was assessed in two ways. First, in a cross-instrument review, the ITERS

was compared item by item with other early childhood program assessment tools. Second, a panel of five nationally-known experts in early childhood education and research provided an item evaluation of the ITERS.

For purposes of this study, two subscale scores were recorded, Appropriate Caregiving (i.e., supervision, adult-child interaction, and discipline) and Developmentally Appropriate Activities (i.e., materials, schedules, and activities). These subscales were were originally devised by the authors of the National Child Care Staffing Study (Whitebook, Howes, & Phillips, 1990).

In this study, observers were trained to use the ITERS by the principal researcher. Training for the observers included discussions of the scale and clarification of all definitions. After the observers reached agreement on the definitions of terms on the scale, pilot observations were done on centers not in the study. Comparisons were made between observer's ratings and the principal researcher and any necessary clarifications were made to assure similar view points and ratings.

Interrater reliability was checked every five observations, during this study, for a total of 8 occasions and resulted in an average of 94% agreement. Tests of internal consistency were made on all observations from each of the 21 classrooms. The overall Cronbach Alpha was .83. In this study, internal consistency for the subscale Appropriate Caregiving was .74 for Time 1 and .81 for Time 2 and .77 for Time 1 and .80 for Time 2 for the subscale Developmentally Appropriate Activities.

For purposes of analyses, the two subscale scores were used, along with the total score on the ITERS, for all analyses. The subscale scores and the total score for Time 1 and Time 2 were averaged and the average score was used for all analyses.

Dependent variable

The purpose of this study was to explore factors of the family, the infant, and the day care setting that impact on the coping ability of the infant when in the day care environment. The Early Coping Inventory was used to measure the infant's coping ability.

Infant coping The Early Coping Inventory (ECI) (Zeitlin, Williamson, & Szczepanski, 1988) is a relatively new scale and according to the authors, the field theory of Lewin, Piaget's theory of cognitive development, and the transactional model of child development contributed to the conceptualization of this instrument. Each of these theoretical assumptions is based on the interaction of the child and the environment.

The Early Coping Inventory is a criterion-referenced, observation instrument that is designed to assess coping-related behaviors and the level of coping effectiveness of children from 4 to 36 months of age. It assesses three categories of coping-related behavior: sensorimotor organization, reactive behavior, and self-initiated behavior. Sensorimotor organization of the infant relates to the behaviors used to respond to the environment, reactive behavior relates to the responses of the infant to the demands of the physical and social environments, and self-initiated behavior relates to the infants own need for mastery over the environment. There are 48 items in the assessment and they are distributed equally across these descriptive categories. Each item specifies a behavioral characteristic documented in the research literature, or identified by expert clinical judgment, as highly relevant to coping in young children. Each coping-related behavior is observable and can be rated according to its level of effectiveness.

A Likert scale from one to five is used to rate the items with headings of: 1 = not effective (i.e., absence of the behavior or maladaptive behavioral pattern), 2 = minimally effective (i.e., inconsistent, rigidly repetitious, or generates negative outcomes over time), 3 = situationally effective (i.e., effective in some types of situations but not in others), 4 = effective more often than not (i.e., generalizes behaviors to a variety of situations), and 5 = effective most of time (consistently effective across situations). In this qualitative rating scale, effective means the behavior is: 1) appropriate for the situations, 2) appropriate for the child's developmental age, and 3) successfully used by the child. Ratings are assigned following observations of the child in a variety of situations.

Content/construct validity was analyzed by having items generated by professionals from the major educational, psychosocial, and rehabilitative disciplines and then field testing them. Six judges, selected on the basis of their

reputations as leading experts in infant and early childhood development and their pioneering work related to coping behavior, considered each item of the scale as to whether it was in "agreement" with the construct of coping and with one of the three corresponding categorical constructs. The final version of the instrument was revised to conform to their suggestions.

To establish the reliability of the assessment, the authors conducted several types of analyses. Interrater reliability coefficients were computed and ranged from .80-.94. Test-retest was assessed by applying Friedman's ANOVA to the scores. Of 16 reliability checks, 11 instances resulted in no statistically significant shift in scoring. Item reliability was also calculated. The estimates were designed to provide a relative item consistency for the Early Coping Inventory. A Concordance Index for each item was calculated by determining the exact number of rating agreement matches made by observers to those of the collective judgment of expert users. Scores ranged from .41-.52 (Refer to Appendix D, Caregiver Questionnaire).

In this study, observers were trained to use the Early Coping Inventory by the principal researcher. Training for the observers included discussions of the scale, clarification of all definitions, and discussions of appropriate expectations of infants at the chronological and developmental level anticipated in the study. Initial training for the ECI was done on training tapes provided by the authors of the scale. After the observers reached agreement on the definitions of terms on the scale, pilot observations were done with infants not in the study. Comparisons were made between observer's ratings and the principal researcher and any necessary clarifications were made to assure similar view points and ratings.

Interrater reliability was checked every five observations, during this study, for a total of 10 occasions and resulted in an average of 76% agreement. Tests of internal consistency were made on all observations, two on each of the 32 infants. The overall Cronbach Alpha was .97 for the coping scale filled out by the caregivers and, .92 for the first observation, and .95 for the second observation.

A comparison was made of the coping scores obtained by trained observers and by the caregivers familiar with the infants. A correlational analysis revealed that ECI ratings by caregivers and trained observers (average coping score) were not

similar ($r = .15$, $p = .55$). Caregivers expressed difficulty in completing the instrument, needing definitions of some items and asking numerous questions about the appropriateness of the Likert scale. Because of the low correlation between the two scores and caregiver feedback about the scale, a decision was made not to use a composite score combining the three scores (one rated by caregivers and time 1 and time 2 rated by the trained observers). Caregiver rated coping scores for the infants was not used in any analysis.

The three subscale scores were used along with the total score for the Early Coping Inventory. For purposes of analyses, the subscale scores and the total score for Time 1 and Time 2 were averaged and the average score was used for all analyses. Each subscale describes distinct and separate ways of measuring coping and will therefore, relate in different ways to the other variables.

Data Analysis

Frequencies and proportions were obtained for all nominal data. Means and standard deviations were obtained for continuous variables. Correlational analyses were used to investigate the relationship among infant coping scores with infant characteristics (age, sex, age entered care, length of time in care, number of hours per week in care, temperament), family characteristics (mother's coping score; parent's education level, SES, occupation, age, marital status), and the quality of setting (ratio, group size, caregiver training, education, and experience, rating on interaction scale, rating on environment scale).

Correlational analyses were used to answer each of the research questions. When nominal data was used as an independent variable, one-way analysis of variance was used. Hierarchical multiple regressions were run to determine how much variance in infant coping scores is accounted for by the characteristics of the infant, setting, and family.

RESULTS

The purpose of this study was to examine the influences of characteristics of the infant, the family, and the day care setting, on the infant's ability to cope in their day care environment. Research findings will be presented and discussed for each research question.

What were the Characteristics of Infant Coping in a Day Care Setting, as Measured by the Early Coping Inventory?

The Early Coping Inventory has three subscales, Sensorimotor Organization, Reactive Behavior, and Self-Initiated Behavior. Each subscale is designed to look at different aspects of infant coping. The Sensorimotor Organization subscale looks at the behaviors infants use to respond to the environment. It includes the following items: child responds to a variety of sounds, reacts to a variety of visual stimuli, maintains visual attention to people and objects, reacts to different types of touch experiences, adapts to a range of intensity of touch, tolerates being in a variety of positions, adapts to being moved by others, demonstrates pleasure in self-initiated body movement and sensory exploration, organizes information from the different senses simultaneously for a response, demonstrates coordinated movements, adapts movements to be responsive to specific situations, demonstrates self-regulation of basic body functions, demonstrates ability to self-control, has energy level that is forceful and vigorous, and varies activity level according to the situation. The infants observed in this study were consistently effective in coping with the day care environment, as rated by this subscale, with a range of 3.9 - 5.0 and a mean of 4.7 (SD = .29; N = 32). Ninety-seven percent of the observed infants were rated four or above and therefore, were coping effectively more often than not.

The Reactive Behavior subscale includes items that pertain to the way in which the infant responds to their environment. Environment, in this case, is defined as everything in the day care room including the caregiver and the other children. This scale includes the following items: child accepts warmth and support from familiar

persons, reacts to feelings and moods of other people, demonstrates pleasure after successfully accomplishing activities, demonstrates frustration tolerance in routine or new situations, engages in reciprocal interactions, accepts help when necessary, uses a variety of behaviors to respond to others, demonstrates an awareness that own behavior has an effect on people and objects, uses behavior appropriate to the situation, accepts substitute people or objects when necessary, adapts to daily routines and limits set by the caregiver, adapts to changes in the environment, finds a way of handling a new or difficult situation, bounces back after a stressful situation, responds to vocal or gestural directions, and uses self-protective behaviors to control impact of the environment (e.g., fusses when tired). The range of scores in this subscale (3.3 - 4.9) was broader than the range of scores on the Sensorimotor subscale but the mean score was still greater than four ($\underline{M}$ = 4.3, SD = .38, N = 32). Eighty-six percent of the observed infants were rated four or above and hence, were coping effectively more often than not.

Items on the Self-Initiated Behavior subscale are indicative of the way an infant interacts with the environment without prior interaction or prompting. Examples of these items include: child expresses likes and dislikes, initiates action to communicate a need, initiates interactions with others, gives warmth and affection to others, generally demonstrates a happy disposition, expresses a range of feelings, anticipates events, tries new behavior on own, initiates exploration of own body or objects using a variety of strategies, applies a previously learned behavior to a new situation, demonstrates persistence during activities, changes behavior when necessary to solve a problem or achieve a goal, enters new situations easily or cautiously as the occasion demands, actively participates in situations, completes self-initiated activity, and balances independent behavior with necessary dependence on adults. Although the scores range from 3.6 to 4.9, the average score ($\underline{M}$ = 4.5, SD = .33) is still greater than four. Using the Self-Initiated Behavior subscale to measure infant coping, ninety-four percent of the observed infants were rated four or above and thus, were coping effectively most of the time.

The average item score on the total ECI for all infants in this study ranges from 3.8 to 4.9 with a mean score of 4.5 (SD = .31). This score is higher than the group average reported by the authors ($\underline{M}$ = 4.2) on their group of nondisabled infants

(Zeitlin, Williamson, & Szczepanski, 1988). They report the lowest average for the subscale Reactive Behavior (M = 4.1) and the highest for Sensorimotor Organization (M = 4.4), with the total score average being slightly higher than the Self-Initiated Behavior subscale (M = 4.2). They report similar findings for their 1990 study (M = 4.2), for the nondisabled portion of their sample (Zeitlin & Williamson, 1990). There was a greater frequency of higher ratings being assigned to the normally developing infants in all categories of scoring. Their scores clustered at 4 and 5, whereas the largest proportion of ratings for the the disabled group was in the 2 to 4 range (Zeitlin & Williamson, 1990).

Although a full range of ratings (1 to 5) was assigned to the infants in this study (when considering item ratings), ninety-four percent of the observed infants were rated four or above on the total coping score and are coping effectively more often than not. There was very little variance among the infants' scores on the subscales and on the total ECI.

What Characteristics of the Infant Related to their Coping Ability in Day Care?

1. Did the temperament of an infant relate to their coping ability in day care?

The range of scores on the ICQ completed by the caregivers was 35 to 114 with a mean of 69 (SD = 21; N = 31). The range of scores on the ICQ completed by the mother was 38 to 90 with a mean of 62 (SD = 14; N = 32). Although the means of the two groups are similar, the range and standard deviations differ greatly. No infants were rated as being more difficult than the average baby by the mothers while three infants were rated as being more difficult than the average baby by the caregivers.

Correlational analyses were used to investigate the relationship between temperament and observer-rated coping. Caregiver ratings of infant temperament were used for this analysis. A comparison was made between the three subscales and the total score of the Early Coping Inventory (ECI) rated by the observer and the infant's score on the caregiver-rated temperament scale (Infant Characteristics Questionnaire, ICQ) and the subscales; Fussy/Difficult, Unadaptable, Dull, and Unpredictable. The total Temperament score significantly negatively correlated

with the coping subscales Reactive Behavior ($r = -.37$, $p < .05$) and Self-Initiated Behavior ($r = -.36$, $p < .05$). The correlation of the coping subscale Reactive Behavior with the Temperament subscale Fussy/Difficult was also significant ($r = -.41$, $p < .05$). This indicates that the more difficult an infant was rated by the caregiver, the less effectively they were coping in terms of the way they react to the environment and the less effectively they were coping in terms of the way they initiate interaction with the environment. There were no other significant correlations. Means, ranges, and standard deviations for infant temperament can be found in Table 1.

2. Did the age, gender, age infant entered care, length of time in care, number of hours per week in care, number of changes in child care, the number of children in the family, the birth order of the infant, and regular weekly child care in addition to day care, relate to infants' coping ability in day care?

One-way analyses of variance were used to compare the categorical variables gender and regular weekly child care in addition to the day care, with the coping subscales and the total coping score. No differences were found between boys and girls on the coping scores ($F = 2.3$, $p = .14$). Infants who were not experiencing regular weekly child care in addition to day care were coping more effectively than infants who did experience additional care ($F = 4.2$, $p < .05$).

The infant characteristics that significantly correlated with infant coping in day care include the infant's chronological age, length of time infant has been in child care, the number of children in the family, and the birth order of the infant. The subscale Sensorimotor Organization significantly correlates with the infant's age ($r = .42$, $p < .05$) and the length of time an infant has been in child care ($r = .46$, $p < .01$), indicating that the older infants and infants who had been at the day care longer were coping more effectively within the day care setting, as measured by their sensorimotor behavior. The length of time an infant had been in child care also significantly correlated with the average total coping score, suggesting that the longer the infant had been in care the better they were coping in the day care environment (total coping score; $r = .34$, $p < .05$).

Table 1. Correlations between infant coping and infant temperament (rated by mother and caregiver) (N = 31-32).

Infant Coping	Subscale fussy/ difficult (MR)	Subscale unadapt-able (MR)	Subscale dull (MR)	Subscaleun pred-ictable (MR)	Total mother rated temper-ament scale	Subscale fussy/ difficult (CR)	Subscale unadapt-able (CR)	Subscale dull (CR)	Subscale unpred-ictable (CR)	Total caregiver rated temper-ament scale
SMO	-.0348	.1606	-.0341	.0460	-.0345	-.2330	-.1528	-.1918	-.0732	-.2579
RB	-.0622	-.0038	-.1514	.0321	-.1023	-.4084*	-.2871	-.3554	-.1357	-.3715*
SIB	-.2389	.0419	-.2026	-.1134	-.2201	-.3391	-.3901	-.3318	-.1354	-.3586*
Total	-.1397	.0379	-.1689	-.0294	-.1574	-.3408	-.3079	-.3129	-.1242	-.3470
Mean	15.44	9.39	23.50	7.34	62.03	19.81	11.56	27.74	8.03	68.90
Standard Deviation	4.76	3.39	4.67	3.21	13.79	7.69	4.72	6.99	3.99	20.67
Range of scores	6-24	4-18	15-35	3-14	38-90	7-37	4-23	13-44	3-17	35-114

*p < .05

SMO = Average of sensory motor organization subscale
RB = Average of reactive behavior subscale
SIB = Average of self-initiated behavior
Total = Average of adaptive behavior index (total score on ECI)
MR = Mother rated
CR = Caregiver rated

Significant correlations were also found between the coping subscale Self-Initiated Behavior and the number of children in the family ($r = .42$, $p < .05$) and the birth order of the infant ($r = .41$, $p < .05$). The infants who had siblings and the infants who were not first borns were coping more effectively than those infants without siblings, when measured by this scale. This suggests that infants who had more experience being with other children coped more effectively in the day care environment. There were no other significant relationships. Means, ranges, and standard deviations for infant characteristics can be found in Table 2.

What Characteristics of the Family Related to Infants' Coping Ability in Day Care?

1. Did mother coping relate to her infants' coping ability in day care?

The data did not indicate a relationship between mother's coping ability (total score of The Coping Inventory) and the infants' coping ability in day care (See Table 3).

2. Did parent occupation, education level, socioeconomic status, income, age, and marital status, relate to infants' coping ability in day care?

The data did not indicate a relationship between parent occupation, education level, socioeconomic status, income, age, or marital status, and infant coping in the day care environment. Means, ranges, and standard deviations for family characteristics can be found in Table 3.

What Characteristics of the Day Care Environment Related to Infants' Coping Ability in Day Care?

1. Did the quality of the day care environment relate to infants' coping ability in day care?

The range of total scores on the (ITERS) was 72 - 179 with an average score of 127 (SD = 33). An average item score was assigned to all centers and was used to categorize the quality of the center environment. According to Howes, Phillips, and Whitebook (1992) an average item score of 1.0 - 2.9 indicated inadequate quality of care. A score of 3.0 - 3.9 describes barely adequate quality. Scores

Table 2. Correlations between infant coping and characteristics of the infant (N = 31-32).

Infant Coping	Child's age in mos.	Birth order	Age entered care	Hrs. per week at day care	Mos. at present center	Mos. with present care-giver	Length of time in child care in wks.	No. of changes in child care
SMO	.4291*	.2575	-.1134	-.2698	.3122	.2326	.4573*	-.1933
RB	.2474	.2548	-.0933	-.1536	.1827	.0675	.2727	-.0393
SIB	.1829	.4073*	-.1717	-.2301	.1394	.0509	.2344	-.2451
Total	.3068	.3207	-.1367	-.2444	.2282	.1316	.3448	-.1508
Mean	10.25	1.75	10.2	38.8	6.2	4.8	34.2	1.4
Standard Deviation	4.39	.76	6.22	11.05	3.44	3.29	19.43	1.6
Range of scores	4-19	1-3	4-28	9-50	2-14	1-14	10-72	0-6

*p <.05

SMO = Average of sensory motor organization subscale
RB = Average of reactive behavior subscale
SIB = Average of self-initiated behavior
Total = Average of adaptive behavior index (total score on ECI)

Table 3. Correlations between infant coping and family characteristics (N = 28-32).

Infant Coping	Mother's age	Father's age	Mother's education	Father's education	Mother's occupation	Father's occupation
SMO	.0556	.0067	-.0192	-.1160	.2320	.0366
RB	.0063	.0244	-.0467	-.2740	.2175	-.0193
SIB	.1344	.1358	.0038	-.1641	.1650	.0169
Total	.0699	.0560	-.0354	-.2113	.2174	.0083
Mean	30.84	32.23	4.125	4.03	6.55	6.57
Standard Deviation	4.40	4.08	.79	.89	1.48	2.10
Range of scores	20-39	24-39	2-5	2-5	3-9	3-9

*p <.05

SMO = Average of sensory motor organization subscale
RB = Average of reactive behavior subscale
SIB = Average of self-initiated behavior
Total = Average of adaptive behavior index (total score on ECI)

Family SES	Family income	No. of children in family	Ave. no. of hrs. mother works	Mother's coping score	Hrs. infant has addition-al child care
.0197	.0600	.2761	.1063	.1002	.3251
.0655	-.0476	.2801	.1809	.1254	.2888
.0974	.1028	.4236*	.1189	.0564	.3032
.0597	.0371	.3433	.1584	.1108	.3316
46.50	6.13	1.78	38.78	41.91	2.84
12.55	1.50	.83	11.12	4.40	5.72
26-60	2-8	1-4	0-55	33-50	0-20

between 4.0 and 4.9 indicate good quality and a rating of 5.0 and above reflects very good quality. In this study, 2 rooms were rated inadequate, 11 rooms were rated barely adequate, 10 rooms were rated good and 9 rooms were rated very good.

Correlational analyses were used to compare the subscale scores and total score on the ECI with the subscale scores (Developmentally Appropriate Activity and Appropriate Caregiving) and total score on the ITERS. The coping subscale Self-Initiated Behavior (SIB) and the total coping score (ECI) both significantly correlated with the ITERS subscale Appropriate Caregiving (SIB $r = .39$, $p < .05$; ECI $r = .35$, $p < .05$) and the total ITERS score (SIB $r = .36$, $p < .05$; ECI $r = .35$, $p < .05$). These findings indicate that infants cope more effectively and initiate interaction with their environment more effectively in centers rated as being higher in quality (See Table 4).

2. Did the total group size, number of caregivers in the room, and the ratio of infants to adults relate to infants' coping ability in day care?

In this study, group size ranged from 4 to 12 with a mean of 8.6 (SD = 2.41) and the average number of caregivers in one group was two (range = 1 to 3). Two centers had an infant:caregiver ratio of 3:1, two centers had a ratio of 3.3:1, and all other centers had a ratio of 4:1. Correlational analysis determined that there was no relationship between the ratio of infants to caregivers and infant coping. However, the number of infants being cared for in one group is related to the coping ability of the infants in that group. Higher coping scores are associated with larger groups of infants (See Table 4). The number of caregivers in the room is also related to infant coping; more effective coping is demonstrated by the infants when there are more caregivers in the room (RB $r = .54$, $p < .001$; SIBehavior $r = .45$, $p < .01$; Total ECI score $r = .47$, $p < .01$). Our findings indicate that the more infants (up to 12) and caregivers (up to 3) in the group, the better the infants were able to cope.

Although both the number of infants and the number of caregivers in the group correlate significantly with infant coping scores, the ratio of infants to caregivers is not significant ($r = .08$, $p = .64$). No center had a ratio greater than 4:1 and the average ratio was 3.9:1 so there was no variance in the center ratios to correlate

with the coping scores. Means, ranges, and standard deviations for environmental characteristics can be found in Table 4.

Table 4. Correlations between infant coping and characteristics of the environment (N = 32).

Infant Coping	Ave. ITERS Develop-mentally Appropriate Activities	Ave. ITERS Appropriate Caregiving	Ave. ITERS total score	No. of infants in their group	No. of care-givers in room	Ratio
SMO	.2943	.2983	.3299	.3968*	.3162	.1568
RB	.1973	.3065	.3085	.5039**	.5384***	.0702
SIB	.2468	.3855*	.3592*	.5059**	.4537**	.0535
Total	.2491	.3508*	.3501*	.4912**	.4683**	.0848
Mean	59.08	45.88	127.13	7.25	2.31	3.90
Standard Deviation	12.40	13.33	32.60	2.92	.69	.29
Range of scores	34-84	24-69	72-179	4-12	1-3	1:3-1:4

*p <.05
**p <.01
***p <.001

SMO = Average of sensory motor organization subscale
RB = Average of reactive behavior subscale
SIB = Average of self-initiated behavior
Total = Average of adaptive behavior index (total score on ECI)

3. Did caregiver interaction relate to infants' coping ability in day care?

The range of scores for the Caregiver Interaction Scale was 86-130 with an average score of 112 (SD = 12.14). A correlational analysis was used to compare the coping subscales and the total ECI score with the total score on the Caregiver Interaction Scale and the subscales; Positive Interaction, Detachment, Permissiveness, and Punitiveness. The data indicate that caregiver interaction with the infants does effect their coping. All of the coping subscales and the total ECI

score significantly correlated with the subscale Positive Interaction and the total interaction score. The subscale Punitive significantly correlated with the coping subscales Sensorimotor Organization, Reactive Behavior, and the total ECI (See Table 5). Infants coped more effectively in the day care environment if their caregiver was rated higher on the caregiver interaction scale.

Given the significant correlation between infant temperament and infant coping, the correlation between infant temperament and caregiver interaction scores was investigated. The correlation was not significant ($r = .23$, $p = .21$).

Caregivers who were rated higher on the interaction scale showed more positive interaction, more permissiveness, less punitiveness, and less detachment in their interactions with the infants. These caregivers showed respect for the children, talked in a manner they could understand, showed interest in the children and what they are doing, paid individual attention to the children, provided appropriate guidance, and showed an appreciation for children. Means, ranges, and standard deviations for caregiver interactons can be found in Table 5.

4. Did caregiver training, education, and experience relate to caregiver interaction or the quality of the day care experience?

Both caregiver training and education relate to scores on the Caregiver Interaction scale. Caregivers with more training and more education were rated higher on the interaction scale ($r = .48$, $p < .05$; $r = .52$, $p < .01$, respectively). The data did not indicate that experience working with young children in general or with infants specifically, was related to interaction scores.

Caregiver training, education, and experience related to the subscales and the total score on the environmental rating scale (ITERS). Significant correlations between caregiver training and the subscales Appropriate Caregiving (AC $r = .46$, $p < .05$), Developmentally Appropriate Activities (DAA $r = .44$, $p < .05$), and the ITERS total score ($r = .50$, $p < .01$), indicate that caregivers with more training related specifically to infants and toddlers were able to provide more appropriate caregiving and activities that were developmentally appropriate. Caregiver

Table 5. Correlations between infant coping and caregiver interaction (N = 24-32).

Infant Coping	Positive subscale	Punitive subscale	Per-missive subscale	Detached subscale	Ave. inter-action score
SMO	.4899**	-.4193*	-.0285	-.0262	.4735**
RB	.3629*	-.4214*	.0330	-.0449	.4197*
SIB	.5040**	-.3666*	.0317	-.1320	.4963**
Total	.4687**	-.4094*	.0237	-.0599	.4783**
Mean	40.66	38.44	17.22	17.39	111.91
Standard Deviation	6.91	2.55	2.79	2.17	12.14
Range of scores	26-50	29.5-40	8-20	12.5-20	86-130

*p <.05
**p <.01

SMO = Average of sensory motor organization subscale
RB = Average of reactive behavior subscale
SIB = Average of self-initiated behavior
Total = Average of adaptive behavior index (total score on ECI)

education also related to the subscales and total ITERS score (AC, r = .46, p < .01; DAA, r = .40, p < .05; ITERS, r = .50, p < .01, respectively). More appropriate caregiving and activities that were developmentally appropriate were indicative of caregivers who had more education.

Specific experience working with either infants (0-2 yrs.) or preschoolers (3-5 yrs.) was not significantly related to caregiver interaction or the quality of the environment. However, caregiver experience in working with young children in general (0-5 yrs.) correlated with the subscale Developmentally Appropriate Activities (r = .39, p < .05) and the number of months caregivers had been at the participating center correlated with the subscale Appropriate Caregiving (r = .39, p < .05), indicating that experience may promote more appropriate caregiving and use

of appropriate activites. Means, ranges, and standard deviations for caregiver characteristics can be found in Table 6.

Which Study Variables Contribute the Most to the Prediction of Scores on the Early Coping Inventory?

A hierarchical multiple regression was used to discover how much variance in infant coping scores could be explained by the predictor variables. The number of predictor variables was limited by the small number of cases in the study. Predictor variables were chosen based on the literature suggesting a relationship to infant coping. The infant variables used in this multiple regression were the infants' age, the infants' temperament rating (by the caregiver), the age the infant entered care, and the number of months the infant had been at the center. The family variables included in the regression were the mother's coping score, family SES, and the number of children in the family. The setting variables included in the regression were the number of infants in the group, the caregiver interaction score, and the environment score.

The variables were entered in blocks and each block represented variables relating to either infant, family, or setting characteristics. Infant variables were entered first to control for individual differences in infants. Because past research has indicated that family variables are related to infant outcomes, the block containing family variables was entered second. This would control for differences in family backgrounds before measures of quality were entered. Quality of care variables were entered last.

The first block of infant variables accounted for 32% of the variance in infant coping scores but the F level was not significant. The second block, containing the family variables, increased the R^2 value to 59%, a significant F change. The third block, containing quality of care variables, increase the R^2 value to 70%, however, the increase was not significant. The overall model was significant and accounted for 70% of the variance in the total infant coping score ($F = 3.17$, $p = .02$). The two variables that were significant in the final model were the child's age (Beta

Table 6. Correlations between caregiver characteristics and infant coping, and between caregiver characteristics and interaction and environment (N = 20-32).

Infant Coping	Care-giver's education	Care-giver's training	No. yrs. worked with older children (3-5 yrs.)	No. yrs. worked with infants (0-2 yrs.)	No. yrs. worked with young children (o-5 yrs.)	Mos. caregiver has been at this center
SMO	.2380	.0538	.0858	.1291	.2055	.1353
RB	.1541	.0926	.1242	-.0024	.1069	.0237
SIB	.1970	-.0061	.0890	.0826	.1630	.0788
Total	.1852	.0366	.1118	.0654	.1664	.0921
Mean	4.10	3.07	1.46	3.72	5.25	25.52
Standard Deviation	1.79	1.04	2.56	3.78	3.86	30.39
Range of scores	1-7	1-4	0-7	0-15	0-15	4-138
Total Caregiver Interaction Scale	.5190**	.4820**	.2167	.0294	.1861	.3062
Ave AC	.4598**	.4614*	.1606	.1107	.2261	.3857*
Ave DAA	.4045*	.4350*	.2709	.2131	.3925*	.2919
Total ITERS	.4968**	.5000**	.2514	.1648	.3333	.3530

*p <.05
**p <.01

SMO = Average of sensory motor organization subscale
RB = Average of reactive behavior subscale
SIB = Average of self-initiated behavior
Total = Average of adaptive behavior index (total score on ECI)
AC = Appropriate Caregiving (ITERS subscale)
DAA = Developmentaly Appropriate Activities (ITERS subscale)

weight = 2.67, p = .02) and the caregiver interaction scale (Beta weight = 2.15, p = .05) (See Table 7 for specific data).

Because this study was exploratory in nature, a stepwise regression was also done using the same variables as predictors. The first variable that entered in the regression was the caregiver interaction score (R^2 = .28, p = .005). The second variable that entered in the regression was the number of infants in the group (R^2 = .39, p = .003). At this point the probability level of .05 was reached. All other variables were then entered as a block. This stepwise regression model yielded the same results as the hierarchical regression and accounted for 70% of the variance in the total infant coping scores (F = 3.17, p = .02). The Beta weights, overall F value, and significance level, were the same as in the hierarchical regression. The findings from the stepwise regression suggests that the two variables 1) the caregiver interaction score, and 2) the number of infants in the group, are the best predictors of infant coping in a day care environment (See Table 7).

Table 7. Hierarchical multiple regression for infant coping using infant, family, and day care environment characteristics as predictors.

	Beta	R^2
Infant Characteristics		
Age	2.67	
Hours/week in day care	-1.06	
Caregiver rated temp	-1.97	
Age infant entered care	-.46	
Months infant has been at the center	-1.22	.32
Family Characteristics		
Mother coping	1.82	
Family SES	-1.43	
Number of children in the family	1.99	.59*
Environment Characteristics		
The interaction score	2.15	
The number of infants in the group	.94	
The environment score	-1.41	.70
Total Equation (d/f 11/15)	F = 3.17, p = .02	

* p < .05

DISCUSSION

This study examined the coping abilities of infants experiencing group child care in day care centers. An attempt was made to account for the variance in the infant coping scores by looking at the influences of three factors: child, family and day care environment. Each of these factors included variables that research has indicated may influence the infants' ability to cope while at day care. Child measures included the child's temperament, age, gender, the age the infant entered care, the length of time the infant has been in care, the number of hours per week the infant was in care, the number of changes in child care the infant has experienced since starting care, the number of children in the family, the birth order of the infant, and regular weekly child care in addition to day care. Family measures included mother coping, parent occupation, education level, socioeconomic status, income, age, and marital status. Environmental measures included the total group size, the ratio of infants to caregivers, an environmental rating score, and a caregiver interaction score.

In general, the infants in this study displayed effective coping behaviors. The average total scores on the Early Coping Inventory for all infants in the study ranged from 3.8 to 4.9 with a mean score of 4.5 (SD = .31). The lack of variance among the infants' total coping scores suggests that the scale may not be sensitive enough to measure individual differences in children without disabilities. Zeitlin and Williamson (1990) state that it is important to note that even the least adaptive coping behaviors of the nondisabled sample were in the range of functional competence. It appears that while the scale seems to be able to discern differences in the total coping scores of handicapped infants, it appears to be less discriminating when the sample is normally developing infants. Another possibility for the lack of variance in scores may be due to observer error. The observers in this study may not have been able to sufficiently differentiate between the behaviors of the infants to provide a range of coping behaviors. Despite this lack of variance in the coping scores, both characteristics of the infant as well as characteristics of the environment, were associated with the level of infant coping.

Infant Influences

As expected, infant temperament was related to the level of coping behavior displayed by infants in day care settings. Thomas and Chess (Goldsmith, Buss, Plomin, Rothbart, Thomas, Chess, Hinde, & McCall, 1987) have suggested that temperament is a key moderator of the infant's reactions to stress and the probability of those reactions being appropriate to the situation. Negative correlations found in this study between the infant's temperament score and their coping score would appear to confirm this suggestion. According to Lerner and East (1984), optimal coping requires that the child take an active role in moderating his/her reactions to stress. Infants rated as having a more difficult temperament received lower scores on two aspects of coping, initiating interaction and responding to the environment. When infants are not initiating interaction effectively or are responding inappropriately to situations in the environment, they are not coping effectively.

Lerner and East (1984) theorize that infant temperament may also influence the degree to which caregivers provide effective social support or even provide social support at all. For example, infants who are rated as being difficult in temperament may have a predominantly negative emotional mood, a low stimulus response threshold, and high intensity reactions. They may elicit less supportive caregiver behavior than an infant who has a positive mood and reactions of moderate stimulus response threshold and intensity. Because of the possession of particular patterns of temperament, an infant may be particularly vulnerable to developing negative outcomes in stressful situations unless they have a particularly sensitive caregiver, who is able to cope well with the potential stress evoked by having such a child.

This study found that caregivers, in general, rated the infants as being more difficult in temperament than did the mothers. The caregiver interaction scores were lower for those infants rated as being more difficult, suggesting that caregiver-infant interactions were less positive, more restricting, and, perhaps, unavailable for those infants.

Other characteristics of the infant that were significantly related to infant coping were the infant's chronological age, the length of time the infant had been in child

care, the number of children in the family, the birth order of the infant, and whether or not the infant experienced regular weekly child care in addition to day care. Significant positive correlations between coping and the infant's chronological age and the length of time the infant had been in child care support the evidence that the longer the infant has been in care, the more effectively they cope in the day care environment. Field, Masi, Goldstein, Perry, and Parl (1988), found that children with more experience in day care showed more positive social behaviors. Caldwell and Freyer (1982) also concluded that the longer the children have been in care the higher the social adjustment.

In this study, a significant correlation between the infant's age and infant coping, may reflect in part, the age range of infants and the inclusion of infants under the age of one. As the infant develops they demonstrate more complex behaviors that may be easier to measure and differentiate on the coping scale. Zeitlin and Williamson (1990) found no correlation between infant age and coping scores for their nonhandicapped sample. However, infants in their study ranged in age from 4 to 36 months, with only 29% of their sample below the age of 18 months.

Infants who had siblings and infants who were not first borns, were also rated as coping more effectively in the day care environment. This suggests that infants who had more experience being with other children displayed more appropriate coping behaviors in group situations. The review of literature does not show other research that has investigated the number of children in the family as a variable related to infant coping; however, this information could be seen as support for the studies that have found more experience in group care situations allows the infant to cope more effectively (Caldwell & Freyer, 1982).

In direct contrast to this finding are the data indicating that infants who experienced the presence of child care in addition to the day care center, were rated as coping less effectively than those infants who had not experienced additional regular care. Some infants were reported to spend time in another care giving situation besides the time they spent in day care. For example, an infant who had a regular baby-sitter on Saturday mornings while their mother was gone. In light of these conflicting results, a suggestion could be offered that there is an optimal limit

to the number of hours a week an infant can spend in non-maternal care and still cope effectively. This would support Belsky's contention that extensive nonmaternal care constitutes a risk factor for developing negative social behaviors (Belsky, 1988; Belsky & Rovine, 1988; Braungart, Stifter, & Belsky, 1990).

However, since there are no data on the kind or quality of the additional care, we cannot assume that the additional care has the same affect on behavior as actually being in day care. The difference in coping scores may be due to experience in a poor quality setting rather than the amount of time spent in nonmaternal care. Although it seems that too much non-maternal care may have a negative effect on infants, they seem to adjust better the longer they are in care.

Thus, it appears that over time, children adapt to day care environments, becoming more socially competent and hence, coping more effectively. It is possible, however, that this finding is an artifact of the infant's chronological age. Higher scores on measures of social competency and coping reflect more developmentally complex behaviors that are associated with chronological age. Studies with age matched controls not attending day care are needed to address this issue.

Family Influences

Research has shown significant relationships between infant outcomes and family measures. Variables such as SES, parent education childrearing values, and life stresses, have been found to be significantly related to infant measures (Gamble & Zigler, 1986; Goelman & Pence, 1987; Kontos & Fiene, 1987; Phillips, McCartney, & Scarr, 1987; Vaughn, Egeland, Sroufe, & Waters, 1979; Vaughn, Gove, & Egeland, 1980). However, in this study there was no relation between any of the family characteristics and the infant coping scores. In terms of demographic variables such as parent occupation, education level, socioeconomic status, income, age, and marital status, the homogeneity of the sample may have influenced the lack of correlations between those variables and infant coping.

In this study, mother's psychological functioning was assessed by the mother's coping. While the psychological well being of the mother is known to be related to infant behavior, this was not the case in this study. This may be due to the measure

that was chosen to assess mother coping. The adult form of the coping inventory reported a low internal reliability, although, in this study, internal reliability was somewhat higher than the authors reported. This measure may not be tapping a particularly important aspect of mother coping or the lack of variance in the infant coping scores may inhibit any correlation between the two measures.

The small number of cases and the low variance in the infant coping scores may minimize any existing relationship between family measures and infant coping scores. On the other hand, as suggested by Phillips and Howes (1987), the affect of the family may be mediated by the quality of the day care experience.

Environment Influences

The findings of this study support current research (Arnett, 1989b; Berk, 1985; Bredekamp, 1986; Howes, 1983; Jacobson & Owen, 1987; Phillips & Howes, 1987; Ruopp, Travers, Glantz, & Coelen, 1979; Whitebook, Howes, & Phillips, 1990) that show a positive relationship between the quality of child care and child outcome measures. Structural, dynamic, and environmental characteristics of the child care setting determine the quality of the experience the children receive. The structural variables that were measured included the ratio of infants to adults, the group size, and the education, training, and experience of the caregiver.

Research has shown that the number of infants cared for in one group has a limit, beyond which infants show a decline in social skills and an increase in negative behaviors (Ruopp, Travers, Glantz, & Coelen, 1979; Whitebook, Howes, & Phillips, 1990). According to the National Child Care Staffing Study (Whitebook, Howes, & Phillips, 1990), Federal Interagency Day Care Requirements (FIDCR) recommends a group size of no more than 10 infants in one group. FIDCR also recommends an infant to adult ratio of 3:1 or better. Since no center in this study had more than 12 infants or 3 caregivers in a group, no conclusions can be drawn from these findings except, perhaps, that infants appear to be able to cope effectively in a group of up to 12 infants.

Only four centers maintained a ratio lower than 4:1, all others had ratios of 4:1. Since there was not much variance in the ratios of infants to caregivers and no

relationship between ratio and infant coping, no conclusions can be drawn about what was an optimal ratio for infants in group care. This finding is reflective of studies that suggest there may be a ceiling effect for global measures of overall quality of care. However, once quality is of a an adequate level on global measures, it does appear that specific aspects of quality, caregiver interactions for example, are important to infant outcomes.

The caregiver interaction scale was used to measure the dynamic dimension of the environment. Infants in this study coped more effectively in the day care environment if their caregiver was rated higher on the caregiver interaction scale. This finding supports other research that indicates that the interaction between children and their caregivers influences how well the children adjust (Goossens & van IJzendoorn, 1990; McCartney, Scarr, Phillips, Grajek, & Schwartz, 1982; Phillips, Scarr, & McCartney, 1987; Whitebook, Howes, & Phillips, 1990).

Characteristics of the caregiver were found to be important predictors of the quality of interactions. Caregivers who had more training provided infants with more positive interaction, and less negative affect and restriction. Caregivers with more education also provided higher quality care for the infants by engaging in more positive interaction. In this study, the data did not indicate that prior experience working with children, either with children in general or specifically with infants, related to higher infant coping scores.

The environmental dimension of child care was measured by the Infant/Toddler Environmental Rating Scale. Infants who were cared for in centers that received higher ratings in quality cope more effectively. Those same infants also experienced more appropriate caregiving than infants being cared for in centers rated as being lower in overall quality. According to Howes, Phillips, and Whitebook (1992), positive child measures are associated with more appropriate caregiving and developmentally appropriate activities. They reported that it was more likely that children would receive appropriate caregiving than developmentally appropriate activities. Our findings support this since there was a relationship between infant coping and the quality measure Appropriate Caregiving, but, there was no relationship between infant coping and the quality measure Developmentally Appropriate Activity.

Relative Contribution of Predictor Variables

Regression analyses were used to describe the relative importance of infant, family, and day care environment variables to infant coping behaviors. In this study, a hierarchical regression indicated that infant age and caregiver interaction were significant in predicting infant coping. Family characteristics contributed to the overall variance in infant coping but did not yield a significant F change. Although family variables weren't significant at the .05 level, there was a trend toward significance. If a less stringent level of significance were applied several other variables would have been significant, for example the infant's temperament, the number of children in the family, and the mother's coping score.

A stepwise regression revealed caregiver interaction, followed by the number of infants in the group, to be the best predictors of infant coping. The Beta weights, overall F value, and significance level, were the same as in the hierarchical regression. The findings in this study support the importance of looking at the ecological perspective of the infant in day care. Family variables contributed to the amount of variance accounted for in infant coping scores, although they did not significantly correlate with infant coping. This may be attributed to the instruments used to measure family variables, the small sample size, and the homogeneity of the sample.

In summary, the purpose of this study was to examine the influences of characteristics of the infant, the family, and the day care setting, on the infant's ability to cope in their day care environment. According to the findings, characteristics of the infant and the day care environment both influence the infant's ability to cope in the day care setting. Characteristics of the infant that influence their coping in day care included the infant's temperament, their chronological age, the length of time the infant had been in care, whether or not the infants had siblings or was first born, and whether or not the infant experienced additional regular care in addition to the day care.

Characteristics of the environment that influenced infant coping in day care were the overall quality of the environment, the interaction between the caregiver and the

children, the number of infants and adults in the group, and whether or not the infants experienced appropriate caregiving. Although the education, training and experience of the caregiver did not directly influence the infant's coping, these variables did significantly influence the caregiver's interaction with children.

Limitations of the Study

Because of the nature of observational research, large quantities of time are required to collect the data. Even though the number of subjects is low, collecting the data for this study was very time consuming. It is not possible to generalize the findings to any other population because of the homogeneity of the sample in regard to race, intact families, parent education and occupation, and SES.

Implications for Further Research

The primary purpose of this study was to look at infant coping behavior in the day care environment. Because this study was exploratory rather than confirmatory in nature, numerous variables were investigated. Findings indicate that in addition to infant characteristics, the quality of the environment, specifically caregiver interaction and group size, best predict infant coping. Future research needs to explore other infant measures to assess infant coping in day care.

Findings in this study are restricted to present coping abilities of infants experiencing day care. Because findings indicate that environmental quality relates to coping, future research needs to follow these infants to assess the longitudinal effects of infant coping in relation to the quality of their day care experience.

Implications for caregiver training

According to these findings, the most effective way to increase the quality of care provided to infants in day care centers would be to train the caregivers. Training needs to include components of interaction, restriction, guidance, and the importance of meeting the needs of infants with different temperaments, especially infants rated as having difficult temperaments.

Implications for social policy

The education and training of caregivers appears to be very important in predicting positive outcomes for children experiencing infant day care. In light of the findings in this study, minimum requirements for day care centers need to include caregiver education and training, in addition to limits on group size and the ratio of infants to adults.

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And finally, I dedicate this thesis to my son, Logan, who was born prematurely and screwed up my progress, but became my inspiration. You were worth every second.

APPENDIX A. CENTER COMMUNICATIONS

October 25, 1990

Dear Director:

As the director of a day care center, you are certainly aware of the increasing use of infant care by families. Recent economic and political forces have stimulated an interest in the effect of day care on children's development. This is an important issue for providers, parents, the community and researchers. It is also a very complicated issue. As you know, the effect of day care on young children is influenced by many factors including characteristics of infant care, influences of the family and what the child him/herself brings to the situation.

We are currently conducting a study that considers the influence of multiple factors on children's behavior in day care. Please take a few minutes to read the brief explanation of the study that is enclosed. We would like the opportunity to tell you more about the study and, specifically, what it would entail in terms of the participation of the families and caregivers in your center. We will call you soon to give you more information and answer any questions you may have.

I hope that you'll consider being one of the 20 centers that are helping us answer some important questions about infant care. We would greatly appreciate your participation in this study.

Sincerely,

Susan L. McBride, Ph.D. (294-7838)
Associate Professor

Kerry Moore-Kroneman (294-1954)
Graduate Research Assistant

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INFANT DAY CARE STUDY

Explanation of the Study

PURPOSE OF STUDY: The purpose of this study is to gain an understanding of infant (4-18 months) behavior in day care and how characteristics of the infant, the day care, and the family influence this behavior. To accomplish this, we will observe the infants in the day care setting and we will ask parents and caregivers questions about the infant. Parents will be asked to fill out questionnaires about their child's typical behavior at home and some general questions about the family. Caregivers will be asked to fill out questionnaires about their educational background and some specific questions about the infant we are observing. We will also obtain information about the child's behavior by observing the child in the day care setting.

PROCEDURE: Parents who agree to participate will be given a packet of questionnaires to complete and return in an enclosed envelope. After we receive the completed parent forms we will set up times to observe the infant in the centers. Each infant will be observed at the center twice for two hours. Caregivers will also be given a packet of questionnaires to fill out and return.

CONFIDENTIALITY: The privacy of each family and caregiver will be guaranteed by placing only numerical codes on all questionnaires completed in the course of the study, and by examining the data only on a group level. Any publications that result from this study will not identify any specific center, family, or caregiver. Results and conclusions will be based on group data only.

PARTICIPATION: Participation in this study is completely voluntary. Any time a family desires to terminate participation in the project, they need merely call one of the researchers and inform them. If you have any concerns during this study we would be very happy to talk with you about them.

POTENTIAL BENEFITS: Information from this study will be used to provide both parents and professionals with knowledge about infant's behavior in day care and what characteristics of the infant, center, and family influence their behavior. At the completion of this study we will provide the center with a summary of the results to share with you.

Participant Agreement

Infant Day Care Study
Susan L. McBride and Kerry Moore-Kroneman, Investigators

I have been provided an explanation of the Infant Day Care Study and will cooperate with the researchers by providing information to parents and caregivers and permitting study researchers to observe children in their classrooms.

Signature _____ _____
(Day Care Director) (Date)

Name and Address of Center _____

_____

_____

APPENDIX B. MOTHER COMMUNICATIONS

Dear Parent:

Your infant's day care center has agreed to cooperate with us in our Infant Day Care Study and we are hoping that you will also participate. Please take a few minutes to read the brief explanation of the study that is enclosed. Your participation will involve filling out questionnaires that provide information about yourself and your child. These questionnaires should take about 20 minutes to complete. In addition, we will observe your infant in the day care setting on two occasions and will ask your child's caregiver to fill out two questionnaires about your infant.

Attached to this letter is a form for you to check whether or not you are willing to participate. If you have any questions, please indicate this on the form and we will call you. Please return the consent form to your caregiver or director at your center as soon as possible.

Together we can provide information that is helpful to parents and child care professionals. Our study will specifically look at the many factors that influence infants' behavior in day care, such as characteristics of the day care, influences of the family, and what the child him/herself brings to the situation.

We would greatly appreciate your assistance. Your participation will help answer important questions about the influence of families and child care on infants' behavior. This information will assist parents, child care professionals, and politicians in making important decisions about infant care. Thank you for considering your participation in this project.

Sincerely,

Susan L. McBride, Ph.D. (294-7838)
Associate Professor

Kerry Moore-Kroneman (294-1954)
Graduate Research Assistant

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INFANT DAY CARE STUDY

Explanation of the Study

PURPOSE OF STUDY: The purpose of this study is to gain an understanding of infant (4-18 months) behavior in day care and how characteristics of the infant, the day care, and the family influence this behavior. To accomplish this, we will observe the infants in the day care setting and we will ask parents and caregivers questions about the infant. Parents will be asked to fill out questionnaires about their child's typical behavior at home and some general questions about the family. Caregivers will be asked to fill out questionnaires about their educational background and some specific questions about the infant we are observing. We will also obtain information about the child's behavior by observing the child in the day care setting.

PROCEDURE: Parents who agree to participate will be given a packet of questionnaires to complete and return in an enclosed envelope. After we receive the completed parent forms we will set up times to observe the infant in the centers. Each infant will be observed at the center twice for two hours. Caregivers will also be given a packet of questionnaires to fill out and return.

CONFIDENTIALITY: The privacy of each family and caregiver will be guaranteed by placing only numerical codes on all questionnaires completed in the course of the study, and by examining the data only on a group level. Any publications that result from this study will not identify any specific center, family, or caregiver. Results and conclusions will be based on group data only.

PARTICIPATION: Participation in this study is completely voluntary. Any time a family desires to terminate participation in the project, they need merely call one of the researchers and inform them. If you have any concerns during this study we would be very happy to talk with you about them.

POTENTIAL BENEFITS: Information from this study will be used to provide both parents and professionals with knowledge about infant's behavior in day care and what characteristics of the infant, center, and family influence their behavior. At the completion of this study we will provide the center with a summary of the results to share with you.

Center ID# _____
Infant ID# _____

CONSENT FOR PARTICIPATION

_____ Yes, I am willing for myself and my child to participate in the research study, *Infants in Day Care*

_____ No, I am not willing for myself and my child to participate in the research study, *Infants in Day Care*

_____ I would like more information about this study, please have a researcher call me.

I understand that I am free to withdraw consent at any time and to discontinue participation in the study without prejudice to me or my child. I also understand that the information obtained from me will remain confidential.

Infant's Name _____

Birth date (mo/day/yr) _____

Infant's Sex M F

Name of day care center _____

Name of caregiver at day care _____

Parents Name(s) _____

Address _____

_____

Telephone Number (home) _____

(work) _____

The most convenient time to call me is _____ (A.M. P.M.) at _____ (work, home)

Parent's signature _____ Date _____

Dear Parent,

Thank you very much for agreeing to participate in our Infant Day Care Study. We know that both mothers and fathers play important roles in the lives of their children. However, for this study, we are requesting that mothers only fill out the enclosed questionnaire. Therefore, please answer the questions without consulting with your spouse; we want your opinions. You may discuss them after you have returned the questionnaires!

The questionnaire includes questions about stresses and supports in your family and personal life, as well as questions about your child. We understand that the questionnaire is fairly lengthy and we anticipate that it will take you about 30 minutes to complete. Therefore, please don't spend too much time on a single question; your first impression will be the best answer. Please note that questions about parenting and child behavior should be in regard to the infant participating in the study. Also be sure to turn the pages over since there are questions on the back of most pages.

We would like you to try to complete the questionnaire within a week after you receive it and return it in the enclosed self-addressed stamped envelope. Please feel free to call Susan McBride (294-7838) or Kerry Moore-Kroneman (294-1954) if you have any questions while you are filling out the questionnaire.

We really appreciate your cooperation and will share our results with your child's day care center. Thanks again!!

Sincerely,

Susan L. McBride, Ph.D. (294-7838)
Associate Professor

Kerry Moore-Kroneman (294-1954)
Graduate Research Assistant

2c

Dear Parent;

Thank you so much for taking the time to fill out our questionnaire. Your participation has provided us with valuable information.

Initially, we had planned on having only parents of observed children fill out questionnaires. However, because of infant, caregiver, and observer schedules, it was easier to collect data from all parents who agreed to participate. We then had more flexibility in planning our observations. Be assured that even if your child was not observed, the information that you provided is still very helpful.

It is our plan to re-contact all families in a year or two and ask if you will be willing to participate in a follow-up study. We hope you will be interested in participating in the second phase of the project as well.

As soon as we have preliminary results from this phase of the study, we will share them with your child's day care center who will then pass the information on you. Thank you again for your assistance.

Sincerely,

Susan L. McBride, Ph.D. (294-7838)
Associate Professor

Kerry Moore-Kroneman (294-1954)
Graduate Research Assistant

APPENDIX C. MOTHER QUESTIONNAIRE

Center ID# _____
Infant ID# _____

Infant Day Care Study

QUESTIONNAIRE FOR MOTHERS

The following questions will let us describe the participants in this study.

1. Mother's age _____ Father's age _____

2. What is your marital status? Check one:

___ single ___ married or living with partner

___ divorced or separated ___ widowed

3. What is the highest level of school that you have completed? Check one:

Mother	Father
___ partial H.S.(10th or 11th grade)	___ partial H.S. (10th or 11th grade)
___ high school diploma or GED	___ high school diploma or GED
___ some college or specialized training	___ some college or specialized training
___ standard college or university graduation	___ standard college or university graduation
___ graduate professional training (graduate degree)	___ graduate professional training (graduate degree)

4. Mother's occupation _____ Father's Occupation _____

5. Please give us a general estimate of your family's total income from all sources. Please check one:

___ $5,000-10,000
___ $11,000-15,000
___ $16,000-20,000
___ $21,000-30,000
___ $31,000-40,000
___ $41,000-50,000
___ $51,000-74,000
___ Above $75,000

6. Would you describe yourself as:

___ Black (Afro-American) ___ Native American

___ Hispanic ___ White/Caucasian

___ Asian ___ Other

See other side

7. Number of children living at home? _____

8. Are you currently employed? _____ yes _____ no

9. How many hours do you work each week on average? _____ hours per week

10. If you could choose, would you prefer;
    _____ to be employed full-time
    _____ to be employed part-time
    _____ to not work at all

These questions pertain to the infant in the study.

1. Infant's birth date _____(mo/day/yr) Sex __ Female __ Male

2. Birth order of infant? __ 1st __ 2nd __ 3rd _____other

3. Age of infant when he/she entered care? _____

4. Number of changes in child care arrangements your infant has experienced since beginning care? _____ (including changes in centers, types of care and in specific caregivers)

5. How many months has your infant been at his/her present day care center?
   _____

6. How many months has your infant been with his/her present caregiver in the day care center? _____

7. What hours of the day is your infant typically at the center?
   _____ (ex. 8 a.m. - 5 p.m.)

8. Average number of hours a week infant spends at this day care center?
   _____

9. Is your child involved in other child care arrangements in <u>addition</u> to the day care center? _____ yes _____ no

   If yes, please indicate average number of hours a week with other arrangement:
   father _____ hrs/week
   relative (other than parent) _____ hrs/week
   baby-sitter in home _____ hrs/week
   baby-sitter outside home _____ hrs/week
   other, please indicate _____

Center ID# _____
Infant ID# _____

COPING INVENTORY

Everyone has different styles and ways of coping with everyday situations. Please consider the following questions and circle the number that most clearly describes how you behave. The word effective is used to mean that you do the behavior described in the items in the best way possible. You give a rating of:

1 When your behavior is not effective. You are either not able to do something or what you do does not work.

2 When your behavior is minimally effective. What you do is not consistent, not appropriate, or is rigidly repetitious. You sometimes do and sometimes do not behave effectively or appropriately in similar types of situations, or you repeat the same type of behavior regardless of the situation.

3 When your behavior is effective in some types of situations but not in others. It varies with the situation.

4 When your behavior more often than not is effective or appropriate.

5 When your behavior is effective most of the time.

These guidelines are used to rate each item. When different information is needed to rate a specific item, it is included with that item. If you feel that your behavior falls between two points of the scale, make a choice by circling the number closest to it.

1	2	3	4	5
Not effective (not able to do; doesn't work)	Minimally effective (not consistent or appropriate; repetitious)	Effective in some types of situations, but not in others	More often than not effective or appropriate	Effective most of the time

Coping with Self: Productive

1 2 3 4 5 1. When you are presented with a new or difficult situation, do you find a a way to handle it?

1 2 3 4 5 2. Do you respond to control by others in a way that is helpful to you and/or to the situation? (For example, how do you react to rules set by others or orders given to you on the job, within the family, or in the community?)

1 2 3 4 5 3. Do you generally have a happy feeling?

1 2 3 4 5 4. Do you have confidence in your ability to learn and do things?

1 2 3 4 5 5. Do you apply what you have learned to new situations?

See other side

Format adapted from The Coping Inventory (Zeitlin, 1985). Bensenville, Ill: Scholastic Testing Service.

INFANT CHARACTERISTICS QUESTIONNAIRE

Because all infants are different, we are interested in your perceptions of your child's typical behavior. On the following questions please circle the number that is most typical of your baby. "About average" means how you think the typical baby would be scored.

1. How easy or difficult is it for you to calm or soothe your baby when he/she is upset?

1	2	3	4	5	6	7
very easy			about average			difficult

2. How easy or difficult is it for you to predict when your baby will go to sleep and wake up?

1	2	3	4	5	6	7
very easy			about average			difficult

3. How easy or difficult is it for you to predict when your baby will become hungry?

1	2	3	4	5	6	7
very easy			about average			difficult

4. How easy or difficult is it for you to predict what's bothering your baby when he/she cries or fusses?

1	2	3	4	5	6	7
very easy			about average			difficult

5. How many times per day, on the average, does your baby get fussy and irritable--for either short or long periods of time?

1	2	3	4	5	6	7
never	1-2 times per day	3-4 times per day	5-6 times per day	7-9 times per day	10-14 times per day	more than 15

6. How much does your baby cry and fuss in general?

1	2	3	4	5	6	7
very little; much less than the average baby			average amount; about as much as the average baby			alot; much more than the average baby

Center ID# _____
Infant ID# _____

7. How did your baby respond to his/her first bath?

1	2	3	4	5	6	7
very well-- baby loved it			neither liked nor disliked it			terribly-- didn't like it

8. How did your baby respond to his/her first solid food?

1	2	3	4	5	6	7
very favorably liked it immediately			neither liked nor disliked it			very negatively-- did not like it at all

9. How does your baby typically respond to a new person?

1	2	3	4	5	6	7
almost always responds favorably			responds favorably about half the time			almost always responds negatively at first

10. How does your baby typically respond to being in a new place?

1	2	3	4	5	6	7
almost always responds favorably			responds favorably about half the time			almost always responds negatively at first

11. How well does your baby adapt to things (such as in items 7-10) eventually?

1	2	3	4	5	6	7
very well always likes it eventually			ends up liking it about half the time			almost always dislikes it in the end

12. How easily does your infant get upset?

1	2	3	4	5	6	7
very hard to upset--even by things that upset most babies			about average			very easily upset by things that wouldn't bother most babies

See other side

13. When your baby gets upset (e.g., before feeding, during diapering, etc.) how vigorously or loudly does he/she cry and fuss?

1	2	3	4	5	6	7
very mild intensity or loudness			moderate intensity or loudness			very loud or intense, really cuts loose

14. How does your baby react when you are dressing him/her?

1	2	3	4	5	6	7
very well--likes it			about average--doesn't mind			doesn't like it at all

15. How active is your baby in general?

1	2	3	4	5	6	7
very calm and quiet			average			very active and vigorous

16. How much does your baby smile and make happy sounds?

1	2	3	4	5	6	7
a great deal, much more than most infants			an average amount			very little, much less than most infants

17. What kind of mood is your baby generally in?

1	2	3	4	5	6	7
very happy and cheerful			neither serious nor cheerful			serious

18. How much does your baby enjoy playing little games with you?

1	2	3	4	5	6	7
a great deal, really loves it			about average			very little, doesn't like it very much

Center ID# _____
Infant ID# _____

19. How much does your baby like to cuddle and be held?

1	2	3	4	5	6	7
very much, can be held for long periods			about average			not at all, wants to be free

20. How does your baby respond to disruptions and changes in the everyday routine, such as when you go to church or a meeting, on trips, etc.?

1	2	3	4	5	6	7
very favorably, doesn't get upset			about average			very unfavorably, gets quite upset

21. How easy is it for you to predict when your baby will need a diaper change?

1	2	3	4	5	6	7
very easy			about average			very difficult

22. How changeable is your baby's mood?

1	2	3	4	5	6	7
changes seldom, and changes slowly when he/she does change			about average			changes often and rapidly

23. How excited does your baby become when people play with or talk to him/her?

1	2	3	4	5	6	7
very excited			about average			not at all excited

24. Please rate the overall degree of difficulty your baby would present for the average mother.

1	2	3	4	5	6	7
super easy			ordinary, some problems			highly difficult to deal with

See other side

APPENDIX D. CAREGIVER COMMUNICATIONS

Dear Caregiver,

Your director has probably discussed our project, the Infant Day Care Study, with you, but I wanted to provide you with more information on what we will be doing. Two observers will be coming to your center to observe the infant(s) whose parents agreed to participate in our study. They will be watching the infant to observe his/her typical behavior while at day care.

After the inital greeting we would appreciate it if you could ignore the observers and interact with the children in the way you normally would. We realize you may be somewhat uncomfortable, but please remember that the observers are there to see the infants' normal behavior, so we need you to act as natural as possible with the children. The observers will be making some notes about the children's behavior to help them fill out their scales. After the observers are finished, they may have some questions for you about behaviors or situations they were unable to observe.

The first time the observers come, they will give you a packet of questionnaires to complete. Two of the forms pertain to the infant and one is about your background and education. Please fill them out and return them to the observers when they come for their second visit. They can answer any questions you might have at this time or you can call them with your questions. Thank you for your cooperation.

Sincerely,

Susan L. McBride, Ph.D. (294-7838)
Associate Professor

Kerry Moore-Kroneman
Graduate Research Assistant (294-1954)

INFANT DAY CARE STUDY

Explanation of the Study

PURPOSE OF STUDY: The purpose of this study is to gain an understanding of infant (4-18 months) behavior in day care and how characteristics of the infant, the day care, and the family influence this behavior. To accomplish this, we will observe the infants in the day care setting and we will ask parents and caregivers questions about the infant. Parents will be asked to fill out questionnaires about their child's typical behavior at home and some general questions about the family. Caregivers will be asked to fill out questionnaires about their educational background and some specific questions about the infant we are observing. We will also obtain information about the child's behavior by observing the child in the day care setting.

PROCEDURE: Parents who agree to participate will be given a packet of questionnaires to complete and return in an enclosed envelope. After we receive the completed parent forms we will set up times to observe the infant in the centers. Each infant will be observed at the center twice for two hours. Caregivers will also be given a packet of questionnaires to fill out and return.

CONFIDENTIALITY: The privacy of each family and caregiver will be guaranteed by placing only numerical codes on all questionnaires completed in the course of the study, and by examining the data only on a group level. Any publications that result from this study will not identify any specific center, family, or caregiver. Results and conclusions will be based on group data only.

PARTICIPATION: Participation in this study is completely voluntary. Any time a family desires to terminate participation in the project, they need merely call one of the researchers and inform them. If you have any concerns during this study we would be very happy to talk with you about them.

POTENTIAL BENEFITS: Information from this study will be used to provide both parents and professionals with knowledge about infant's behavior in day care and what characteristics of the infant, center, and family influence their behavior. At the completion of this study we will provide the center with a summary of the results to share with you.

APPENDIX E. CAREGIVER QUESTIONNAIRE

Center ID# _____
Infant ID# _____

CAREGIVER BACKGROUND INFORMATION

1. Name of Center _____

2. First name of infant participating in study _____

3. Background information

   A. Sex of caregiver __ Female __ Male

   B. Age? _____

   C. Marital Status? Check one:

   ___ single ___ married or living with partner

   ___ divorced or separated ___ widowed

   D. Would you describe yourself as:

   ___ Black (Afro-American) ___ Native American

   ___ Hispanic ___ White/Caucasian

   ___ Asian ___ Other

   E. Number of hours you work at the day care center per week? _____

   F. Do you view your work in child care as ___ temporary or ___ career?

5. Educational background

   A. What is the highest level of school that you have completed? Check one:

   ___ partial high school (10th or 11th grade)

   ___ high school diploma or GED

   ___ some college or specialized training
   _____ CDA training
   _____ Other, please indicate
   _____

   ___ standard college or university graduation
   _____ A.A.
   _____ B.S. or B.A.

   ___ graduate or professional training (graduate degree)
   _____ coursework
   _____ M.S.
   _____ Ph.D.

   B. In what area did you earn your degree?
   ___ Child Development
   ___ Early Childhood Education
   ___ Elementary Education
   ___ Other, please indicate _____

See other side

C. Please rate the extent of your specialized training specifically related to infants and toddlers.

1	2	3	4	5
no specialized training	some inservice training	occasionally attend workshops	regularly attend related conferences or take courses	extensive course work or degree in infant care

D. Do you belong to any professional child development organizations?

____ yes ____ no

Please list: _____

_____

6. Experience

A. Number of years working with young children (ages 0-5)? _____ years

B. Number of years working with infants (age 0-2)? _____ years

C. How long have you worked for this center? _____ (mo & years)

D. What is the usual number of infants in your group? _____

E. How many caregivers are assigned to work in your room at one time? _____

Center ID= _____
Infant ID= _____

INFANT CHARACTERISTICS QUESTIONNAIRE

Please consider the child participating in the study. On the following questions please circle the number that is most typical of the baby. "About average" means how you think the typical baby would be scored.

1. How easy or difficult is it for you to calm or soothe the baby when he/she is upset?

1	2	3	4	5	6	7
very easy			about average			difficult

2. How easy or difficult is it for you to predict when the baby will go to sleep and wake up?

1	2	3	4	5	6	7
very easy			about average			difficult

3. How easy or difficult is it for you to predict when the baby will become hungry?

1	2	3	4	5	6	7
very easy			about average			difficult

4. How easy or difficult is it for you to predict what's bothering the baby when he/she cries or fusses?

1	2	3	4	5	6	7
very easy			about average			difficult

5. How many times per day, on the average, does the baby get fussy and irritable--for either short or long periods of time?

1	2	3	4	5	6	7
never	1-2 times per day	3-4 times per day	5-6 times per day	7-9 times per day	10-14 times per day	more than 15

6. How much does the baby cry and fuss in general?

1	2	3	4	5	6	7
very little; much less than the average baby			average amount; about as much as the average baby			alot; much more than the average baby

See other Side

7. How did the baby respond to his/her first bath?

1	2	3	4	5	6	7
very well-- baby loved it			neither liked nor disliked it			terribly-- didn't like it

8. How did the baby respond to his/her first solid food?

1	2	3	4	5	6	7
very favorably liked it immediately			neither liked nor disliked it			very negatively-- did not like it at all

9. How does the baby typically respond to a new person?

1	2	3	4	5	6	7
almost always responds favorably			responds favorably about half the time			almost always responds negatively at first

10. How does the baby typically respond to being in a new place?

1	2	3	4	5	6	7
almost always responds favorably			responds favorably about half the time			almost always responds negatively at first

11. How well does the baby adapt to things (such as in items 7-10) eventually?

1	2	3	4	5	6	7
very well always likes it eventually			ends up liking it about half the time			almost always dislikes it in the end

12. How easily does the infant get upset?

1	2	3	4	5	6	7
very hard to upset--even by things that upset most babies			about average			very easily upset by things that wouldn't bother most babies

Center ID= _____
Infant ID= _____

13. When the baby gets upset (e.g., before feeding, during diapering, etc.) how vigorously or loudly does he/she cry and fuss?

1	2	3	4	5	6	7
very mild intensity or loudness			moderate intensity or loudness			very loud or intense, really cuts loose

14. How does the baby react when you are dressing him/her?

1	2	3	4	5	6	7
very well--likes it			about average--doesn't mind			doesn't like it at all

15. How active is the baby in general?

1	2	3	4	5	6	7
very calm and quiet			average			very active and vigorous

16. How much does the baby smile and make happy sounds?

1	2	3	4	5	6	7
a great deal, much more than most infants			an average amount			very little, much less than most infants

17. What kind of mood is the baby generally in?

1	2	3	4	5	6	7
very happy and cheerful			neither serious nor cheerful			serious

18. How much does the baby enjoy playing little games with you?

1	2	3	4	5	6	7
a great deal, really loves it			about average			very little, doesn't like it very much

See other side

19. How much does the baby like to cuddle and be held?

1	2	3	4	5	6	7
very much, can be held for long periods			about average			not at all, wants to be free

20. How does the baby respond to disruptions and changes in the everyday routine, such as when you go for a walk, or on field trips, etc.?

1	2	3	4	5	6	7
very favorably, doesn't get upset			about average			very unfavorably, gets quite upset

21. How easy is it for you to predict when the baby will need a diaper change?

1	2	3	4	5	6	7
very easy			about average			very difficult

22. How changeable is the baby's mood?

1	2	3	4	5	6	7
changes seldom, and changes slowly when he/she does change			about average			changes often and rapidly

23. How excited does the baby become when people play with or talk to him/her?

1	2	3	4	5	6	7
very excited			about average			not at all excited

24. Please rate the overall degree of difficulty the baby would present for the average caregiver.

1	2	3	4	5	6	7
super easy			ordinary, some problems			highly difficult to deal with

Center ID= _____
Infant ID= _____

EARLY COPING INVENTORY

All children have different styles and ways of coping with everyday situations. Please consider the infant participating in the study when reading the following questions and circle the number that most clearly describes the effectiveness of that child's behavior. Effective means the behavior is: a) appropriate for the situations; b) appropriate for the child's developmental age; and c) successfully used by the child. The following scale is used to rate each item. You give a rating of:

1 The behavior is not effective. Either the child is not able to perform the behavior, for whatever reason, or what is tried does not work.

2 The behavior is minimally effective. The child's behavior is inconsistent, or is rigidly repetitious, or generates negative outcomes over time. That is, the child's behavior tends to be erratic and unpredictable; or the child repeats the same type of behavior regardless of the circumstances; or the child uses behavior that reduces the stress of the moment but impedes effective adaptation and interferes with learning.

3 The behavior is situationally effective. Behavior used effectively in one type of situation is not generalized to other types of situations. It varies with the situation.

4 The behavior is effective more often than not. The child is able to generalize effective behavior to a variety of situations.

5 The behavior is consistently effective across situations.

When different information is needed to rate a specific item, it is included with that item. If the child's behavior falls between two points on the rating scale, select the rating that is most applicable.

1	2	3	4	5
Not effective (not able to perform behavior or does not work)	Minimally effective (inconsistent, repetitious)	Situationally effective	Effective more often than not	Consistently effective

Sensorimotor Organization:

1 2 3 4 5	1. Child responds to a variety of sounds (e.g., voices, toys, soft to loud noises).
1 2 3 4 5	2. Child adjusts to irrelevant sounds in the environment.
1 2 3 4 5	3. Child reacts to a variety of visual stimuli (e.g., people, objects, range of patterns or colors).
1 2 3 4 5	4. Child maintains visual attention to people and objects.

See other side

Format adapted from The Early Coping Inventory (Zeitlin, Williamson, & Szczepanski, 1988). Bensenville, Ill: Scholastic Testing Service.

APPENDIX F. CAREGIVER INTERACTION SCALE

Caregiver Interaction Scale

*This scale applies to the caregivers' interaction with all infants.

Rating scale

1 not at all	2 occasionally 20-30%	3 half of the time	4 most of the time	5 consistently

1. Speaks warmly to the children	1	2	3	4	5
2. Seems critical of the children (speaks neg. to child)	1	2	3	4	5
3. Listens attentively when children speak to her	1	2	3	4	5
4. Places high value on compliance (must do what they say, right now; perfectionism)	1	2	3	4	5
5. Seems distant or detached from the children (physical or emotional)	1	2	3	4	5
6. Seems to enjoy the children	1	2	3	4	5
7. When the children misbehave, explains the reason for the rule they are breaking (gives dev. appropriate feedback)	1	2	3	4	5
8. Encourages the children to try new or different experiences	1	2	3	4	5
9. Doesn't try to exercise control over children (not necessarily neg., let's child choose the way to do something)	1	2	3	4	5
10. Speaks with irritation or hostility to the children	1	2	3	4	5

	1 not at all	2 occasionally 20-30%	3 half of the time	4 most of the time	5 consistently
11. Seems enthusiastic about the children's activities and efforts	1	2	3	4	5
12. Threatens the children in trying to control them (not logical consequences, "you'll have to sit in your crib")	1	2	3	4	5
13. Spends considerable time in activity not involving interaction with the children	1	2	3	4	5
14. Pays positive attention to the children as individuals (interacts in a positive way)	1	2	3	4	5
15. Doesn't reprimand children when they misbehave (ignores misbehavior, including saying uh uh, no no)	1	2	3	4	5
16. Talks to children on a level they can understand (dev. appro. for that age child)	1	2	3	4	5
17. Punishes the children without explanation	1	2	3	4	5
18. Exercises firmness when necessary (tone of voice, physically help the child do something they must do, ex. get off table, wash for snack)	1	2	3	4	5
19. Encourages the children to exhibit prosocial behavior (sharing, be nice to the baby, say Hi, play next to each other)	1	2	3	4	5
20. Finds fault easily (critical of the children)	1	2	3	4	5
21. Doesn't seem interested in the children's activities	1	2	3	4	5

	1 not at all	2 occasionally 20-30%	3 half of the time	4 most of the time	5 consistently
22. Seems to prohibit many of the things the children want to do ("no, don't do that", but no re-direction or alternative)	1	2	3	4	5
23. Doesn't supervise the children very closely (children in danger or get hurt because no one's watching)	1	2	3	4	5
24. Expects the children to exercise inappropriate self-control, e.g. wait for food (don't play with toys in their reach, say let's go out and make them wait)	1	2	3	4	5
25. When talking to children kneels, bends, or sits at their level to establish better eye contact	1	2	3	4	5
26. Seems unnecessarily harsh when scolding or prohibiting the children (tone of voice unnecessary)	1	2	3	4	5