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Maternal Self-Efficacy, Quatlity of Parenting, and Child Developmental Outcome Among Mothers with Young Children from Early Head Start

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MATERNAL SELF-EFFICACY, QUATLIY OF PARENTING, AND CHILD DEVELOPMENTAL OUTCOME AMONG MOTHERS WITH YOUNG CHILDREN FROM EARLY HEAD START

By

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ABSTRACT

MATERNAL SELF-EFFICACY, QUALITY OF PARENTING, AND CHILD DEVELOPMENTAL OUTCOME AMONG MOTHERS WITH YOUNG CHILDREN FROM EARLY HEAD START

By

So-Jung Seo

This study had several purposes. The first objective was to identify which maternal characteristic variables are related to maternal self-efficacy. The second objective of this study was to examine maternal self-efficacy (MSES or TCQ) as a potential mediator of the effects of the maternal characteristics on the quality of parenting (HOME). The last objective of this study was to examine relationships among maternal self-efficacy (MSES or TCQ), the quality of parenting (HOME), and the child developmental outcome (ASQ).

Forty-two mother-young child pairs from Early Head Start participated in this study. Maternal age, family income, and mothers' perceived parenting stress (PSI) were significantly related to both MSES and TCQ maternal self-efficacy measures. Also, maternal age, family income, and mothers' perceived parenting stress (PSI) were found to be predictive of MSES scores among mothers with infants. This study failed to detect the mediation effect of maternal self-efficacy in the relationship between the maternal characteristic (maternal age) and the quality of parenting (HOME). More confident mothers with toddlers tended to have higher scores on the HOME measure than the less confident mothers. Even though the regression results should be interpreted with caution due to the small sample size, this study shed light on the importance of maternal self-efficacy in that it may have the potential to promote

positive parenting under the stressful environment demands faced by mothers with young children from high-risk environments. Intervention programs should be designed tailored to promote maternal self-efficacy through direct child care instruction, modeling of positive parenting, and opportunities structured to maximize success in the parenting role.

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INTRODUCTION

The family of today has been undergoing major structural changes. Those structural changes resulted in such significant contemporary problems that the number of single-parent families is increasing, and more and more women are entering the workforce either by economic necessity or personal preference (Johnson & Mash, 1989). Furthermore, low-income families are more socially and economically marginalized and disadvantaged, thus weakening their sense of fulfillment, gratification, and pleasure from the various dimensions of the parenting process (Elder, 1995). Parental competence beliefs seem to be particularly important under such conditions as living in high risk environments because possession of inner strength based on a sense of personal competence may play a significant role as a buffer against adversity, enabling parents to combat risks and promote their children's well-being (Elder, 1995). Parental self-efficacy is viewed as critical in understanding individual differences in coping with adverse situations (Luster & Rhoades, 1989).

A recently growing parenting literature has revealed that self-efficacy beliefs, specific to the domain of parenting, represent potential variables for explaining a significant portion of the variance observed in parental skills (Donovan & Leavitt, 1985; Donavan & Leavitt, 1989) and parenting satisfaction (Hudson, Elek, & Felck, 2001). Grounded in Bandura's self-efficacy theory, the construct of maternal self-efficacy, that is a mother's perceived feeling of confidence in the parenting role, has been explored to provide our understanding of the determinants of parenting. In

particular, maternal self-efficacy beliefs have been identified as a direct predictor of specific positive parenting practices, such as responsive, stimulating, and non-punitive caretaking (Donovan & Leavitt, 1985; Donavan & Leavitt, 1989), the ability to attend to and understand infant signals (Donovan , Leavitt, & Walsh, 1990), more active and direct parenting interactions (Mash & Johnson, 1983), and a relative absence of mothers' perceived behavioral problems (Johnson & Mash, 1989). Furthermore, in the extant parenting self-efficacy literature, maternal self-efficacy has been established as a powerful mediator of the effects of some of correlates that have been examined in relation to parental competency and parenting quality, including maternal depression, child temperament, social support, and demographics of parents (Teti & Gelfand, 1991; Cutrona & Troutman, 1986; Luster, 1985; Luster & Rhoades, 1989).

Numerous maternal and child factors have been explored as correlates of maternal self-efficacy in the literature. But these variables are often correlated with one another, making it difficult to determine which factors specifically influence maternal self-efficacy (Gross, Conrad, Fogg, & Wothke, 1994). As Coleman and Karraker (1997) discussed, to date the existing maternal efficacy literature has not extensively explored the issues that follow: "What are the maternal personality characteristics that tend to predispose individuals to high or low self-efficacy? " " To what extent is it possible to have low self-efficacy in some aspects of parenting (e.g., specific tasks related to child rearing practices) but not in the overall parenting job?" " Are there associations between levels of maternal self-efficacy and other aspects of their social lives (e.g., employment status, child care experiences, and family/social support)?"

Little research has examined a broad range of variables that contribute to maternal self-efficacy. The direct and indirect ramifications of deficiencies in maternal self-efficacy in the relationship between the quality of parenting and the child developmental outcome remain largely unexplained, specifically with a sample of families living in high-risk environments. Although a few studies have found associations between maternal self-efficacy and child development in the domains of socioemotional development (Donovan & Leavitt, 1985; Swick & Hassell, 1990) and cognitive development of toddlers (Coleman & Trent, Bryan, King, Rogers, & Nazir, 2002), those efforts have been conducted under laboratory testing conditions, lacking external validity (Coleman et al., 2002).

Statement of the Problem

This study had several primary objectives. First, this study examined several variables as predictors of maternal self-efficacy among mothers of young children (infants to toddlers) from high-risk environments. The maternal characteristics of interest were: 1) mother's demographic characteristics such as age, education, employment status, and parity experiences (the number of children in the household), 2) mother's perceived parenting stress, and 3) mother's perceived satisfactions with contextual factors such as employment, family support, community resources, and child care experiences. This study examined which maternal characteristics of interest are predictive of maternal self-efficacy.

This study also examined whether maternal self-efficacy mediates the effects of maternal characteristics on the quality of parenting (the quality of the home environment mothers provide, measured by the HOME). To achieve this, the proposed model of this study was based on the following two positions that: 1) maternal self-efficacy is a characteristic of the mother and 2) maternal self-efficacy mediates the effect of the other characteristics of the mother (e.g., maternal demographics, mothers' perceived parenting stress, and mothers' perceived satisfactions with contextual factors) on the quality of parenting (HOME). This expectation was consistent with Bandura's (1995) proposition that self-efficacy is the mediating link between knowledge and behavior. Also, this attempt was made to answer the questions about why some mothers felt more likely to be efficacious in the parenting role than others, and what were the variables that lead to these variances in maternal self-efficacy in association with the quality of parenting among mothers of young children receiving Early Head Start benefits. Finally, the relationships among maternal self-efficacy, the quality of parenting (HOME), and the child developmental outcome (ASQ) were tested. It was hypothesized that the more confident mothers tended to provide better home environments than the less confident mothers and in turn, their young children would be more likely to benefit from these circumstances.

The literature has not provided an adequate basis for forming specific hypotheses based on child's age in the relationships of interest in this study. Research findings (Gross et al., 1994) have found that the tasks associated with parenting during toddlerhood change dramatically from the infancy period based on toddlers' expansion of their abilities and their environments and parents are forced to develop new

parenting skills. In light of Bandura's self-efficacy theory and research findings, the acquisition of new skills may be greatly enhanced by perceptions of competence in the parenting role with the developmental advances of their young children (Coleman et al., 2002). Here, the decision was made to employ the two different measures on maternal self-efficacy based on child's age and to observe mothers (as a primary caregiver) in the relationships of interest, which have not been explored in previous studies.

Research Objectives

Specific research objectives were developed as follows:

1. To examine the relations between maternal characteristics of interest and maternal self-efficacy.
2. To determine what maternal characteristics are predictive of maternal self-efficacy.
3. To examine maternal self-efficacy as a potential mediator of the effects of the maternal characteristics of interest on the quality of parenting (HOME).
4. To examine the relationships among maternal self-efficacy, the quality of parenting (HOME), and the child developmental outcome (ASQ).

Significance of the Study

Mothers in a comprehensive early childhood intervention program like Early Head Start are expected to provide stimulating home environments for their young children. Examination of mothers' beliefs and feeling that they are capable of

providing a positive learning environment for their children at home will be of particular interest to educators or administrators. By ascertaining the mothers' beliefs about one's parenting efficacy, educators can redirect parenting behaviors that promote children learning at home. Even if mothers feel inefficacious, teachers can emphasize strengths and suggest ways that parents can teach their young children (Machida, Talyor, & Kim, 2002). In addition, to policy makers, examination of this maternal self-efficacy construct is useful if it can be measured as outcomes for the effectiveness of intervention programs, implying that maternal self-efficacy may be the significant characteristics of families which provide the stimulating learning environment for young children (Machida, Taylor, & Kim, 2002). Finally, information from this study adds to the existing literature by highlighting the role of maternal self-efficacy in mediating the effects of maternal characteristics on the quality of parenting and understanding the relationships among maternal self-efficacy, the quality of parenting, and child outcome.

Conceptual Framework

Due to the purposes and objectives of this study, theoretical support for the proposed model (Figure 1) was gleaned from several sources, including Bronfenbrenner's Ecological Model (1989,1998), which directs attention to an awareness of the environmental systems within which people are operating, and Bandura's Self-Efficacy Theory, which postulates that self-efficacy beliefs conceivably affect parenting behavior, but do not appear to represent a simple process, given the presence of predisposing factors (Bandura, 1995;1997). Components of

these two conceptual frameworks were selected and combined to guide this study. Each of the conceptual models will be described and selected components identified. The proposed conceptual framework will be discussed in detail.

Bronfenbrenner's Ecological Model of Human Development

Bronfenbrenner's ecological model offers a useful context from which to study influences on children's developmental outcomes (Figure 1). Bronfenbrenner (1989, 1998) provides insight into the study of human development within a developing person and the environment that surrounds and interacts with him or her.

His model emphasized the power of the proximal processes that are defined as interactions in the immediate and intimate environment, specifically if they occurred on a regular basis and over an extended period. His model provides the foundation for understanding family's influences on the developmental outcomes of young children. In Bronfenbrenner's recent bio-ecological model (1994, 1998), individual differences in personal characteristics that influence proximal processes both by enhancing and by weakening functional competence were emphasized. Furthermore, Bronfenbrenner and Ceci (1994) discussed that the power of proximal processes to buffer genetic potentials for developmental dysfunction could be greater in disadvantaged and disorganized environments than in those that are advantaged and stable. From his point of view, the intra-familial processes to actualize genetic potentials for developmental competence can be influenced by the external environment and the extent to which the family is capable of creating and sustaining the quality home learning environment for young children depends on what happens in the other contexts. In investigating how maternal self-efficacy is related to the effects of

maternal characteristics on the quality of parenting among mothers of young children from disadvantaged family backgrounds, his model provides useful insights to look at dynamic interactions between the system of the developing individual and the surrounding environments. Families and children live in a variety of physical and social environments.

Bronfenbrenner's (1994) model defines complex layers of the environment, each having an effect on a child's development. In this study the child unit as the developing individual represents the centric target. The layer closest to the child represents the microsystem. Bronfenbrenner states that the microsystem is:

" a pattern of activities, social roles, and interpersonal relations experienced by the developing person in a given face-to-face setting with particular physical, social, and symbolic features that invite, permit, or inhibit, engagement in sustained, progressively more complex interaction with, and activity in, the immediate environment" (Bronfenbrenner, 1994, p.1645).

The microsystem contains the structure with which the child has direct contact. The microsystem encompasses the relationships and interactions a child has with his or her immediate surroundings. Structure in the microsystem include family, neighborhood, or child care environments, but for the young children of this study the microsystem may be limited to the family contexts where the children spend most of their time. The family system was examined as a primary context where children's proximal processes take place. The quality of parenting (the quality of home environment mothers provide, HOME) was examined at this level. At this level, relationships have impact in two directions (both away from the child and toward the child). For instance, a mother may affect the child's beliefs and behaviors, but the child also

affects the beliefs and behavior of the mother. At the microsystem level, bi-directional influences are strongest and have the greatest impact on the child (Bronfenbrenner & Morris, 1998).

The mesosystem constitutes the second layer and comprises the linkages and processes taking place between two or more settings containing the developing person (Bronfenbrenner, 1994). Child development is influenced by linkages among microsystems. For instance, a young child who has established an emotional attachment to his or her parents in the family system may be well prepared to interact with other children and other adults in day care settings.

Exosystems are settings that have a bearing on the developing persons (young children), but in which those persons do not play a direct role. The definition of this environmental structure is as follows:

"The exosystem comprises the linkages and processes taking place between two or more settings, at least one of which does not contain the developing person, but in which events occur that indirectly influence processes within the immediate setting in which the developing person lives" (Bronfenbrenner, 1993, p.24).

A mother's work environment including flexible work schedules, family-friendly policies, and community-based family resources represent the exosystem. The child may not be directly involved at this level, but he or she does feel the positive or negative forces involved with the interaction with his or her own system. In this study, mothers' employment status and their perceived satisfactions with employment and community support were examined at this level as related to its direct or indirect influences on their quality of parenting.

The macrosystems represent the outermost layer in the child's development. The macrosystem is comprised of cultural values, customs, rules, and laws (Bronfenbrenner, 1994). The macrosystem have an influence throughout the interactions of all other layers. For example, if there is the cultural belief that parents should be solely responsible for taking care of their children, culture is less likely to provide resources to help parents. This, in turn, influences the structure in which the parents function. Likewise, the parents' capability to perform the responsibility to raise the child within the context of the child's microsystem is affected. These values differ from culture to culture, and all of the experiences parents have for their children in home, child care settings, community, and all other contexts directly or indirectly influence parents and children.

In keeping with Bronfenbrenner's ecological perspective, this study examined interactions between interconnected systems that are viewed as having a critical influence on child developmental outcomes. This study examined portions of the child's microsystem, mesosystem, and exosystem.

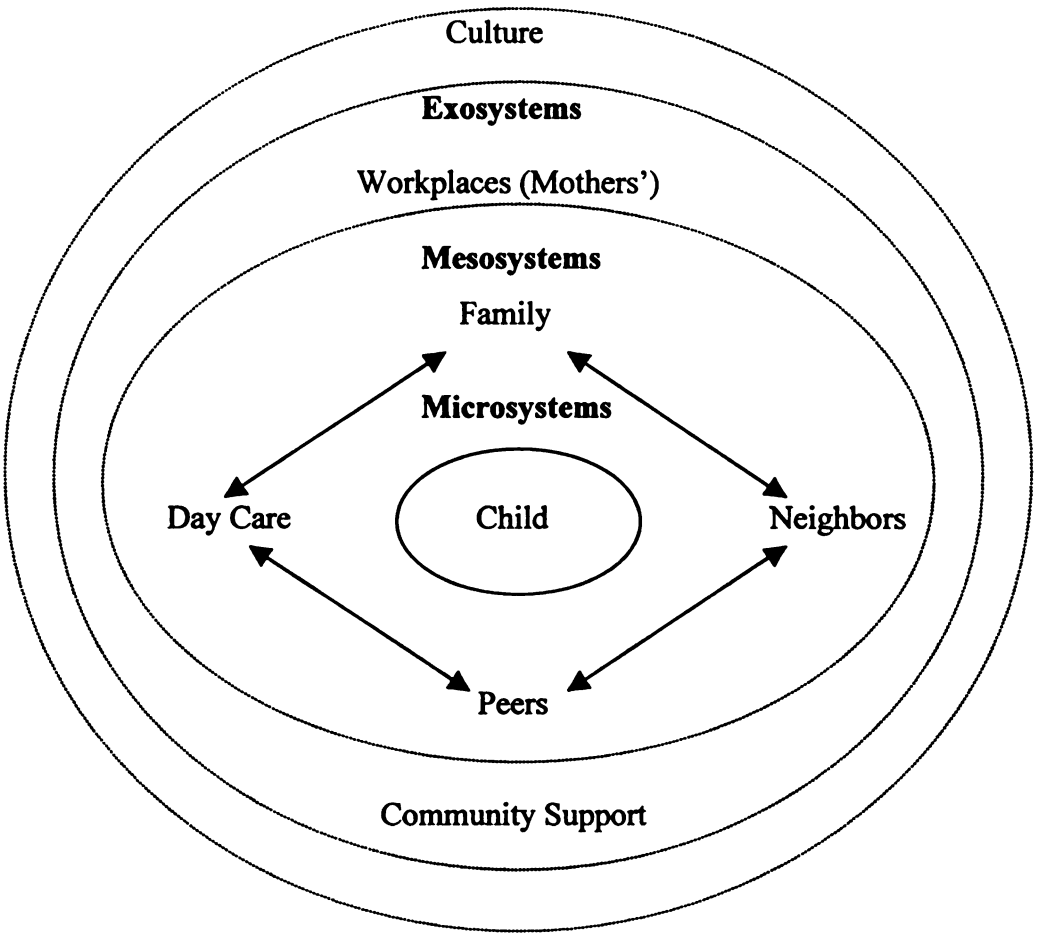

Figure 1. Influences on Child Development From Bronfenbrenner's Ecological Model of Human Development

Bandura's Self-Efficacy Theory

The theory underlying this study is a Bandura's theory of self-efficacy (Bandura, 1997). Bandura (1997) defines perceived self-efficacy as one's judgment of how effectively one can perform a task or manage a situation. People who feel confident about a particular task or situation are likely to anticipate success and to succeed in completing the task. If outcomes are positive, a feeling of confidence grows in a person leading him or her to believe that they are capable of performing the behavior and the task. Bandura (1995, 1997) defines this feeling of perceived self-confidence as self-efficacy. Also, Bandura (1977a; 1982) asserted that effective functioning requires people to develop competence and skills.

Perceived self-efficacy is generated from four different sources of information including personal accomplishments, vicarious experience, verbal persuasion, and emotional arousal (Bandura, 1995; 1997). Performance accomplishments are the most influential and powerful of the four sources because they are based on one's own experiences. Success in an area increases one's feelings of mastery in that area while repeated failure undermines one's feelings of mastery (Bandura, 1995). If strong self-efficacy is developed through repeated successes, then even the negative effects of failure is decreased. A resilient sense of efficacy requires experience in overcoming challenges through continued effort (Bandura, 1989).

Vicarious experience is observing others performing the desired behavior or task. Seeing people similar to themselves succeed, in turn, creates expectations that the observer can master the behavior or tasks with continued effort (Bandura, 1986). By the same token, observing others fail despite high effort lowers the observer's self-

efficacy. The impact of modeling on personal self-efficacy is strongly influenced by perceived similarity to the models.

Verbal persuasion by one person to another is a third way of strengthening perceived self-efficacy. People who are verbally persuaded that they can perform the desired behavior or task are likely to put greater effort and sustain it to master the behavior or task. People who have been persuaded that they lack capabilities to succeed at a certain task tend to avoid challenging activities and give up quickly in the face of difficulties. Having a trustworthy and assured expert as the persuader adds to the amount of self-efficacy developed (Bandura, 1995).

People also partly rely on their physiological state (e.g., fear or anxiety) or emotional arousal (Bandura, 1995, 1997). A person interprets their stress reactions and tension as signs of vulnerability to poor performance. Mood also affects people's judgments of their personal efficacy. Since extreme anxiety usually lowers performance, a person is more likely to be successful if they are calm and without anxiety (Bandura, 1995, 1997).

As Bandura (1997) pointed out, sources of information that affect personal efficacy should be distinguished from the cognitive processing by which that information is selected, weighted, and integrated into self-efficacy judgments. For instance, the extent to which performance attainments influences perceived efficacy will depend on people's preconceptions of their capabilities, the perceived difficulty of the tasks, the amount of effort they expended, their physical and emotional state at the time, the amount of external aid they received, and the situational circumstances under which they performed (Bandura, 1997).

Bandura (1977, 1986, 1989) has defined three distinct dimensions of self-efficacy. Magnitude indicates one's subjective estimation of performance of particular behaviors at different levels of task difficulty. A person's perception of his or her efficacy varies in terms of the referent task difficulty level. The second dimension specified by Bandura is strength, which is a measure of a person's degree of confidence in performing tasks at specified levels of difficulty. Finally, generality relates to the degree of transfer of mastery expectations across specified activities. Bandura (1997) has proposed that some types of experiences create task-restricted mastery experiences, while others possess potential applicability to a wide range of conceptually similar behaviors. The extent to which self-efficacy beliefs are likely to generalize across behaviors is probably determined largely by the type of behaviors involved as well as by the environmental context (Bandura, 1986). However, Bandura (1989) does not contend that self-efficacy beliefs generalize between conceptually unrelated domains. When a researcher is interested in assessing self-efficacy beliefs relative to a broad domain of parenting, Bandura (1989) advocates the use of a multifaceted measure to simple self-perceptions related to several distinct and specific parenting behaviors as opposed to a global measures of self-efficacy in parenting.

Conceptual Model

The first objective of this study was to identify which maternal characteristics are related to maternal self-efficacy (Figure 2). In addition, this study examined whether maternal self-efficacy mediates the effects of the other maternal characteristics on the quality of parenting (HOME). Finally, relationships among maternal self-efficacy, the quality of parenting, and the child developmental outcome (ASQ) were investigated (Figure 3). The program effect (Early Head Start participation) was controlled for the purpose of this study.

Conceptual and Operational Definitions

The Child Developmental Outcome

Conceptual: The child developmental outcome is conceptually defined as the current child's developmental status in such areas as communication, gross motor, fine motor, problem solving, and personal- social.

Operational: The children's total score on the Ages and Stages Questionnaire (ASQ) (Squire, Potter, & Bricker, 1999) administered by trained home visitors of Early Head Start.

The Quality of Parenting

Conceptual: The quality of parenting is defined as the quality of rearing environment provided by the mother for her young child at home.

Operational: The mother's total score on the Home Observation for Measurement of the Environment-Short Form (0-3 years old)

Maternal Self-efficacy

Conceptual: Maternal self-efficacy is conceptually defined as mother's perceived self confidence in both specific childrearing tasks and the parenting role in general.

Operational: The mother's total score obtained from either the Maternal Self Efficacy (mothers with infants) or the Toddler Care Questionnaire (mothers with toddlers) depending on the age at which their child is enrolled in the program.

Maternal Characteristics

Conceptual: Maternal characteristics are conceptually defined as the individual attributes of the mother including 1) mother's such demographics as age, employment status, education level, and the number of children in the household, and 2) mother's perceived stress level associated with the parenting role, and 3) mother's perceived satisfactions with contextual factors such as employment, child care experiences, and family/community support.

Operational: 1) Maternal characteristics are operationally both defined as information about a mother's demographics as reported on a set of the questions found on the Parent Enrollment Packet.

2) Mother's perceived stress level associated with the parenting role is operationally defined as the mother's total score on the Parenting Stress Index-Short Form.

3) Mothers' perceived satisfactions with contextual factors are operationally defined as measure of a mother's responses to the sets of the following questionnaire (Initial Family Satisfaction Rating) found on the Parent Enrollment Packet:

Child Care- " Indicate the level of the satisfaction with the current child care arrangement (5 point Likert Scale).

Employment Status- "Indicate your levels of the satisfaction with employment (a 5 point Likert Scale)

Family Support- " Indicate the levels of your satisfaction with family support" (a 5 point Likert Scale)

Community Resources- "Indicate the level of your satisfaction with community resources available to your family" (a 5 point Likert Scale)

For the purpose of this study, each 5- point Likert scale rating was averaged for an overall measure of satisfaction with contextual factors.

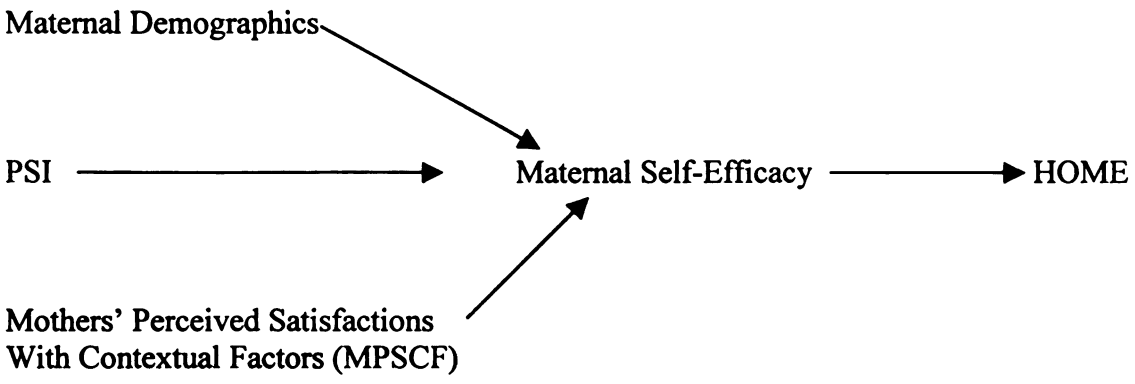

Figure 2. Proposed Role of Maternal Self-Efficacy In Mediating the Effect of the Maternal Characteristics On the Quality of the Home Environment (HOME)

Note

Maternal Demographics include information about mothers' levels of education, maternal age, employment status, and the number of children in the household obtained from the parent enrollment packets. Maternal Demographics, PSI, and MPSCF were included as covariates of maternal self-efficacy.

PSI represents mothers' perceived parenting stress levels measured by the Parenting Stress Index (PSI) including parental distress (PD), parent-child dysfunctional interaction (P-CDI), and difficult child (DC).

Mothers' Perceived Satisfactions with Contextual Factors represent mothers' perceived satisfactions with employment, child care experiences, and family/community support and this information was obtained from the parent enrollment packets from Early Head Start

Maternal Self-Efficacy represents mothers' perceived levels of confidence in parenting measured by either Maternal Self-Efficacy Scale (mothers with infants aged 0-12 months old) or Toddler Care Questionnaire (mother with toddlers aged 13- 36 months old).
HOME represents the quality of parenting measured by the Home Observation Of Measurement of Environment (0-3 ages)

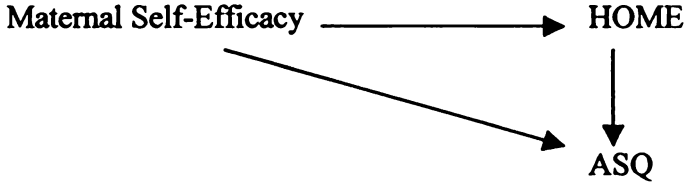

Figure 3. Relationships Among Maternal Self-Efficacy, HOME, and ASQ

Note

The Child Developmental Outcome was measured by the total scores of the Ages & Stages Questionnaire (ASQ) in 5 developmental areas including communication, gross-motor, fine-motor, problem-solving, and personal-social.

Assumptions

The following assumptions were made in this study

1. The mothers' responses on the various instruments including HOME, PSI, Maternal Self-Efficacy, and Toddler Care Questionnaire reflect what these instruments should measure.
2. The children's total score on the Ages and Stages Questionnaire (ASQ) reflects the current children's developmental status such in communication, gross motor, fine motor, problem solving, and personal-social area.

Chapter 2

REVIEW OF LITERATURE

Several specific objectives were formulated to provide a review of the following literature. First, a summary of the literature on the maternal self-efficacy pertaining to the potential importance of this construct for explaining individual variances in parenting behavior was the focus of this section. Specifically, the research findings relevant to a mediating role of maternal self-efficacy in determining the effects of the identified variables of this study on parenting behavior (the quality of the home environment provided by mothers) were highlighted. Second, the factors that predict maternal self-efficacy were discussed within the scope of this study. Third, the important issue pertaining to maternal self-efficacy and the levels of its measurement in the research arena was also addressed within the major components of Bandura's (1995, 1997) self-efficacy theory. Finally, research findings on the effects of the home environment on child developmental outcomes were described as one of the main outcomes of interest in this study.

Focus of the Literature Review

A couple of notes with regard to the research findings on maternal self-efficacy and parenting, prior to presenting the literature review, need to be made. First and foremost, this study focused on maternal self-efficacy and the quality of parenting among mothers of young children. Mothers were considered primary caregivers, though parenting as a complex process affects and is affected by the entire family. The related research literature has been continually found and discussed that mothers

are primarily caregivers. Second, the findings concerning the effects of the identified variables (independent variables) on parenting behavior (the quality of the home environment provided by mothers of young children) as interest of this study were integrated into the review section on the mediating role of maternal self-efficacy rather than reviewed separately.

Mediating Role of the Maternal Self-Efficacy

A substantial body of literature has related quality of parenting to social and marital supports (Crockenberg & McCluskey, 1986, Cutrona & Troutman, 1986; Hann, 1989), maternal depression (Cohn, Matias, Tronick, Connell, & Lyons-Ruth, 1986; Gelfand & Teti, 1990, 1991; Scheel & Rieckmann, 1998; Tucker, Gross, Fogg, Delaney, & Lapporte, 1998), characteristics of infants such as temperament and gender (Gelfand & Teti, 1990, 1991; Hudson, Eleck, & Fleck, 2001; Scheel & Rieckmann, 1998), and characteristics of parents (Conrad, Gross, Fogg, & Ruchala, 1992; Luster 1985; Luster & Kain, 1987; Luster & Rhodes, 1989). Along the same lines, researchers have investigated the mediating role of maternal self-efficacy, linking the relationship between parental/maternal child rearing behavior and determinants of parenting (Cutrona & Troutman, 1986; Gelfand & Teti, 1990, 1991; Hudson, Eleck, & Fleck, 2001; Machida, Taylor, & Kim, 2002;Tucker, Gross, Fogg, Delaney, & Lapporte, 1998). Evidence from the literature has found that maternal self-efficacy has been related to mothers' self-esteem, mental health, and adaptation to parenting (Conrad, Gross, Fogg & Ruchala, 1992; Holder & Banez, 1996). A low sense of parenting efficacy is related to the use of coercive and intense disciplinary tactics in efforts to control child behavior (Mash, Johnson & Kovitz, 1983). Available

research, to date, has found that the influences of those variables on the mother-infant relationship are largely indirect and mediated by mothers' perceived feelings of efficacy in the parenting role (Teti & Gelfand, 1990; 1991).

Characteristics of the child Competent care-giving requires confidence in one's ability to appropriately meet the child's needs. An effective caregiver creates an environment that supports the development of the infant (Donovan, Leavitt, & Walsh, 1990). Within the construct of self-efficacy, infant temperament, as well, has been examined as a predictor of maternal behavior. Studies have found that maternal self-efficacy is related to mothers' perceptions of their babies as temperamentally "easy" or "difficult" (Cutrono & Troutman, 1986;Goldberg, 1977; Gross, Conrad, Food, & Wothke, 1994;Teti & Gelfand, 1991). This literature is congruent with Bandura's (1989) notion of the nature of personal accomplishment histories playing a role in the development of personal efficacy beliefs. Goldberg (1977) has speculated that maternal self-efficacy is likely to be fostered by infants who are predictable, manageable, and easily soothed. By contrast, difficulty of infant temperament is an important dimension of mothers' experience in the months following childbirth (Cutrono & Troutman, 1986).

In Cutrono & Troutman's (1986) study of assessing maternal depression of 55 married women during pregnancy and again 3 months postpartum, infant difficulty alone was able to account for 30% of the variance in the postpartum depression score. In light of that evidence, Cutrona and Troutman (1986) stated that infant temperament exerted indirect influences through the mediation of perceived self-efficacy. Mothers with little competence in their parenting may behave in ways that led to a relative low

rate of reinforcement from their infants (e.g., child laughing) or their low self-efficacy may lead to a predominance of self-blaming causal attributions for negative outcomes (Bandura, 1982; Cutrona & Troutman, 1986). In a longitudinal study (Gross, Conrad, Fogg, & Wothke, 1994) of mothers of young children, findings supported the following: the more depressed a mother is, the more she perceives her toddler's temperament as difficult, the more difficult a toddler's temperament is perceived, the lower the mother's self-efficacy in parenting, the lower the mother's self-efficacy, the greater her depression, and the more depressed a mother is, the greater the chance she will remain depressed six months later. In light of those findings, the mothers develop their perceptions of themselves and their children early in the parent-child relationship and these remain persistent (Gross, et al., 1994). Comparing maternal and paternal self-efficacy during toddlerhood was focused in the same study (Gross & Tucker 1994). Forty-six married mothers and fathers completed a questionnaire on child characteristics including temperament, behavior intensity, and problem behavior, parental depression, and parenting efficacy. Among both parents, efficacy was significantly related to perception of difficult child behavior including overall temperament and annoying or disrupting behavior of the child. However, paternal efficacy was not affected by problematic behaviors from their child and it was not related to perceived efficacy in parenting, unlike maternal efficacy.

Consistent findings on the mediating influence of maternal efficacy, to date, provide important insights in establishing links between variations in mothers' perceptions of infant temperament and maternal behavior. The influence of mothers' perceptions of infant temperamental difficulty on maternal behavioral competence

appeared to depend upon the mothers' self-efficacy in parenting. Thus, a difficult baby may be expected to have a negative effect on maternal behavior only to the extent that infant temperament reduces a mother's perceived feeling in her maternal role (Teti & Gelfand, 1991). Mothers who have feelings of self-doubt in response to infant difficulty may be expected to withdraw from that challenge, resulting in not establishing sensitive relationships with their infants.

Social and marital supports The proposition that the relationships with others can affect perceived self-efficacy is consistent with Bandura's self-efficacy theory. Specifically, watching the performances of others in the parenting role may shape expectations for one's own performance. Also, direct verbal persuasion from others can influence perceived self-efficacy. In the current research, social support has been found as a protective resource against the stress caused by the parenting roles (Cutrona & Troutman, 1986; Erdwins, Buffardi, Casper, & O'Brien, 2001; MacPhee, Fritz, & Miller-Heyl, 1996; Teti & Gelfand, 1991). Cutrona and Troutman (1986) hypothesized that the perceived level of social support among mothers of infants could affect maternal depression through the cognitive mediation of perceived self-efficacy in the parenting role. In their study, 55 married women were assessed maternal postpartum depression during pregnancy and again 3 months postpartum. Consistent with predictions, social support appeared to exert its protective function against mild depression primarily through the mediation of self-efficacy (Cutron & Troutman, 1986). Another study by Teti & Gelfand (1991) found consistent evidence that maternal self-efficacy is a central mediator of relations between mothers' behavior competence with their infants and social/marital supports.

The two interrelated findings support this. First, maternal self-efficacy is correlated significantly with social-marital supports after controlling for selected demographic variables (e.g., education, SES, etc.). Second, efficacy was not significantly related to social/marital supports when self-efficacy effects were controlled (Teti & Gelfand, 1991). In a recent study of 129 married, employed women with at least 1 preschool-aged child, Erdwins, Buffardi, Casper, and O'Brien (2001) obtained strong support for their hypothesis that perceived confidence in parenting could mediate the relationship between social support and multiple role strain. The more confident mothers felt as parents, the less they reported being overwhelmed by their multiple role demands (e.g., maternal role, employment role), and the more they feel supported by their spouses (Erdwins, et al., 2001).

Bandura (1986) postulated that an individual's sense of self-efficacy operates to reduce perceptions of and reactions to stress. Thus, it seems reasonable that the more a mother feels able to successfully handle the demands entailed in her parenting role, the less is her experiences of role conflicts and overload in parenting. Also, it is possible that a mother's sense of self-efficacy mediates the relationship between social support and role strain or stress. That is, support received from spouse, family members, or others may have the effect of enhancing a mother's sense of being able to cope effectively with the demands or her various life roles including the parenting role, which in turn may reduce the levels of stress associated with those roles. Parenting self-efficacy was strongly related to child-rearing practices across all ethnic groups, and mediated the effects of social support (MacPhee, Fritz, & Miller-Heyl, 1996).

Parenting Stress Contrary to social/marital support, research has found that maternal stress led to decrease their self-efficacy in the parenting role (Cutrona & Troutman, 1986; Gross, Conrad, Fogg & Wothke, 1994; Gross & Rocissano, 1988; Gross & Tucker, 1994; Scheel & Rieckmann, 1998; Tucker et al., 1998). Gross & Rocissano's (1988) studied fifty-eight mothers of toddlers to measure their levels of self-efficacy in parenting. Only depressed mothers scored lower on the efficacy questionnaire. In a longitudinal study (Gross, et al., 1994), one hundred and twenty-six mothers of one-year-olds, and 126 mothers of two-year-olds were measured by the Parent Domain of the Parenting Stress Index (PSI) three times over one year. Consistent findings that the more depressed a mother is, the lower the mother's self-efficacy, and the greater her depression, the greater the chance she will remain depressed six months later were provided (Gross, et al., 1994). A one year follow-up study by Tucker and Gross (1998) in which the effectiveness of a behavioral parent training (BPT) intervention for improving maternal self-efficacy was investigated also reported the evidence that increases in maternal self-efficacy and reduction in maternal parenting stress were maintained up to 1 year post-intervention. Field, Sandberg, Garcia, Vega-Lahr, Goldstein, & Guy (1985) provided the consistent evidence that depressed mood state of mothers of infants has been associated with low self-efficacy and has been shown to interfere with optimal caregiving. However, mild sub-clinical depression or perceived parenting stress, which can nevertheless affect mothers' perceptions of their behavior in the parenting role was expected to be relatively common (Cohn & Tronick, 1983; Cohen & McKay, 1984;Teti & Gelfand, 1991). A majority of research available to date has predominantly focused on the relationship

between maternal role and stress or role strain associated with the parenting role. Within that relationship, studies have found that maternal self-efficacy could mediate that relationship.

Knowledge of early child development Bandura (1977, 1986, 1989) discussed the hypothesis that behavior may be influenced by the combined effects of individuals' knowledge about a task and their confidence in their ability to perform that task successfully. Therefore, maternal self-efficacy is a necessary condition for mothers to perform successful tasks and mothers who know little about her child's development may have lower maternal self-efficacy in the parenting role. The interaction between a mother's perceived feeling of competence in the parenting role and knowledge of early child development predicted the quality of mother-child interactions, but neither was predictive of mother-child interactions when considered alone (Conrad, Gross, Fogg, & Ruchala, 1992). Conrad and colleagues (1992) found that maternal self-efficacy was related to quality of mother-child interaction only when knowledge of child development was taken into account. Mothers who were at least knowledgeable of early child development but who maintained confidence in the parenting role demonstrated the least positive interactions. Conrad et al. (1992) suggested that these mothers, referred to as "naively confident", may be the ones who are unaware of the complexities of the parenting and those who have traditionally been most difficult to retain in parenting intervention programs.

Parent satisfaction Self-efficacy theory predicts that parents who experience higher self-efficacy may be more satisfied with parenting. Parenting satisfaction can be defined as perceptions of pleasure and gratification with regard to

the parenting role (Mercer, 1986). Only a few numbers of researchers have studied parents' satisfaction in their parenting role (Hudson, Elek, & Felck, 2001;Reece & Harkless, 1998). Reece and Harkless (1998) found that fathers were less satisfied than mothers in caring for their infants and fathers reported higher levels of self-efficacy in their paternal role than mothers did. In a recent study by Hudson and colleagues (2001), the association between first time mothers' and fathers' development of infant care self-efficacy and parenting satisfaction was explored during the first 4 months following the infant's birth. Supportive evidence that mothers' infant care self-efficacy scores were significantly related to parenting satisfaction scores at 12 and 16 weeks was found (Hudson et al., 2001). Fathers of male infants had significantly higher parenting satisfaction scores than fathers of female infants at 12 and 16 weeks following the infant's birth. But, the relationship between parenting self-efficacy and parenting satisfaction has not received much attention in the maternal self-efficacy literature. Hudson et al. (2001) stated that mothers' and fathers' satisfaction with the parenting role might lead to more effective child rearing and the understanding of this relationship with parenting self-efficacy may provide insights into developing effective intervention programs to assist mothers and fathers during the transition to parenthood.

Parenting behavior Increasing attention has been paid to the role of maternal self-efficacy in mediating parenting behavior in the literature (Luster & Rhoades, 1989; Harkness, Super, 1996; Machida, Taylor, & Kim, 2002). Especially, a recent study conducted by Machida et al. (2002) examined the mediating role of maternal self-efficacy in predicting parental involvement in home learning activities in a sample

of Head Start families. Path analysis results provided that parent self-efficacy serves as an intervening variable linking child and family background characteristics (i.e., mother's education, child's difficult temperament, and family stress) and the home learning environment (Machida et al., 2002). Maternal self-efficacy was found to mediate the effect of child temperament on the quality of the home learning environment provided by mothers, and family stress was found to affect the child's quality of the home learning environment through the mediation of maternal self-efficacy (Machida et al., 2002).

Influences on Maternal Self-Efficacy

The existing maternal self-efficacy literature reviewed so far has clearly demonstrated that maternal self-efficacy has been described an influential mediator of several of the determinants that have been examined in relation to parenting behavior including child temperament, social/marital supports, parenting stress, and parental child rearing beliefs. Given the above research and theoretical support for the important role maternal self-efficacy is likely to exert on a number of aspects of parenting competence occurring both affective and behavior levels of parenting, it is essential for researchers to identify the variables that relate to maternal self-efficacy. A summary of the current literature on the influences on maternal self-efficacy is provided in the following within the scope of this study.

Child rearing beliefs Bandura discussed that self-efficacy involves also the belief that a certain behavior will bring about the desired outcome. Previous researchers have investigated the relationship between parents' child rearing beliefs and the quality of care (Luster & Rhoades, 1989) to understand parenting behavior.

Specifically, Luster and Rhoades (1989) expected that mothers who provided the most supportive home environments (high HOME scores) tended to believe that parents exert considerable influence on the development of their children (called this perceived contingency). Contrary to the hypothesis, mothers who perceive themselves as being relatively competent had lower scores on the HOME. A certain amount of self-doubt on parenting as an indication of their realistic appreciation of the complexities associated with good parenting (the quality of the home environment) was explained for this finding (Luster & Rhoades, 1989). In that scenario, external influences may also play an important role in accordance with parental beliefs that they could exert influence in a particular developmental outcome to make effort in that area (e.g., language/cognitive development). Parents were not highly motivated to stimulate a certain developmental outcome if they perceive that the developmental outcome in that area is determined by external influences (e.g., genetics) that are out of their controls rather than home environment (Luster & Rhoades, 1989). Another study with a national sample of 3000 parents also confirmed the previous finding that parents' beliefs about effecting parenting practices are related to parents' perceptions of control over developmental outcomes of their children (Luster & Kain, 1987). Moreover, this study found that high efficacy and low efficacy parents differed to some extent in how they viewed the parenting role. High efficacious parents were reported that they emphasized the importance of providing their children with love and affection and good examples more than their counterparts who tended to place greater emphasis on disciplinary actions (Luster & Kain, 1987).

Influences of the demographics One of the primary influences on maternal self-efficacy that has been investigated in the literature is demographics of the mothers (Luster & Kain, 1987). Low SES parents tended to believe that they had less influence on child development than higher SES parents (Luster & Kain, 1987). When controlling for education and income, white parents were more likely than black parents to believe that they could exert influence on the development of children. In another study, Luster & Rhoades (1989) found that adolescent mothers differed from their comparison group (mature mothers/older mothers) on the perceived competency subscale of the parental self-efficacy measure that assessed mothers' beliefs about the extent to which parents can influence the development of their children. The adolescents were more likely to view themselves as being relatively competent parents than mature parents, though they had lower scores on the HOME than the comparison group.

Influences of parity Literature pertaining to the relationship between parity and maternal self-efficacy has been limited, but one study revealed that prior child care experience and child birth order (only for pre-term births) were strong predictors of maternal self-efficacy in toddler-hood (Gross et al., 1989). This evidence implies that the development of maternal self-efficacy may be a result of direct experience. It is also consistent with Bandura's (1989) contention that direct involvement with the actual behavior exerts the most powerful influence as a source of information in the formation of self-efficacy.

Influences of multiple role strain Erdwins and his colleagues (2001) in their recent study attempted to enlarge our understanding of different facets of women's role stress including conflict between employment and parenting roles or obligations, role overload, and anxiety about being separated from their young children. Furthermore, the influences of role self-efficacy pertaining to work efficacy and maternal self-efficacy were measured separately so the relationship of each to women's role strain as well as the possible mediating role of self-efficacy in the relationship between social support and role strain were examined. The more confident these women felt as parents and the less they reported being overwhelmed by their multiple role demand (Erdwins et al., 2001). Thus, the increased self-efficacy is associated with the reduced role conflict experienced by mothers of children. These findings provide important insights into understanding of this connection between self-perceived efficacy in family and employment roles. In light of those findings, it is argued that women's stress should be expanded so that future research can clarify what factors within the individual and the environment may facilitate the development of mothers' self-efficacy (Erdwins, et al., 2001).

Influences of child care experiences It is reasonably hypothesized that mothers' satisfaction with their child care experiences/arrangement would be associated with the increased maternal self-efficacy in the parenting role. Unfortunately, there is no research on the direct effects of child care experiences on maternal self-efficacy in the parenting role. Most of the existing research findings have focused on mothers' satisfaction with their child care and its association with work-family role stain (Buffardi & Erdwins, 1997; Erdwins et al., 2001; Erdwins,

Casper, & Buffardi, 1998). The relationship between mothers' child care satisfaction and their less intense feelings of role strain appeared to be significantly related to maternal separation anxiety. The more satisfied a mother was with her child care arrangement, the less anxiety she experienced about leaving their young children in some one else's care (Buffari & Erdwins, 1997). It seems intuitive that women have less separation anxiety due to their satisfaction with child care would, in turn, feel more efficacious in the parenting role. However, additional research is needed to gain empirical support for this proposition.

Issues Related to Measurement of Maternal Self-Efficacy

In the existing literature, there is considerable discussion about how to measure maternal self-efficacy. Most maternal self- efficacy literature, addressed herein, has focused on only a few specified tasks of the parenting role, however, parenting behavior is composed of multiple and complex behaviors (Belsky, 1991). Several issues that follow should be considered in doing research on maternal self-efficacy in the parenting area. First of all, as applied to the realm of parenting, how do self-efficacy beliefs at the task level (e.g., ability to discipline or soothe children) enter into one's perceptions of competency as a parent (at the domain level) or as human being at the general level. In other words, do a parent's level of general self-efficacy influence parental self-efficacy at the domain and or the specific level? Relatively little is known about the extent to which task, domain, and general self-efficacy operate independently or interact to affect parenting behavior (Woodruff & Cashman, 1993). But more generalized self-efficacy measures may provide considerable utility

as predictors of broadly conceptualized parenting behaviors (Hudson, Elek, & Felck, 2001).

The Quality of the Home Environment and Child Outcome

The majority of previous studies using HOME scale are those that have examined the relationship of HOME to children's cognitive development (IQ and language development). Among the earliest study was conducted by Elardo, Bradely, and Caldwell (1975). In that study, HOME scores obtained when children were 6, 12, and 24 months old were correlated with Bayley Infant Scales scores obtained when the child was 6 and 12 months and with Standard-Binet Intelligence Test scores obtained at age 3 years. A one- year follow up study by Bradley and Caldwell (1976) included an IQ assessment at 54 months old. The results of those studies have produced strong evidence that home environmental variables related to cognitive development, independent of SES (Elardo, Bradley, & Caldwell, 1976; Bradley & Caldwell, 1977; Gottfired, 1984), but the correlation coefficients varied as a function of the age at which the child was tested. For children who were assessed through the preschool years (Gottfried & Gottfried, 1984; Barnard, Bee, & Hammond, 1984), home scale scores that were obtained at age 2 or later had more highly correlations with concurrent and subsequent measures of cognitive development than did assessment of home environment conducted within the first year. Thus, preschool intelligence tests correlated higher with home environment than did infant intelligence tests. Furthermore, assessments of home environment showed moderate stability during infancy and the preschool years and that stability of home environment was considered to account for most of the correlations between early environment and

subsequent cognitive development (Bradley & Caldwell, 1977; Gottfried & Gottfried, 1984).

With regard to the relationship between the HOME and language development, results were found in a similar fashion. Elardo, Bradley & Caldwell (1977) examined 74 children and their families (48 blacks, 26 white) using the HOME scale and the Illinois Test of Psycholinguistic Abilities (ITPA). HOME scores taken at 6 and 24 months were correlated with 37-month performance of the Illinois Test of Psycholinguistic Abilities (ITPA). The subscales maternal involvement and the types of stimulation assessed by HOME demonstrated a strongly association with Auditory Reception, Auditory Association, Visual Association, Verbal Expression, and Grammatical Closure. The multiple correlation for HOME subscales and the ITPA total scores was R=.41(Elardo, Bradley & Caldwell, 1977). As expected, the correlation coefficients for 24 moth HOME scores and 37month ITPA scores showed more stronger association (ranging from .52 to .62) with 37 month ITPA scores than did 6 month HOME scores. All six HOME subscales and each of the ITPA subtests were significant. In a 5 tear Canadian longitudinal study (Folwer & Swenson, 1975) where 23 infants at day care and 23 matched home-reared infants were examined, correlations between HOME scores and measures of cognitive and social development ranged from moderate (.4) to strong (.8). Home scores showed a stronger relationship to verbal than affective or perceptual-motor factors (Fowler & Swenson, 1975, cited in Gottfried & Gottfried, 1984). 12 month HOME scores were also considered to be better predictors of school achievement than SES variables (Gottfried, 1984).

Taken together, research findings show that the HOME is a strong predictor of children's outcomes in the area of cognitive development and school achievement (e.g., IQ, language development). The findings of this study add to the existing literature on the quality of home learning environment along with continued investigation of the mediating role of maternal self-efficacy. This attempt helps us understand individual differences in providing stimulating home environments for their young children and its effects on the developmental outcome of young children from high-risk environments.

Chapter 3

METHODOLOGY

This chapter is divided into the sections that follow: (a) research design, (b) research hypotheses, (c) sample selection, (d) research instruments, and (e) data analyses.

Research Design

This study contains three major categories of independent variables that are considered as maternal characteristics:(1) maternal demographics including maternal age, education, and the number of children in the household, (2) mothers' perceived parenting stress, and (3) mothers' perceived satisfactions with contextual factors (e.g., employment status, child care experiences, and family/community support). These maternal characteristics were conceptualized as predictors of maternal self-efficacy. Furthermore, it was hypothesized that maternal self-efficacy might play a role in mediating the effects of those maternal characteristics on the quality of parenting (the quality of the home environment mothers provide). Finally, the relationships among maternal self-efficacy, the quality of parenting, and the child developmental outcome were examined in this study.

In order to carry out the research objectives, a non- experimental survey research design was undertaken. Also, it was cross-sectional in nature. The unit of analysis in this study was the individual parent and children who were receiving Early

Head Start benefits. This study was a secondary analysis of the data collected by Early Head Start program, located in Lansing, Michigan.

Research Hypotheses

The following hypotheses were developed and tested in this study. Non-directional hypothesis testing (a two-tailed test) was performed due to the small sample size.

Maternal Characteristics and Maternal Self-Efficacy

Ho1: Maternal characteristics are not related to maternal self-efficacy.

Ha1: There are relationships between maternal characteristics and maternal self-efficacy.

Ha1.1: Mother's level of education is related to maternal self-efficacy. In a study by Luster and Kain (1987), a positive relationship between maternal education and maternal self-efficacy was found.

Ha1.2: Mother's age is related to maternal self-efficacy. The positive relationship between maternal age and maternal self-efficacy was found in a previous study (Gross et al., 1994).

Ha1.3: Mothers' perceived parenting stress levels are significantly related to maternal self-efficacy. The negative relationship between mothers' perceived parenting stress and maternal self-efficacy was found in previous studies by Teti and Gelfand (1991), Gross et al. (1994), and Tucker and Gross (1998).

Ha1.4: There are relationships between the number of children mothers have and maternal self-efficacy. Gross et al. (1989) supported the positive relationship between maternal self-efficacy and maternal parity.

Ha 1.5: There are relationships between mothers' perceived satisfactions with contextual factors (employment, family support, community resources, and child care experiences) and maternal self-efficacy. In previous studies by Buffardi and Erdwins (1997), Erdwins et al. (2001) and Erdwins, Casper, and Buffardi (1998), a positive relationship was found.

Mediation Effects of Maternal Self-Efficacy

Ho2: Maternal self-efficacy does not mediate the effects of the maternal characteristics on the quality of parenting (HOME).

Ha2: Maternal self-efficacy does mediate the effect of the maternal characteristics on the quality of parenting (HOME).

The Relationships Among Maternal Self-Efficacy, the Quality of Parenting (HOME), and the Child Developmental Outcome (ASQ)

Ho3: There are no relationships among maternal self-efficacy (measured by either MSES or TCQ), the quality of parenting (HOME), and the child developmental outcome (ASQ).

Ha3: There are relationships among maternal self-efficacy, the quality of parenting (HOME), and the child developmental outcome (ASQ).

Sampling Selection

Seventy Early Head Start children and their mothers participated in the first year of a larger, on-going investigation of the evaluation project of the program. The sample for this study only consisted of 42 Early Head Start families of the project because fifteen (15) out of the seventy (70) families dropped out of the program in the beginning of the program and of the remaining 55 families, only 42 families completed administrations of the measures of this study.

This comprehensive Early Head Start (EHS) is a child development program offered to pregnant women, infants and toddlers under age 3. This particular comprehensive Early Head Start program offered home based and combination program options. A home based program was provided by community partners experienced in delivering intensive, relationship based home visiting to pregnant women and families with young children. All families (N=42) participating in this program received weekly home visits. Thirty-four (34) families received predominantly home-based services with biweekly socialization experiences (e.g., group meetings for the parents and children). These socialization experiences incorporated parent-child time, parent education time, and Policy Council parent meeting time. The remaining eight families (8) received full day/full year child care services in a center-based setting along with bi-weekly socialization experiences. Most families who enroll for ESH services met federal guidelines for poverty.

Data Collection Procedures

This study was a secondary analysis of data collected by Early Head Start. Data for this study were derived from two sources: (a) program enrollment documents and (b) the data obtained from the measures of interest in this study. The demographic information of the sample was obtained from the enrollment documents. The surveys were collected across a range of child ages (birth to 36 months old). This special comprehensive Early Head Start program was provided in collaboration with several agencies (Head Start, Jump Start Family Outreach program, Office for Young Children (OYC), Child Abuse Prevention Services, Family Independency Agency (FIA), Lutheran Social Services, Early On, and Community Mental Health) working for young children and families in high-risk environments. Early Head Start (EHS) conducted data collection. A trained Home Visitor aided the parent in completing the surveys in the parent's home, while an Intake Coordinator collected data from the enrollment packet from which some variables were used in this study at the program enrollment office. These positions require a minimum of a Bachelor's degree in early childhood education or child development.

The administration of the surveys (Maternal Self-Efficacy Scale, Toddler Care Questionnaire, HOME, PSI, and ASQ) was done after the first four home visits. Each measurement has the ID number and the date of administration on the top of each page. Each agency chose their own number for each family. Completed measurement tools were returned to the Intake Coordinator for the purpose of data analysis.

Sampling Description

Table 1 presents a summary of the demographics and background information of the sample of this study. The mean age of the 42 mothers sampled at the time of enrollment in EHS program was 25.66 (SD=5.68). Almost 70 percent of the sample (69%) achieved high school/GED education. Only 13 out of 42 mothers achieved some college education (n=12) or a college degree (n=1). The families in the sample of this study had incomes at or below poverty line with mean income of $14,056 (SD=$8,958) and the sample in poverty varied in terms of family income levels. More than half of the sample (62%) was unemployed at the time of enrollment in the program and almost half of the mothers (45.2%) were unmarried (single mother headed families-not living with a partner at the time of enrollment). Only 30% (n=13) of the mothers were married. The average number of children of the mothers in the program was 2.4 (SD=1.36). About 62 % (n=26) of the children were infants (aged zero to 12 months old at the time of the program enrollment) and 38% (n=16) of the children were toddlers (aged 13 months to 36 months at the time of the program enrollment). About 45% of the children (n=19) were males. The sampled children included 20 Caucasian (47.6%), 10 African- American (23.8%), 8 Hispanic (19%), 2 Multi-racial (4.8%), and 2 Haitian (4.8%) children.

Table 1

Sample Characteristics (N=42)

Characteristics	%	N	Mean	SD
Child Age			12.63 months	8.42
Infant (0-12 months)	61.9%	26		
Toddlers (13-36months)	38.1%	16		
Child Gender				
male	45.2%	19		
female	52.8%	23		
Child Ethnicity/Race				
Caucasian	47.6%	20		
African-American	23.8%	10		
Hispanic	19%	8		
Multi-racial	4.8%	2		
Others (Haitians)	4.8%	2		
Age of Mother			25.66 years	5.68
Family Annual Income			$14,055.65	$8,957.70
Family Type				
Single mother families	45.2%	19		
Single mother living with (partner)	21.4%	9		
Two-parent families	31%	13		
Others (foster families)	2.4%	1		
Number of Children			2.40	1.36
Education Level				
Less than high school	31%	13		
High school/GED	38.1%	16		
Some college	28.6%	12		
College degree	2.4%	1		
Employment Status				
Unemployed	61.9%	26		
Part-time working	16.7%	7		
Full-time working	16.7%	7		
School	4.8%	2		

Research Instruments

Maternal Self-Efficacy Scale

The Maternal Self-Efficacy Scale (MSES) that was developed to reflect Bandura's concept of self-efficacy is a domain specific parental self-efficacy scale. Nine of the 10 (4 point Likert scale) maternal self-efficacy items were developed to tap mothers' feelings of efficacy in relation to specific, delimited domains of infant care, such as soothing the baby, understanding what the baby wants, getting the baby to understand mother's wishes, maintaining the joint attention and interaction with the baby, amusing the baby, knowing what the baby enjoys, disengaging from the baby, performing daily routine tasks (e.g., feeding, changing, and bathing the baby), and getting the baby to show off for visitors (Teti & Gelfand, 1991). A final item addresses the mothers' global feelings of efficacy in mothering. Item scores can be summed to yield a maternal self-efficacy score. Internal consistency of the scale was satisfactory, with a Cronbach's standardized item alpha of .86 (Teti & Gelfand, 1991). As evidence for the concurrent validity of the maternal efficacy questionnaire, maternal self-efficacy scores were strongly related to the Parenting Stress Index (PSI-reversed scored) ($r = -.75$, $p < .001$) (Teti & Gelfand, 1991). For this study, alpha reliability for the Maternal Self-Efficacy Scale was .78.

Toddler Care Questionnaire

The Toddlers Care Questionnaire (TCQ) was used to measure parents' self-efficacy in managing tasks and situations relevant to raising a 12 to 36 month-old child (Gross & Rocissano, 1988). The TCQ is a 37-item questionnaire to measure parents' self-efficacy on such tasks as managing toilet training and setting limits on

their toddler's behavior along a scale of 1 (very little confidence) to 5 (a great deal of confidence). Scores range from 37 to 185, with higher scores reflecting greater parenting self-efficacy.

The TCQ is significantly correlated with mothers' knowledge of early childhood development (Conrad, Gross, Fogg, & Ruchala, 1992), parental perceptions of toddlers' behavioral difficulty (Gross, Conrad, Fogg, & Wothke, 1994; Gross & Tucker, 1994), and extent of prior childcare experience (Gross, Rocissano, & Roncoli, 1989). Alpha reliability estimates for the TCQ in previous studies have ranged from .94 for fathers to .96 for mothers (Gross & Tucker, 1994). Test-retest reliability of the TCQ over a 4-week interval was .87 (Gross & Rocissano, 1988), and alpha reliability for the TCQ was .94 (Tucker, Gross, Fogg, Delaney, & Lapporte, 1998). The alpha reliability for the TCQ here was .92.

Home Observation for Measurement of the Environment (HOME)

The HOME (infant version) is an observation or interview technique that assesses the quality of stimulation available to the child in the home (Caldwell & Bradley, 1984). In this study, the version of the HOME is the 45- item measure developed for infants and toddlers. The version for the child (0-3 ages old) is composed of six subscales: (1) emotional and verbal responsivity of mother, (2) acceptance of child, (3) organization of the environment, (4) provision of appropriate play materials, (5) maternal involvement with child, and (6) variety in daily stimulation. In the HOME binary choices (yes or no) rather than ratings along a 5- or 7- point continuum are used for all items. A total score for the HOME is determined by counting the number of items scored "yes". Scoring is based partly on observation

and partly on answers to a semi-structured interview administered in the home at a time when the child is awake and can be observed in interaction with the mother or primary care giver (Elardo, Bradley, & Caldwell, 1975). In this study, only the total HOME scores were used for analysis purposes.

In a longitudinal study by Caldwell and Bradley (1979), a six-month temporal stability, found for the six subscales, ranged from .24 to .77. The stability estimates for the total score over a one-year period was .77. A series of previous studies by Caldwell and her colleagues has revealed strong evidence that the HOME is a good predictor of various measures of cognitive ability assessed during the early childhood period (Elardo, Bradley, & Caldwell, 1975;Bradley & Caldwell, 1976). Correlations between the HOME and Binet's IQ scores at age 3 ranged from .72 to .54 during the early childhood period (at 6, 12, and 24 months). Also, it is reported that the HOME is a strong predictor of various measures of cognitive ability assessed during the early childhood period when maternal IQ is controlled (Ramey, 1984). In this study, the alpha reliability for the HOME full scale was .88.

Parenting Stress Index

Mothers' perceived parenting stress levels were measured by the Parenting Stress Index (PSI-short form) with three subscales: parental distress (PD), parent-child dysfunctional interaction (P-CDI), and Difficult Child (DC). The original measure (Abidin, 1983) is a 126-item questionnaire reflecting areas of potential stress in the parent-child relationship. The Parent Distress (PD) subscale measures parent's dejectedness in their parenting role, with items such as "I feel trapped by my responsibilities as a parent." The Parent-Child Dysfunctional Interaction (P-CDI)

subscale measures a parent's perceptions of the emotional quality of her relationship with the child, relative to her expectations about the parent-child relationship. A representative item is "When I do things for my child I get the feeling that my efforts are not appreciated very much." Finally, the Difficult Child (DC) subscale measures a parent's perceptions of his or her child as possessing disruptive behavior characteristics. A representative item is "My child does a few things which bother me a great deal." Each item is rated on a 5 point scale ranging from 1(strongly agree) to 5 (strongly disagree) indicating increasing levels of perceived parenting stress by parents. In this study, both total scores of the PSI (with three subscales) and one subtotal score (with one subscale-Difficult Child) were used for data analysis.

The PSI has been the subject of considerable empirical scrutiny and demonstrated good psychometric properties (Abidin, 1983), with a 6 month test-retest reliability of .7 to .8 and Cronbach's alpha at .8 (Deater-Deckard & Scarr, 1996). Several studies on the temporal stability of the PSI found that test-retest reliabilities range between .55 and .96, depending on the specific population tested and the length of the inter-test interval (Abidin, 1990). Validity of the PSI has been supported by its ability to significantly discriminate children with behavior problems from normal controls (Abidin, 1990). In this study, Cronbach's coefficient alpha for the PSI full scale was .91, and standardized item alpha for the PSI using one subscale (DC) was .90.

Ages and Stages Questionnaire (ASQ)

The developmental outcome of young children (birth to 36 months) was measured using the Ages and Stages Questionnaire (ASQ). The ASQ scale (A Parent-

Completed, Child-Monitoring System, 2nd Edition), developed by Sqyured, Potter, and Bricker, contains 30 developmental items that are written in simple, straightforward language. The items are divided into five areas: communication, gross motor, fine motor, problem solving, and personal-social. For the 30 developmental items, parents or caregivers check *"yes" (scoring 10 points each)* to indicate that their child performs the behavior specified in the item, *"sometimes" (scoring 5 points each)* indicate an occasional or emerging response from their child, or *"not yet" (scoring 0 points each)* to indicate that their child does not yet performs the behavior specified in the item with corresponding score lines for each item. Adding the scored of the items in each developmental section gives a section numerical score which can be added together for a total score. There are cutoffs for each developmental area score to indicate possible developmental delays. Cut off points of scores that indicates the possible need for referral for evaluation were generated from scores achieved by the test sample (of over 7000) by subtracting 2 standard deviations from the mean for each area of development.

The ASQ questionnaires can be used for two important purposes. First, they can be used for comprehensive, first-level screening of large groups of infants and young children. Second, the questionnaires can be used to monitor the development of children who are at risk for developmental disabilities or delays resulting from medical factors such as low birth weight, prematurity, seizures, serious illness, or from environmental factors such as poverty, parents with mental impairments, history of abuse or neglect in the home, or teenage parents. Program staff or the administrator convert each response to a point value, total these values, and compare the total score

to established screen cutoff points. In this study, both total scores and cutoffs for each developmental area score were used for the purpose of data analysis.

Since 1980, a number of investigators have examined the validity, reliability, and utility of the ASQ. To examine the validity of the ASQ, children's classifications on parent-completed questionnaires were compared with their classifications on professionally administered standardized assessments, including the Bayley Scales of Infant Development (Bayley, 1969), the McCarthy Scales of Children's Abilities (McCarthy, 1972), and the Battelle Developmental Inventory (Newborg, Stock, Wnek, Guidubaldi & Svinicki, 1987). Overall agreement on children's classifications was 83%, with a range of 76%-91%. Concurrent validity was established by comparing ASQ classifications with child's performance on professionally administered standardized tests given within 29 days. The Revised Gesell and the Bayley Scales of Infant Development were used for infants up to 30 months of age. The concurrent validity of the questionnaires as reported in percent agreement between questionnaires and standardized assessments ranged from 76% for the 4 month ASQ to 90% for the 30 month ASQ, with 84% overall agreement.

Studies on the reliability of the questionnaires have examined inter-rater and test-retest reliability as well as internal consistency. Test-retest information was collected by asking a group of 175 parents to complete two questionnaires on their children at 2 to 3 week intervals. Classification of each child based on the parents' scoring of the two questionnaires was compared and was found to exceed 90% agreement. Inter-rater reliability was assessed by having a trained examiner complete a questionnaire on a child shortly after the parent had completed one. Overall

agreement on the classification of the child among 112 parents and 3 trained examiners exceed 90%. For the internal consistency of the questionnaire, Cronbach's coefficient alpha was calculated for area scores on individual questionnaires. For the communication area, alpha ranged from .63 at 4 months to .75 at 24 months. For the gross motor area, alphas ranged from .53 at 4 months to .87 at 12 and 16 months. The fine motor area had a coefficient alpha range of .49 at 20 months to .79 at 8 months. For the problem solving area, alphas ranged from .52 at 20 months to .75 at 8 months. Finally, for the personal-social area, alphas ranged from .52 at 16 moths to .68 at 12 months (ASQ 2nd edition Manual). The information about the internal consistency for the full ASQ score was not provided in the ASQ manual.

In this study, using Cronbach's alpha coefficient, internal consistency reliability was found to be .78 for the full scale with the current sample. Also, alpha reliability for each of the subscales was found to be .78 for the communication area, .76 for the gross-motor area, .74 for the fine-motor area, .79 for the problem solving area, and .78 for the personal-social area.

Data Analyses

This study had several research objectives. The first objective was to identify which of the maternal characteristics are related to maternal self-efficacy. The variables of particular interest in this study included maternal demographic variables (maternal education, age, the number of children, and employment status), mothers' perceived parenting stress, and mothers' perceived satisfactions with contextual factors (employment, child care experiences, and family/community support). In

addition, the role of maternal self-efficacy in mediating the effects of those maternal characteristics on the quality of parenting (HOME) was examined. Finally, the relationships among maternal self-efficacy, the quality of parenting (HOME), and the child developmental outcome (ASQ) were also tested.

The data were analyzed using the Statistical Package of the Social Science (SPSS, 10.0 version). A number of preliminary exploratory analyses were conducted to determine which, if any, of the demographic variables were related to the primary study variables. Then, basic descriptive statistics were used to determine the characteristics of all of the primary study variables. For data analysis, two variables including family type and cut-off points of ASQ were converted into dichotomous variables. Specifically, family type was coded as follows: 1=single mother headed families and 2= living with a partner or spouse. Also, cut-off points of ASQ were coded as follows: 1=to be at risk for development, and 2=developing typically.

Zero-order correlations were calculated to determine the extent of associations among the variables under consideration. Also, t-tests and chi-square tests were performed to examine any differences in the study variables between the two subgroups based on child age (mothers of infants vs. mothers of toddlers).

Multiple regression analyses were performed to examine the combined effects of several predictors on maternal self-efficacy and to identify which of the variables were related to maternal self-efficacy. Additional multiple regression analyses were performed to determine the effects of the maternal characteristics on the quality of parenting (HOME) through the mediation of maternal self-efficacy. The results of the regression equations were presented for testing of the mediational role of maternal

self-efficacy in relationships between the maternal characteristics and the quality of parenting.

Since two different maternal self-efficacy measures were used in this study, each of the statistical analyses described were performed separately for the two subgroups based on the child's age. A chance probability level of less than .05 was set to reject the null hypotheses.

Chapter 4

RESULTS

Preliminary Data Analysis

A number of preliminary exploratory analyses were performed to determine which, if any, of the demographic variables were related to the primary study variables. Family type (with maternal age=.32, $p<.05$) and family income (with both the MSES and the TCQ scores, $r=-.35$, $p<.05$ and $r=-.52$, $p<.05$, respectively) were found to be significantly related to the primary study variables. These two demographic variables were controlled in further correlational analyses (Table 3). Since family income was found to be significantly related to both maternal self-efficacy measures, it was introduced as a covariate of maternal self-efficacy (both MSES and TCQ) in subsequent multiple regression analyses (Table 7 and 8).

This study controlled for the program effect based on location (home based vs. center based program). With 34 subjects tested in their home environment settings and 8 subjects tested in a center setting, several analyses were conducted prior to combining the data to insure that the samples did not differ significantly with regards to any of the demographic variables as well as the study variables. No differences were observed in terms of the demographic and study variables.

Correlations among the Predictor Variables

Pearson r analyses were conducted to examine bivariate relationships among the predictor variables and results are presented in Table 2. In this sample, only two significant correlations among the variables were found. Older mothers tended to

have higher levels of education (r=.38*), and to have more toddlers than infants (r=.37*).

Correlations Between Maternal Self-Efficacy and the Predictor Variables

To determine the relations between the predictor variables and maternal self-efficacy, zero-order correlations were performed. Maternal self- efficacy was measured either by the Maternal Self-Efficacy Scale (mothers with infants) or the Toddler Care Questionnaire (mothers with toddlers) based on the child's age. Table 3 presents the zero-order correlations between the predictor variables and maternal self-efficacy. The associations were examined separately for the two subgroups based on the child's age. The same pattern of results was observed with the two subgroups. As expected, significant associations between the age of mothers and mothers' perceived confidence in parenting were found in the two subgroups. Older mothers with infants or toddlers were more likely to feel more efficacious in parenting than younger mothers. In addition, significant associations were found between mothers' perceived parenting stress measured by total scores of the Parent Stress Index (PSI-full scale) and maternal self-efficacy. The significant correlations with the two subgroups of mothers were strong in magnitude (r=-.56 and r=-.58 respectively) and in the expected directions. Mothers who reported less stress associated with raising their young children were more likely to report being efficacious in parenting. However, no significant correlations between maternal self-efficacy and mothers' perceived satisfactions with contextual factors (MPSCFS) were found in the two subgroups.

Table 2

Correlations Among the Predictor Variables (N=42)

Variables	1	2	3	4	5	6
Maternal Characteristics						
1. Age	1					
2. # of Children	.07	1				
3. Education (schooling years)	.38*	.30	1			
4. PSI (full scale)	-.15	-.03	-.03	1		
5. MPSCF	.16	.12	.26	-.11	1	
Child Characteristics						
6. Child age (months)	.37*	.17	.05	.24	-.25	1

Note

Education (schooling years) was coded as follows: Less than high school degree/GED=12, High school degree/GED=13, and Some college=14 (the one sample with a college degree was not included for the data analysis).
PSI= Mothers' perceived levels of parenting stress measured by total scores of the Parent Stress Index (PSI).
MPSCFS= Mothers' Perceived Satisfactions with Context Factors were measured by mothers' levels of their satisfactions with employment, community resources, family support, and child care experiences. The information was obtained from the Parent Enrollment Packets. Each item use a 5-point Likert Scale ranging from 5 "very satisfied " to 1"very unsatisfied". For the purpose of this study, ratings of the four scales (four items in total) were averaged for an overall measure of satisfaction with contextual factors.
*p<.05.

Table 3 also provides the results of partial correlations (controlling for family income and family type because these two variables were found to be significantly related to maternal self-efficacy and maternal age, respectively) between parenting self-efficacy and the predictor variables. The pattern of the relationships was consistent with one exception when the two variables were partialed out. Maternal education level (schooling years) was significantly related to the Maternal Self-Efficacy Scale (MSES) scores among mothers with infants when family income and family type were partialed out. The two measures including the PSI full scale (with three subscales) and maternal self-efficacy scales (MSES and TCQ) were highly correlated in this sample. To determine whether the contents of the PSI and the two maternal self-efficacy scales (MSES and TCQ) were overlapped, additional zero-order correlations were performed (Table 4). The two subscales (Parental Distress and Parent-Child Dysfunctional Interaction) that are related to the parent domain of the PSI were removed and only the child domain subscale (Difficult Child) was used for data analysis. But, a significant correlation between the MSES and the PSI subscale (Difficult Child) was found. Specifically, among the mothers of infants, the less confident mothers tended to report higher levels of parenting stress as the mothers perceived their children as possessing disruptive behavior characteristics (Table 4). With the sample of mothers with toddlers, the PSI with the one subscale of the Difficult Child (DC) was not significantly related to the TCQ scores (Table 4).

Table 3

Zero-order and Partial Correlations Among Maternal Self-Efficacy and the Study Variables Controlling for Family Income and Family Type

Variables	Maternal Self-Efficacy Scale (MSES): Infant Care n=26	Toddler Care Questionnaire (TCQ) n=16
Age		
Zero-order	.39**	.40**
Partial	.65***	.32**
# of Children		
Zero-order	-.04	.39
Partial	-.05	.23
Education Level		
Zero-order	.11	.04
Partial	.19*	.22
PSI		
Zero-order	-.56*	-.58*
Partial	-.60**	-.41**
MPSCFS		
Zero-order	.08	-.31
Partial	-.02	-.21

Note. All significance tests are two-tailed. *p<.05, **p<.01, ***p<.001

Education level was coded as years of schooling as follows: Less than high school completion=12, High school degree/GED=13, and some college=14.
PSI= Parenting Stress Index Scale (total scores of PSI was used).
MPSCFS= 5-point Likert scale ratings on employment satisfaction, family support satisfaction, community resources satisfaction, and child care experiences satisfaction were averaged for an overall measure of satisfaction with contextual factors.
Family type was coded as follows: 1=single-head families and 2=living with a partner or spouse.

Table 4

Zero-order Correlations Among PSI (Full scale), PSI (DC subscale), MSES, and TCQ.

	MSES n=26	TCQ n=16	PSI (Full Scale) n=42	PSI (DC) n=42
MSES	1			
TCQ	a	1		
PSI (Full Scale)	-.56*	-.58*	1	
PSI (DC)	-.49*	-.04	.81**	1

Note. *p<.05, **p<.01.

MSES=Maternal Self-Efficacy Scale (MSES) for the mothers with infants

TCQ= Toddler Care Questionnaire (TCQ) for the mothers with toddlers

PSI (Full Scale) consists of the three subscales including the Parental Distress (PD), Parent-Child Dysfunctional Interaction (P-CDI), and Difficult Child (DC).

a=a correlation between the MSES and TCQ was not computed because the sub-samples were administered two different measures of maternal self-efficacy based on the child's age.

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Differences In the Study Variables Between the Two Subgroups by Child Age

A series of independent t-test and chi-square analyses were run to examine the differences between the mothers with infants and the mothers with toddlers in the study variables including demographic variables. Results of the chi-square analyses found no significant differences in any of the demographic characteristics (Table 5). The results of the t-test analyses found that the only difference between the two subgroups was maternal age (Table 6). The mothers with infants were significantly younger than the mothers with toddlers. No significant differences were found between the two groups with respect to the number of children in the household, family income, the HOME and the PSI scores.

Predictors of the Maternal Self-Efficacy

To determine the combined influences of the predictor variables on maternal self-efficacy, multiple regression analyses were performed. Maternal self-efficacy was assessed either by the Maternal Self-Efficacy Scale (MSES) or Toddler Care Questionnaire (TCQ) according to the child's age. The two maternal characteristic variables (maternal age and mothers' perceived parenting stress) that were significantly related to maternal self-efficacy were entered into the regression equations (Table 7 and 8). Especially, for mothers' perceived parenting stress variable, both PSI total scores using three subscales (Table 7) and one PSI subtotal score (Difficult Child, Table 8) were entered into the equations. Family income as a covariate of maternal self-efficacy was also entered in the regression equations because the results of the preliminary correlation analyses found that it was

Table 5
Chi-square Analyses for Differences between the Mothers with Infants and the Mothers with Toddlers

Variables	Infant Group	Toddler Group	χ_2 (1)	Prob.
Sex of child				
Male	10	9	1.27	.26
Female	16	7		
Race				
Whites	13	7		
Blacks/Hispanics	11	7	.24	.63
Others (Multiracial/Haitian)	2	2		
Spouse/Partner				
Present	13	10	.63	.43
Absent	13	6		
Maternal Employment				
Employed	11	10	.51	.47
Unemployed	15	6		
Maternal Education				
>High school/GED	16	13	1.80	.18
<High school/GED	10	3		
Cut-offs (ASQ)				
Developmentally at risk	3	1	.07	.47
Developing typically	19	15		

Note.
Cut-offs (ASQ)= young children's developmental status was computed as follows:1=to be at risk for development at least in one area and 2= developing typically.

Table 6

T-test for Differences between the Mothers with Infants and the Mothers with Toddlers

Variables	Mean (SD)		t-value	Df	Prob.
	Infant (N=26)	Toddler (N=16)			
Maternal age	23.04 (3.82)	28.31 (7.19)	-2.52	40	.016*
Family income	$13,883.94 (8,936.34)	$14,323.93 (9,277.68)	-.152	40	.880
Number of children	2.23(1.24)	2.69 (1.53)	-1.06	40	.297
HOME scores	31.65 (6.04)	34.19 (4.96)	-1.41	40	-1.41
PSI scores	79.46 (23.56)	90.06 (17.77)	-1.55	40	.130

*p<.05 (a two-tailed test)

significantly related to both the MSES ($r=-.35$, $p<.05$) and the TCQ scores ($r=-.52$, $p<.05$). In the use of three predictor variables with the small sample size ($n=16$ for mothers with toddlers), a rule of thumb that has been accepted in the statistics area was used. Minimum requirement is that there should be at least 4 or 5 times as many subjects as predictors (para.4, "A Few Key Concepts and Terms for Regression", n.d.; "Entering Data for Multiple Regression and Correlation", 2002).

With the mothers with infants (aged 0-12 months old), all three variables were found to be predictive of the MSES scores (Table 7). Maternal age, family income, and mothers' perceived parenting stress (PSI-full scale) were found to be predictive of the outcome measure ($p<.01$, $p<.01$, and $p<.05$ respectively). These three predictors accounted for 65% of the variance in the MSES scores among the mothers with infants. Family income appeared to contribute to the most to variance in the MSES scores. The F value for the model was found to be significant ($p<.01$).

On the other hand, the results of the regression analyses for the mothers with toddlers (aged 13-36 months old) indicated that none of the predictors has a significant beta, while the three predictors explained 48% of the variance in the TCQ scores. The F value for the model was significant ($p<.05$). Among the mothers with toddlers, the maternal characteristics including age, family income, and PSI (full scale) were not found to be predictive of the TCQ scores. This result can be explained as follows. Since the overall F test was found to be significant, there is a significant linear relationship between the outcome variable (TCQ scores) and the entire set of predictor variables. But, none of the regression coefficients (or *B* coefficients) that represent the independent contributions of each predictor variable to the prediction of the

dependent variable was significant. There might be a shared variance between the other variables not entered into the regression equation and the outcome variable. Sample size may have an effect on tests of statistical significance. In a small sample, statistically significant coefficients should be taken seriously, but a non-significant coefficient is extremely weak evidence for the absence of an effect (Allison, 1999). In addition, when the sample size is extremely small, p values for the small sample may be only an approximation of the true p values (Allison, 1999). Both the two issues of low power and poor approximations of test statistics (F tests) should be taken into account for the interpretation of the regression results in this study.

When the PSI (with the one subscale-DC) was entered in the regression equations, a similar pattern of the results was observed with one exception. Among the mothers with toddlers, family income was found to be predictive of the TCQ scores, though the F value for the model was not significant (Table 8).

Table 7

Multiple Regression Analysis: Predictors of Maternal Self-Efficacy Measured by either Maternal Self-Efficacy Scale (MSES) or Toddler Care Questionnaire (TCQ)

Predictor Variables	Infant Sample Maternal Self-Efficacy Scale (MSES) (n=26)	Toddler Sample Toddler Care Questionnaire (TCQ) (n=16)
Maternal Characteristics		
1. Age	.58**	.23
2. Family income	-.60**	-.36
3. PSI (Full scale)	-.40*	-.36
R Square	.65	.48
F	11.87**	4.26*

Note. Betas presented are standardized betas. *p<.05, **p<.01.

Table 8

Multiple Regression Analysis: Predictors of Maternal Self-Efficacy Measured by either Maternal Self-Efficacy Scale (MSES) or Toddler Care Questionnaire (TCQ)

Predictor Variables	Infant Sample Maternal Self-Efficacy Scale (MSES) (n=26)	Toddler Sample Toddler Care Questionnaire (TCQ) (n=16)
Maternal Characteristics		
1. Age	.60**	.35
2. Family income	-.61**	-.48*
3. PSI (Difficult Child subscale)	-.32*	-.02
R Square	.60	.39
F	9.36**	2.93

Note. Betas presented are standardized betas. *p<.05, **p<.01.

Mediational Role of Maternal Self-Efficacy

Basic Descriptive Statistics Among the Study Variables

Table 9 provides the descriptive statistics for all of the primary study variables. There were no normative data on the two maternal self-efficacy scales (MSES and TCQ). The mean and standard deviation of each maternal self-efficacy scale obtained with this sample was presented in Table 9. This sample appeared to provide equivalent quality home environments when the HOME scores were compared to the standardized HOME scores (M=31.69 and SD=7.59 at 12 months). Furthermore, the mean and standard deviation from the ASQ scores were nearly equivalent to those achieved with the standardization sample.

Correlations Among Maternal Characteristics, Maternal Self-Efficacy, and HOME

The results of the zero-order correlations among the maternal characteristic variables (maternal demographics, mothers' perceived parenting stress, and mothers' perceived satisfactions with contextual factors) are presented in Table 10. Older mothers tended to provide better quality home environments than younger mothers. Among the mothers with toddlers, a significant relationship between HOME scores and TCQ scores was found ($r=.40$, $p<.01$).

Multiple Regression Analyses

Looking at the correlation results (Table 10), the only TCQ scores were significantly related to the HOME scores. Among maternal characteristics of interest, maternal age was only significantly related to the HOME scores (Table 10). Thus, the test of the mediating role of maternal self-efficacy (TCQ) in the relationships between

Table 9
Descriptive Statistics for Primary Study Variables (N=42)

Variables	Observed Range	Mean (SD) of the sample
Self-Efficacy		
MSES (n=26)	26-40	33.54 (3.71)
TCQ (n=16)	125-180	153.67 (16.91)
HOME (n=42)	20-41	32.62 (5.73)
ASQ (n=38)		
Infant (0-12 months)	115-300	256.14 (47.41)
Toddler (13-36months)	190-295	236.88 (27.01)

Note.

MSES= Maternal Self-Efficacy of Mothers with Infants measured by the Maternal Self-Efficacy Scale (MSES)
TCQ= Maternal Self-Efficacy of Mothers with Toddlers measured by the Toddler Care Questionnaire (TCQ)
HOME=The Quality of Parenting measured by the Home Observation for Measurement of the Environment (HOME)
ASQ= Children's Developmental Outcome measured by the Ages & Stages Questionnaire (ASQ). The number of the young children who were tested on the ASQ was smaller than 42 because the four children was too young to administer the ASQ.

Table 10

Correlations Among Maternal Characteristics, Maternal Self-Efficacy, and HOME

	Maternal Self-Efficacy		HOME
	MSES	TCQ	
Maternal characteristics			
Age	.39**	.40**	.34*
Parity	-.04	.39	-.01
Education	.11	.04	.08
Family income	-.35*	-.52*	-.08
PSI (Full scale)	-.34*	-.58*	-.18
PSI (DC subscale)	-.32*	-.02	-.03
MPSCF	.08	-.31	.23
MSES			.26
TCQ			.40**

Note. *p<.05, **p<.01.

the maternal characteristic (maternal age) and the quality of parenting (HOME) was performed in the subgroup of mothers with toddlers. To examine the degree to which maternal self-efficacy mediated the effects of the maternal characteristics on the quality of parenting (HOME), the data analysis steps that follow were taken. The first equation was estimated for predicting the TCQ scores from maternal age (Equation 1, see Table 11). The second equation was subsequently estimated for predicting the quality of parenting (HOME) from maternal age without the TCQ scores (Equation 2, see Table 11). Finally, the third equation was estimated for predicting the quality of parenting (HOME) from maternal age with the TCQ scores entered into the equation (Equation 3, see Table 11).

To test the mediating role of maternal self- efficacy (TCQ) in the relationship between the maternal characteristic (maternal age) and the quality of parenting (HOME), the following criteria for mediation outlined by Baron and Kenny (1986) were used in this study: 1) regressing the mediator on the independent variable; 2) regressing the dependent variable on the independent variable; and 3) regressing the dependent variable on both the independent variable and on the mediator. These three regression equations provide the tests of the linkages of the mediational model (Baron & Kenny, 1986). Therefore, to establish mediation, maternal age must affect maternal self-efficacy (TCQ as a mediator) in the first equation. Second, maternal age must be shown to affect the quality of parenting (HOME) in the second equation. Third, maternal self-efficacy (TCQ) must affect the quality of parenting (HOME) in the third equation and the effect of maternal age must be smaller. Because the maternal characteristics are assumed to cause the maternal self-efficacy, these two

variables should be correlated and the presence of such a correlation results in reduced power in the test of the coefficients in the third equation (Baron & Kenny, 1986).

Contrary to expectations, the results of the three sets of mediational analyses did not indicate evidence for mediation (TCQ) in the relationship between the maternal characteristic (maternal age) and the quality of parenting scores on the HOME with the sample of mothers with toddlers (Table 11). Specifically, maternal age was not shown to affect maternal efficacy (TCQ) (Equation 1, Table 11), though its was shown to affect the quality of parenting (HOME) (Equation 2, Table 11). Maternal self-efficacy (TCQ) was not shown to affect the quality of parenting (HOME) (Equation 3, Table 11).

Table 11

Multiple Regression Analysis: The Mediational Role of Maternal Self-Efficacy (TCQ) in the Relationship Between the Maternal Characteristic (maternal age) and the Quality of Parenting (HOME)

Predictor	Equation 1	Equation 2	Equation 3
	TCQ (n=16)	HOME (n=16)	HOME (n=16)
Age	.40	.34*	.32
TCQ			.27
F	2.99	5.24*	2.43
R square	.16	.12	.25

Note *p<.05. Numbers are standardized regression coefficient (Betas).

Relationships Among Maternal Self-Efficacy, the HOME, the ASQ

The results of zero-order correlation analyses among maternal self-efficacy, the quality of parenting (HOME), and the child developmental outcome (ASQ) are presented in Tables 12 and 13. Moreover, the ASQ cut-offs for each developmental area score to indicate possible developmental delays were examined in association with maternal self-efficacy and the quality of parenting (HOME). In this study, if the children had no potential delays in any of the 5 developmental areas (communication, gross-motor, fine-motor, problem solving, and personal-social relations) in the ASQ measure, they were identified as developing typically. On the other hand, the young children with a developmental delay in at least one area of the ASQ measure were considered to be at risk for development. Most of young children (34 out of 38) were identified as developing typically. The only one toddler and three infants were identified to be at risk for development. Due to the small cell size for each ASQ group, correlations among cut-offs of ASQ, maternal self-efficacy, and HOME scores were not performed in the two subgroups based on the child's age.

For the sample of mothers with infants, neither maternal self-efficacy (MSES) nor the quality of parenting (HOME) was related to the child developmental outcome scores on the ASQ (Table 12). However, the mothers of toddlers who scored higher on the TCQ tended to provide better home environments than their counterparts (Table 13). The more confident mothers of toddlers tended to provide better quality home environments than the less confident mothers ($r=.40$, $p<.05$).

Table 12

Pearson Correlatoins Among Maternal Self-Efficacy (measured by Maternal Self-Efficacy Scale, MSES), the Quality of Parenting (HOME), and the Child Developmental Outcome (ASQ)

	MSES	HOME	ASQ
MSES	1		
HOME	.26	1	
ASQ	.12	.12	1

Note.
MSES=maternal self-efficacy scores of mothers with infants
HOME= the quality of parenting was measured by the total scores of the HOME
ASQ= young children's developmental outcome scores on the Ages & Stages Questionnaire

Table 13

Pearson Correlations Among Maternal Self-Efficacy (measured by Toddler Care Questionnaire), the Quality of Parenting (HOME), and the Child Developmental Outcome (ASQ)

	TCQ	HOME	ASQ
TCQ	1		
HOME	.40*	1	
ASQ	-.03	.11	1

Note.
TCQ= maternal self-efficacy scores of mothers with toddlers
HOME= the quality of parenting was measured by the total scores of the HOME
ASQ= young children's developmental outcome scores on the Ages & Stages Questionnaire
*p<.05.

Summary of Results

The results of the study are summarized in terms of the research hypotheses addressed in this study.

Research Hypothesis 1.1: Mother's level of education is related to maternal self-efficacy.

The results presented in the earlier section are not consistent with the hypothesis. The level of mother's education was not positively related to the mother's perceived confidence level in parenting (maternal self-efficacy) and that finding was not consistent with those of a previous study that mothers with higher education tended to have higher levels of self-efficacy in parenting (Luster & Kain, 1987). The same result was observed for both subgroups in the sample (Table 3). However, when family income and family type were controlled for, maternal education was significantly related to maternal self-efficacy among mothers of infants in the sample.

Research Hypothesis1.2: Mother's age is related to maternal self-efficacy.

The result was consistent with the hypothesis. Maternal age was positively related to maternal self-efficacy in this sample. Most research in this area supports the finding that older mothers are more likely to report higher confidence in parenting than younger mothers (Gross et al., 1994). The results of the regression analyses indicated that maternal age was found to be a significant predictor of maternal self-efficacy only with the sample of mothers with infants (Table 6). The findings of this study shed light on the importance of maternal age in the prediction of maternal self-efficacy.

Research Hypothesis1.3: There are relationships between mothers' perceived parenting stress and maternal self-efficacy.

This hypothesis has found support in studies by Teti and Gelfand (1991), Gross et al. (1994), and Tucker & Gross (1998). The results of this study partially supported the hypothesis (Table 4). Mothers with higher levels of parenting stress (measured by PSI total scores) tended to have lower levels of maternal self-efficacy (both MSES and TCQ scores). But, PSI one subtotal score (DC) was not significantly related to TCQ scores. In addition, the results of the regression analyses indicated the mothers' perceived parenting stress (using both the full PSI and one subscale of the PSI) was found to be predictive of the maternal self-efficacy scores (MSES) only among mothers with infants (Table 6).

Research Hypothesis1.4: There are relationships between the number of children mothers have and maternal self-efficacy.

The findings of the study failed to support the hypothesis. Previous research findings pertaining to the relationship between parity and self-efficacy (Gross et al., 1989) revealed that prior childcare experience was a strong predictor of maternal self-efficacy for mothers with toddlers. The significant correlations were not observed in this sample.

Research Hypothesis 1.5: There are relationships between mothers' perceived satisfactions with contextual factors (employment, family support, community resources, and child care experiences) and maternal self-efficacy.

The findings of this study were not consistent with those of the previous research (Erdwins, Casper, & Buffardi, 1998). In this study, maternal self-efficacy was not related to the mothers' perceived satisfactions with contextual factors. There has been minimal research attention devoted to this area. Even though this study failed to support this hypothesis, the influence of mothers' perceived satisfactions with contextual factors should not be disregarded as a possible covariate of maternal self-efficacy to clarify what factors within the individual and the environment may facilitate the development of maternal self-efficacy.

Research Hypothesis 2: Maternal self-efficacy mediates the effect of the maternal characteristics on the quality of parenting (HOME).

Contrary to expectations, the regression analysis results failed to confirm the mediational role of maternal self-efficacy (TCQ) in the relationship between the maternal characteristic (maternal age) and the quality of parenting (HOME) in this sample. This finding is not consistent with those from previous studies (Luster, 1985; Teti & Gelfand, 1991) that found that maternal self-efficacy mediated the effects of some of variables (e.g., maternal demographics, social support, and maternal depression) on parenting behavior.

Research Hypothesis 3: There are interrelationships among maternal self-efficacy, the quality of parenting (HOME), and the child developmental outcome (ASQ).

This hypothesis was partially supported in this sample. The mothers of toddlers who scored higher on the TCQ tended to provide better home environments than their counterparts (Table 13).

Chapter 5

DISCUSSION

This study had several research purposes. First, this study examined the maternal characteristics that predict maternal self-efficacy among the mothers of young children from Early Head Start. Second, the role of maternal self-efficacy in mediating the effects of the maternal characteristics (maternal demographics, mothers' perceived parenting stress, and mothers' perceived satisfactions with contextual factors) on the quality of parenting (HOME) was investigated. Furthermore, relationships among maternal self-efficacy (MSES or TCQ), the quality of parenting (HOME), and the child developmental outcome (ASQ) were tested. Each statistical data analysis was performed separately for the two subgroups in the sample based on the child's age (Infancy vs. Toddlerhood).

The results from the correlation analyses (maternal characteristics and maternal self-efficacy) provide important implications. To date, the construct of maternal self-efficacy has been studied with a number of research paradigms, but tends not to have been the primary research focus (Coleman & Karraker, 1997). In this study, the broad range of the maternal characteristics was investigated to predict maternal self-efficacy. Some of the maternal characteristics were significantly related to maternal self-efficacy, with the similar pattern of the relationships observed between the two subgroups based on child's age. Specifically, maternal age, family income, and mothers' perceived parenting stress (PSI) were significantly related to maternal self-efficacy (measured by either the MSES or the TCQ scores). Those three variables were also found to be predictive of the MSES scores among the mothers of infants. A

unique variance in the MSES scores was found at both the individual's demographic variable (explained by family income) and psychological state (explained by the mother's perceived parenting stress). For the mothers with toddlers, the three maternal characteristics (age, family income, and PSI) were not found to be significant predictors of the TCQ scores. For this subgroup, the other factors beyond those three variables may affect the TCQ scores. More than half of the variance (52%) in the TCQ scores was accounted by the other factors that were not entered into the regression equation (Table 7). In light of this evidence, the investigation of the variables that predict maternal self-efficacy confirms the fact that maternal self-efficacy is not simply determined. But, with the extremely small size, the statistical power and approximations (true p values) may be deteriorated. The larger sample size will allow us to detect effects for a broader range of the variables in the maternal self-efficacy model.

In review of Bandura's Self-Efficacy Theory for context-specific descriptions (Bandura, 1982; Scheel & Rieckmann, 1998), some of the findings should be noted. The context addressed in this study was mothers of young children living in high-risk environments. Mothers and children from high-risk environments may be vulnerable to self-assessments in their parenting role of low self-efficacy. Surprisingly, when compared to mothers from advantaged backgrounds (white, middle class) in other studies that also used the same measures of TCQ and MSES (Gross et al., 1994, 1995; Teti & Gelfand, 1991), the mothers in this study who lived in high-risk environments demonstrated that they did indeed tend to possess more positive judgments of their capabilities in the parenting role. The measure of maternal self-efficacy was obtained

directly from maternal reports. There may be biases in judging their maternal self-efficacy. These biases may serve as defense for the mother's ego or reduce the stress associated with parenting (Conrad, Gross, Fogg, and Ruchala, 1992). But, maternal self-efficacy (TCQ) was significantly related to the HOME (Table 9) among the mothers with toddlers. Given this evidence, the mothers of toddlers may be not unrealistically confident ("naively confident" mothers, Davis, 1989) because the mothers maintained confidence about their parenting abilities and provided better quality home environments (measured by the HOME).

As expected, family income was significantly related to both maternal self-efficacy scales (MSES and TCQ scores). Surprisingly, the association found in this study was negative in direction. Mothers with lower levels of family income tended to have higher levels of maternal self-efficacy. Any logical explanation was not provided for this finding. Moreover, family income was found to be predictive of the MSES scores among mothers with infants when other variables were controlled. When the PSI measure (with the one subscale, Difficult Child) was entered into the regression equation, family income was also found to be predictive of the TCQ scores. Most of families sampled live in poverty (M=$14,056), but it is interesting to note that there is a great variation in family income (SD=$8,958). It may be possible that higher family income may leave maternal self-efficacy in parenting enhanced because the mothers with higher income may provide more nurturing materials to their children. This purchasing power associated with family income may affect maternal self-efficacy, though this study found a negative relationship between family income

and maternal self-efficacy. Future research should clarify this relationship. Such data are needed to provide informed direction for prevention and intervention efforts with mothers and young children from high-risk environments. The direct services tailored to supplement family income and the provision of vocational training programs that help low income mothers get their paid jobs may be the most appropriate interventions to counteract deficits in maternal self-efficacy.

In this study, child correlates such as temperament and child problems were not examined. But, there were significant negative correlations between maternal self-efficacy and child related stress (Difficult Child subscale of the PSI, see Table 4) with the mothers of infants. A closer investigation of the observed relationships between child- related stress (DC) and maternal self-efficacy suggests further consideration. Probably, mothers with low self-efficacy tend to become more sensitized to child difficulty and these perceptions of the child difficult may lead to their high levels of perceived parenting stress. This tendency was more likely to be observed with mothers of infants (Table 4). The PSI child domain was found to be predictive of maternal self-efficacy (MSES) among mothers with infants. The PSI parent domain (Parental Distress subscale) and the PSI child domain (Difficult Child subscale) were also significantly related ($r=.32^{*}$, $p<.05$) among mothers of infants. It is possible that the reverse is also true (e.g., Teti & Gelfand, 1991). Having a difficult infant makes mothers feel less efficacious in parenting. This assumption is congruent with Bandura's (1995) proposition that when confronted with stress, individuals with low estimations of personal self-efficacy tend to give up easily, internalize failure, and experience pronounced anxiety and depression. When child temperament and child

problems are identified as covariates of maternal self-efficacy, there may be a dynamic interplay among maternal self-efficacy, child correlates, and parenting stress. More research is needed to clarify this association.

This study hypothesized that maternal self-efficacy would play a potential role in mediating the effect of the maternal characteristic (maternal age) on the quality of parenting (HOME). Because only TCQ scores were significantly related to the HOME, a series of the multiple regressions analyses was performed for the subgroup of the mothers with toddlers. Also, among maternal characteristics the only maternal age was significantly related to the HOME. However, when maternal age was entered into the equation, a mediation effect was not detected in this study. This finding is not consistent with the findings of other studies, though the regression results should be interpreted with caution because of the small sample size used in this study. Previous research revealing the associations of interest was typically conducted with demographically diverse samples (Gross et al., 1994 & 1995) or a sample of clinically depressed and non-depressed mothers (Teti & Gelfand, 1991). Several explanations are as follows. One plausible explanation is that maternal self-efficacy may be considered as one direct factor that explains the variance in the HOME rather than a mediator in the effect of the maternal characteristic on the HOME. Another explanation for the discrepancy between maternal characteristics and the quality of parenting through maternal self-efficacy is the demographic homogeneity (high-risk families). Moreover, the construct of the quality of parenting behavior measured by the HOME differs from the constructs employed in other studies to measure the dimensions of the quality of parenting. However, it is important to note that one of

the main strengths associated with measuring the construct of the quality of parenting is that this study conveys important information regarding parenting behavior because efforts to measure dimensions of the quality of parenting were conducted in natural home environments. This form of assessment may enhance the validity of the assessment in that the professionally trained raters spend more time with mothers and young children observing not only their interactions but also the quality of the stimulation the mothers provide for their young children. Naturalistic field studies tend to provide insightful information with regard to the systematic contextual conditions of characteristics of real life settings, supporting developmental phenomena of children (Coleman et al., 2002).

The results generated from this study failed to detect the mediation effects of maternal self-efficacy in the relationships between maternal characteristic and the quality of parenting. But, this limitation alone cannot disregard the importance of maternal self-efficacy in parenting, if maternal self-efficacy is considered as one of the direct factors that explain the variance in the HOME. This relationship was partially supported with mothers of toddlers in this study. In particular, mothers of young children living who are unusually burdened (e.g., lack of resources, unemployment, single-headed household, poverty) need to build their sense of personal competence in order to become effective parents. Therapeutic interventions designed to build parents' self-efficacy beliefs through direct child care instruction, modeling of positive parenting practices, and opportunities structured to maximize success in the parenting role are in the early stages of development (Gross et al., 1995). But, the awareness of how self-efficacy beliefs have the potential to promote effective parenting under the

most stressful environmental demands is imperative in designing, implementing, and evaluating of those intervention programs for mothers with young children from high-risk environments.

The relationships among maternal self-efficacy, the quality of parenting (HOME), and the child developmental outcome (ASQ) were also examined in this study. Intuitively, it seems reasonable that mothers who felt confident in parenting tend to provide better quality of parenting, and in turn, their children are more likely to benefit from these circumstances. The results of the correlation analyses confirmed this expectation partially in that only the TCQ scores were related to the HOME among the mothers with toddlers. Accordingly, even in the presence of multiple stressors faced by the families of this study (living in high-risk environments), most of their young children (n=34 out of 38) were identified as developing normally. The extent to which these families are capable of creating and sustaining the quality of home environment for young children depends on the results of interactions with the external environments (Brofenbrenner & Ceci, 1994). From this point of view, this might explain the current program effects (Early Head Start participation) and/or the sleep effects from a history of their program participations. However, this study controlled for those effects. In keeping with Bronfenbrenner's ecological model, adoption of the basic tenets of the ecological model is crucial to an understanding of the best intervention to promote the optimal development of young children from high-risk environments.

Limitations

There are a number of limitations that must be described. Due to the small sample size and secondary analysis of the data collected from a local Early Head Start, the researcher is limited in generalizing the findings of the study. The correlation and regression results should be interpreted with caution because of the small sample size. The current investigation adds to the existing literature by highlighting particular attributes related to maternal self-efficacy with implications for parenting and child development. A larger number of significant associations and regression coefficients may very well have been found with a larger sample and the resulting increase in statistical power.

Maternal self-efficacy beliefs and mothers' perceived parenting stress data were primarily obtained from one source, the mother (maternal reports). There is the problem associated with shared method variance and its potential distortion of the obtained results. This limitation is due to the fact that the variables examined were focused on how the mother perceived herself in relation to her young child. Thus, the results of this study should be regarded with caution.

Another limitation is that only maternal self-efficacy beliefs were examined. This limitation was imposed because mothers are usually identified as primary caregivers. Even though fathers' influences on parenting and child outcomes cannot be disregarded, there are limited avenues that are open for fathers to discover the important role they play in the lives of their children. The father studies help to fill a significant gap in knowledge by increasing our understanding of how fathers and mothers, in the context of the family, influence infant and toddler development.

Directions for Future Research

Future research should be conducted with demographically diverse samples in testing for relationships of interest of this study. The investigation of the relations of interest with a heterogeneous sample has the advantage of maximized variance (Coleman et al., 2002). The child correlates were not primary interests of this study. Exploring possible variables (i.e., child temperament, previous experience with difficult children, acceptance of the child's challenging disposition) and the corresponding results may highlight the fact that parents and child experience ongoing mutual change over time and the quality of parent-child interaction at a later time is a function of earlier interaction (Coleman et al., 2002).

Since efficacy beliefs are related to choice of behavior, and help determine both how much effort people will expend on an activity and how long they persevere (Bandura, 1986, 1997), the relationships among maternal self-efficacy, the quality of parenting, and the child developmental outcome are plausible. Parental efficacy could work in at least two ways to influence children's outcomes. First, parents who believe they are efficacious and have a role to play in their children's education, act on that belief in ways that build children's sense of intellectual efficacy, which in turn contributes to children's academic success later (Bandura, 1997). In addition, efficacious parents may be those who are actively involved in creating the stimulating home learning environment. Like self-efficacy, the construct of parent perceived control that is defined as a parent's perception of personal control over their children's development should be examined independently, as previous research provides empirical support for this distinction (Luster & Rhoades, 1989; Machida, et al., 2002).

Thus, future research should be directed toward differentiating between two concepts in further investigation in the relationships among maternal self-efficacy, the quality of parenting, and child outcome.

The present study examined the construct of maternal self-efficacy concurrently with the measures of the PSI, the HOME, and the ASQ, assuming the confirmation of the directional effects. There is a need to focus future research efforts on employing a longitudinal research design. This effort enables the researcher to explore the continuities and discontinues of maternal self-efficacy in the relationships of interest. Thus, future studies might follow Early Head Start parents through their children's preschool years to determine how efficacy beliefs change over time in association with the quality of parenting and the child outcome. The Early Head Start families sampled in this study will be post-tested on the measures of interest in future research. As the nature of data changes, the future research design will allow us to determine the effectiveness of the Early Head Start program for improving maternal self-efficacy, parenting stress (PSI), the quality of parenting (HOME), and the child developmental outcome (ASQ) over time.

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