

양육효능감: 자녀양육행동 매개 모델

Maternal Self-Efficacy: A Mediational Model of Quality of Parenting

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<Abstract>

본 연구의 일차적 목적은 어머니의 특성과 관련된 요인들이 양육효능감에 미치는 영향을 살펴보고, 양육효능감이 어머니의 특성과 관련된 요인들과 자녀양육 행동과의 관계에서 매개역할을 하는 것인가를 분석하였다. 그리고 양육효능감, 자녀 양육행동, 아동 발달과의 상관관계를 살펴보았다. 미국 내 거주하는 Early Head Start 프로그램의 수혜자인 저소득층의 어머니와 영아들을(출생~36개월) 대상으로 한 본 연구결과에 의하면 어머니의 특성과 관련된 요인들로 어머니의 연령, 소득수준, 양육에서 오는 스트레스가 양육효능감에 영향을 미치는 것으로 나타났다. 양육효능감은 어머니의 특성과 관련된 요인, 특히 어머니의 연령과 양육행동과의 관계에서 매개역할을 하는 것으로 나타났다. 양육효능감, 양육행동, 아동발달과의 상관관계 분석에서는 양육효능감과 양육행동에서만 유의한 정적인 상관관계가 있는 것으로 나타났다. 지금까지의 선행연구들과는 맥을 같이하는 연구결과이지만, 저소득층(high-risk families)의 어머니와 영아를 대상으로 양육효능감을 포괄적이고 체계적으로 이해하고자 하였다는데서 의의를 찾을 수 있다. 나아가, 이 연구의 결과는 저소득층을 위한 아동 및 가족의 통합적 복지사업을 실천하는데 있어 의미가 있는 것으로 시사된다. 사회 경제적 자립을 위한 기회 제공과 자녀양육을 하는데 있어서 전문가의 직접적인 모델링을 통한 부모교육을 통해서 양육효능감을 향상시켜나갈 때, 아동 및 가족 복지실현의 궁극적 목적을 이룰 수 있을 것이다.

주제어 (Key Words): 양육효능감(maternal self-efficacy), 자녀양육행동(parenting), 가정(families)

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I. 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 disadvantaged, thus weakening their sense of fulfillment, gratification, and pleasure from the various dimensions of the parenting process (Elder, 1995). Maternal 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). Maternal self-efficacy is viewed as critical in understanding individual differences in coping with adverse situations (Luster & Rhoades, 1989).

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;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 (Cutrona & Troutman, 1986; Luster, 1986; Luster & Rhoades, 1989; Teti & Gelfand, 1991).

1. Review of Literature

In the following, a summary of the literature pertaining to the potential importance of maternal self-efficacy construct for explaining individual variances in parenting behavior is provided. Specifically, the research findings relevant to a mediating role of maternal self-efficacy in determining the effects of the identified variables are highlighted within the scope of this study.

1) Child temperament

An effective caregiver creates an environment that supports the development of the infant (Donovan, Leavitt, & Walsh, 1990). Studies have found that maternal self-efficacy is related to mothers' perceptions of their babies as temperamentally "easy" or "difficult" (Cutrona & Troutman, 1986; Gross, Conrad, Fogg, & Wothke, 1994; Teti & Gelfand, 1991). 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). 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).

2) 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). In Cutrona and Troutman's (1986) study, 55 married women were assessed maternal postpartum depression during pregnancy and again 3 months postpartum and 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). 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).

3) 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). 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 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.

4) Parenting behavior

Increasing attention has been paid to the role of maternal self-efficacy in mediating parenting behavior in the literature (Luster & Rhoades, 1989; 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).

The existing maternal self-efficacy literature reviewed herein has clearly demonstrated that maternal self-efficacy has been described an influential mediator of several of the determinants on parenting behavior including child temperament, social-marital supports, parenting stress, and parenting behavior. To date, however, 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?" "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 efforts to examine the relationship among maternal self-efficacy, quality of parenting, and child developmental outcomes have not been made, specifically with a sample of families living in high-risk environments, though a few studies have found associations between maternal self-efficacy and child development in the domains of socio-emotional 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).

2. Research Objectives

This study had three main objectives as follows:

- 1) To identify which maternal characteristics predict maternal self-efficacy
- 2) To investigate whether maternal self-efficacy mediates the effects of maternal characteristics of interest on quality of parenting
- 3) To examine the relationships among maternal self-efficacy, quality of parenting, and child developmental outcomes.

3. Conceptual Model

Based on the review of literature and Bandura's (1995) proposition that self-efficacy is the mediation link between knowledge and behavior, a conceptual model was developed to meet the research objectives. There are 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 also hypothesized in this study.

II. Research Method

1. Research Design

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.

2. Sampling Selection

Seventy Early Head Start children and their mothers participated in the first year of a larger, ongoing 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.

3. Data Collection Procedures

The data was collected by Early Head Start, located in Lansing, Michigan. 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. A trained Home Visitor aided the parent in completing the surveys in the parent's home, while the researcher collected data from the enrollment packet from which some variables were used in this study at the program enrollment office. The administration of the surveys (Maternal Self-Efficacy Scale, 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 researcher for the purpose of data analysis.

4. 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

<Table 1> Sample Characteristics

(N=42)

Characteristics	%	N	Mean (SD)
Child Agez(months)		42	12.63 (8.42)
Child Gender			
male	45.2%	19	
female	52.8%	23	
Child Ethnicity			
Caucasian	47.6%	20	
African American	23.8%	10	
Hispanic American	19%	8	
Multi-racial	4.8%	2	
Others (Haitians)	4.8%	2	
Maternal Age			25.66 yrs (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)
Maternal Education			
<High school	31%	13	
High school/GED	38.1%	16	
Some college	28.6%	12	
College degree (2yrs)	2.4%	1	
Maternal Employment			
Unemployed	61.9%	26	
Part-time working	16.7%	7	
Full-time working	16.7%	7	
School	4.8%	2	

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.

5. Research Instruments

1) Maternal Self-Efficacy (MSE)

The Maternal Self-Efficacy Scale (MSE) 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.

2) 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 sub-scales: (1) emotional and verbal responsiveness 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.

3) Parenting Stress Index (PSI)

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 sub-scales) 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.

4) 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 Squyred, 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. 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 months 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.

III. RESULTS

The data were analyzed using the Statistical Package of the Social Science (SPSS, 10.0 version).

1. 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. Since family income was found to be significantly related to maternal self-efficacy measures ($r=-.35$, $p<.05$), it was introduced as a covariate of maternal self-efficacy in subsequent multiple regression analyses. 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.

2. Predictors of Maternal Self-Efficacy

To determine the relationships between the predictor variables and maternal self-efficacy, zero-order correlations were performed (Table 2).

In this study, older mothers tended to have higher levels of education and they were more likely to perceive higher levels satisfactions with contextual factors (employment, family support, community resources, and child care experiences) than younger mothers did. Also, older mothers of this study tended to be more efficacious in their parenting. As expected, significant associations were found between maternal self-efficacy and mothers' perceived stress associated with parenting (measured by PSI total scores). Mothers who reported less stress in parenting were more likely to report being efficacious in parenting. The significant relationships between subtotal scores

<Table 2> Zero-order Correlations among Maternal Self-Efficacy and the Study Variables

(N=42)

	age	edu	income	n.child	D.C.	PSI	MPSCF	MSE
age	1							
edu	.45*	1						
income	.17	.18	1					
n.child	.07	.25	-.15	1				
D.C.	-.04	-.01	.08	.03	1			
PSI	-.15	-.01	.20	-.3	.81**	1		
MPSCF	.32*	.40**	.12	.22	-.03	-.02	1	
MSE	.46*	.07	-.35*	.11	-.32*	-.57*	.08	1

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

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.

income=family annual income (\$) D.C.=Difficult Child (Sub scale of Parenting Stress Index) subtotal scores PSI= Parenting Stress Index Scale (total scores of PSI was used) MPSCFS= a 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.

MSE= total scores of Maternal Self-Efficacy

of Difficult Child subscale and maternal self-efficacy were also found in the expected direction. The mothers who tended to perceive their young children more difficult reported lower levels of maternal self-efficacy. Contrary to the expectation, no significant relationships between maternal self-efficacy and mothers' perceived satisfactions with contextual factors were found in this sample. More educated mothers tended to perceived higher levels of their satisfactions with contextual factors than their counterparts.

To determine the combined influences of the predictors on maternal self-efficacy, multiple regression analyses were conducted. The three maternal characteristic variables (maternal age, family income, and mothers' perceived parenting stress (PSI total score) that were significantly related to maternal self-efficacy were entered into the regression equations (Table 3). All predictors were found to be significant at the .01 level. These three predictors accounted for 58% of the variance in the MSE scores with this sample. The F value for the model was found to be significant ($p < .01$).

3. The Mediating Effect of Maternal Self-Efficacy in the Relationships between Maternal Characteristics and Quality of Parenting

The results of the zero-order correlations among the maternal characteristics of interest (maternal age, family income, and PSI), maternal self-efficacy, and quality of parenting (measured by total HOME scores) are presented in <Table 4>. Older mothers tended to provide better home environments than younger mothers. The significant relationships between quality of parenting (measured by HOME total score) and maternal self-efficacy was found, as expected.

To test the mediating role of maternal self-efficacy (MSE) 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). Here, the first equation was estimated for predicting the MSE scores from maternal age (since the only maternal age was significantly related to both MSE and HOME scores) (Equation 1, Table 5). The second equation was subsequently estimated for predicting HOME scores from maternal age without the MSE scores (Equation 2, Table 5). Finally, the third equation was estimated

<Table 3> Multiple Regression Analysis: Predictors of Maternal Self-Efficacy (N=42)

Predictors	Maternal Self-Efficacy
Maternal age	.45***
Family income	-.34**
PSI	-.44***
R-square	.58
F	16.74***

Note. Betas presented are standardized betas. ** $p < .01$, *** $p < .001$.

<Table 4> Correlational Analysis: Correlations among Maternal Characteristics, Maternal Self-Efficacy (MSE), and Quality of Parenting (HOME) (N=42)

Variables	Maternal Self-Efficacy	Quality of parenting
Maternal Characteristics age	.46**	.34*
income	-.35*	.08
PSI(total score)	-.57**	-.18
DC(subtotal score)	-.32*	-.03
Maternal Self-Efficacy	.34*	

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

<Table 5> Multiple Regression Analysis: The Mediation Role of Maternal Self-Efficacy in the Relationship between the Maternal Characteristic (maternal age) and the Quality of Parenting (HOME)_(N=42)

Predictors	Equation 1 (MSE)	Equation 2 (HOME)	Equation 3 (HOME)
Age	.45***	.34*	.23
MSE			.23
R-square	.21	.12	.16
F	10.79**	5.24*	3.67*

Note. *p<.05, **p<.01, ***p<.001.

for predicting the HOME scores from maternal age with the MSE scores entered into the equation (Equation 3, Table 5).

As expected, the results of the three sets of mediational analyses did indicate evidence for mediation (MSE) in the relationship between maternal age and quality of parenting (HOME). Specifically, maternal age was shown to affect maternal self-efficacy in the first equation. Second, maternal age was shown to affect the quality of parenting (HOME) in the second equation. Third, maternal self-efficacy that was entered into the third equation with maternal age was shown to affect the quality of parenting (HOME). The effect of maternal age was found to be smaller, when compared to the results from the equation 2. Because maternal age was 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).

4. The Relationships among Maternal Self-Efficacy(MSE), Quality of Parenting (HOME), and Child Developmental Outcome (ASQ)

<Table 6> provides the descriptive statistics for

the primary study variables of interest. There was no normative data on the maternal self-efficacy scale (MSE). The mean and standard deviation of the MSE scale obtained with this sample was presented in <Table 6>. 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 with samples of young children (up to 36 months). In <Table 7>, the descriptive statistics for each of the ASQ sub-scales are presented. The ASQ cut-offs for each developmental area score to indicate possible developmental delays were also examined. In this

<Table 6> Descriptive Statistics of Primary Study Variables (N=42)

Variables	Observed Range	MEAN (SD)
MSE	26-46	33.21 (4.61)
HOME (Total)	20-41	32.62 (5.73)
ASQ (Total)	115-300	248.93(40.61)

Note. MSE = Maternal Self-Efficacy of Mothers measured by the Maternal Self-Efficacy(MSE)
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

<Table 7> Descriptive Statistics of Ages & Stages Questionnaire (ASQ)

ASQ sub-scale	Observed Range	Mean (SD)	N
Communication	25-60	48.33 (10.57)	42
Gross-motor	20-60	53.21 (9.93)	42
Fine-motor	15-60	48.45 (12.32)	42
Prob-solving	20-60	52.50 (9.77)	42
Personal-social	10-60	46.43 (13.08)	42
Cut-offs (ASQ)		42	
typically		37	
At-risk		5	

Note. Cut-offs (ASQ)= Standardized mean scores of ASQ 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.

<Table 8> Interrelationships among MSE, HOME, & ASQ (N=42)

Variable	MSE	HOME	ASQ
MSE			
HOME	.34*		
ASQ	.01	.09	

Note. * $p < .05$

study, if the young 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 (37 out of 42) were identified as developing typically (Table 7).

Contrary to expectation, neither maternal self-efficacy (MSE) nor the quality of parenting (HOME) was significantly related to the child developmental outcome (ASQ). In this study, the more confident mothers of young children tended to provide better quality home environments than the less confident mothers (Table 8).

IV. Discussion

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 were investigated to predict maternal self-efficacy. Specifically, maternal age, family income, and mothers' perceived parenting stress (both PSI total score & D.C. as PSI subtotal score) were found to be significant related to maternal self-efficacy. Those three variables were all found to be predictive of

maternal self-efficacy (MSE). A unique variance in the MSE scores was found at both the individual's demographic variables (explained by maternal age and family income) and psychological state (explained by the PSI scores). Surprisingly, the association between family income and maternal self-efficacy was negative in direction. Mothers with lower levels of family income tended to have higher levels of maternal self-efficacy and any logical explanation was not provided for this finding. 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 in the expected direction. 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-risks 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 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 sample size, the statistical power and approximations (true p values) may be deteriorated.

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 of young children living in high-risk environments may be vulnerable to self-assessments in their parenting role of low self-efficacy. But, this sample was found to possess more positive judgements of their capabilities in their parenting role, when compared to mothers from advantaged backgrounds (white, middle class) in other studies that also used the same measure of MSE (Teti & Gelfand, 1991). The measure of maternal self-efficacy was obtained directly from maternal reports. There might 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, & Ruchala, 1992). However, this sample was not unrealistically confident ("naively confident" mothers, Davis, 1989) because the mothers who maintained confidence about their parenting abilities tended to provide better quality home environments (measured by the HOME).

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). A closer investigation of this observed relationship suggests further consideration. Probably, mothers with low maternal 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. The PSI child domain was found to be predictive of maternal self-efficacy and it was significantly related to the PSI parent domain (Parental Distress subscale)($r = .32^*$, $p < .05$). The reverse might be also true (Teti & Gelfand, 1991), which means that 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 self-efficacy tended to give up easily, internalize failure, and experience pronounced anxiety and depression. When child temperament and child correlates are examined in future research, there may be a dynamic interplay among relationships of interest explored in this study.

This study detected the mediational effect of maternal self-efficacy in the relationships between maternal characteristics and the quality of parenting (HOME). One of the main strengths associated with measuring the construct of the quality of parenting is that this study conveys important information regarding parenting behaviors because efforts to measure dimensions of the quality of parenting were conducted in natural home environments during several home-visits. This form of assessment may enhance the validity of the assessment in that the professional 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 study 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). In addition, maternal self-efficacy, itself, was found to be one of the direct factors that explains the variance in the HOME. Here, the importance of maternal self-efficacy in parenting and its role in mediating the effects of maternal characteristics on the quality of parenting. The mothers of young children living in high-risk environments are usually burdened (e.g., lack of resources, unemployment, single-headed household, poverty) and they need to build their sense of personal competence in order to become effective parents. Therapeutic interventions designed to build maternal 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 stage of development (Gross et al., 1995). Thus, 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 evaluation of those intervention programs for high-risk populations.

The relationships among maternal self-efficacy, the quality of parenting(HOME), and the developmental outcome (ASQ) were also examined in this study. Intuitively, it seems reasonably that mothers who feel confident in parenting tend to 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 MSE scores were related to the HOME. The important thing that should be noted, herein, is that even in the presence of multiple stressors faced by the families of this study, most of young children sampled were identified as developing typically. As Bronfenbrenner and Ceci (1994) pointed out, the extent to which these families living in high-risk environments are capable of creating and sustaining the quality of home environment for young children depends on the results of interactions with the external environments. From this point of view, this might explain the current program effects (Early Head Start program participation)and/or the sleep effects from a history of their program participations, though this study controlled for those effects. The 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.

A number of limitations that must be described. Due to the small sample size, specifically obtained from mothers and young children living in high-risk families, the research is limited in generalizing the findings of the study. 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. The results should be regarded with caution.

The child correlates were not primary interests of this study. Exploring possible child variables such as child temperament, previous experience with difficult child and the corresponding results may highlight the important fact that parents and child experience on-going mutual change over time and the quality of parent-child interaction at a later time is a function of their earlier interaction (Coleman et al., 2002). Also, 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. Thus, future studies might follow Early Head Start parents through their children's preschool years to determine how efficacy beliefs change over time in associations with the variables of interest in this study including parenting stress, the quality of parenting, and the child developmental outcome.

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