# AN EXAMINATION OF KNOWLEDGE GAINED BY MOTHERS ENROLLED IN A HOME VISITATION PROGRAM FOR SIX MONTHS

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# CHAPTER I

## INTRODUCTION

According to the United States Department of Commerce (1997), there has been an increase in child abuse nationally. In 1990 an average of 400,000 children suffered from physical and sexual abuse, and 600,000 suffered from neglect (these numbers may vary according to children possibly suffering from both types of abuse). In 1995 these numbers increased to around 760,000 for abuse and 1,000,000 for neglect. Ages one year and younger were the largest age category that suffered abuse and neglect.

These trends show that there is a need to help children through providing parents with education on becoming a parent. Becoming a parent is one of the most influential life changes in a person's life. Many times parents need extra support when they become parents. Home visitation programs strive to fulfill this need and many other needs of first time parents. Home visitation emerged from the women's movement in the first part of the century (Chapman, Siegel, & Cross, 1990). During the women's movement, women began home visitation in order to help families in rural America (Baker, 1994). In the last few decades researchers have contributed to the use of home visitors "to assure the right of every child to comprehensive care" (Chapman et al., 1990, p. 1059).

This study contributed to the existing body of literature by being one of the first studies to look at gain in mother knowledge of child development as a result of home

visitation parent education, and is one of the first studies to have compared younger mothers to older mothers and their gain in knowledge of infant development. This study also screened the mothers before entering the program as a means to determine if the mother was indeed at-risk rather than assuming this to be so. A growing body of literature has supported the effectiveness of home-visitation programs. Whether the home visitor is a professional, paraprofessional (non-nurse), or nurse, the effects are positive. Research has shown that mothers have an improvement in techniques in caring for their children (such as physical, cognitive, social and emotional needs), work related experience, social support, home environment, preterm labor and increased health, length of gestation, and use of community resources (Barrera, Rosenbaum, Cunningham, 1986; Dawson, Robinson, Butterfield, van Doorninck, 1990; Marcenko & Spence, 1994; Polit, 1989; Olds, Henderson, Tatelbaum, & Chamberlain, 1986). Children of mothers receiving home visitation showed improvement in less visits to the hospitals, and were more likely to be reported by their mothers as having fewer behavior and adjustment problems (Gray, Cutler, Dean, & Kempe, 1979; Wolfe, Edwards, Manion, & Koverola, 1988). Long term effects of home visitation have shown that mothers had fewer subsequent pregnancies, decreased use of welfare, and had fewer verified incidents of child abuse and neglect (Kitzman, Olds, Henderson, & Hanks, 1997).

## Problem Statement

This study investigated the knowledge gained by all new mothers participating in a parent education home visitation program. It was anticipated that mothers receiving

home visitation would be gaining knowledge of infant development and that older mothers would be gaining the most knowledge as compared to younger mothers. This study also investigated whether there are changes of mother knowledge on the four subscales of the Knowledge Inventory of Development and Behavior: Infancy to School-age (KIDS) (Fulton, 1995).

There has been a great amount of research conducted on home visitation and its impact on mothers. However, there is limited research to show if new younger mothers' knowledge of infant development is actually increasing by participating in home visitation as compared to new older mothers' knowledge. An important factor, which makes this study unique, is the fact there was a screen (Kempe Family Stress Check List assessment) for a level of stress in the mothers participating in the home visitation program. This screen determined the level of stress and the level of risk the mothers had and then gave them the choice of voluntarily enrolling in the home visitation program. Other studies have not used such a screen and merely assumed there was a high level of stress due to the mothers being adolescent mothers. Two studies' findings are critical to the present research. A study conducted by Fulton, Murphy, & Anderson (1991) found that a home visitation program was "effective in yielding significant gains in knowledge of infant development by the young mothers" (p.79). Culp, Culp, Blankemeyer, & Passmark (1998) found "after six months of intervention, the mothers significantly improved their knowledge of infant development, empathetic responsiveness, and child and parent roles in the family" (p. 111).

This study first screened the mothers with the Kempe Family Stress Check List (National Committee to Prevent Child Abuse, 1998) and determined if the mothers were

at-risk rather than assuming they were experiencing high levels of stress as new and adolescent mothers. At-risk mothers were determined by the National Committee to Prevent Child Abuse (NCPCA, 1998) as overburdened by the level of stress they were experiencing. The question of whether at-risk parents are gaining knowledge of their child's development as a result of home visitation remains unanswered.

## Purpose of Study

The focus of the present study was to research a sample drawn from the Healthy Families America-Cooperative Extension Service (HFA-CES) program in the state of Oklahoma. The National Committee to Prevent Child Abuse, in partnership with Ronald McDonald House charities, began the Healthy Families America national program. It is "a national initiative to establish a universal, voluntary home visitor system for all new parents to help their children get off to a healthy start" (National Committee to Prevent Child Abuse, 1998, p. 1). Healthy Families America works to "promote positive parenting and child health and development, thereby preventing child abuse and other poor childhood outcomes" (National Committee to Prevent Child Abuse, 1998, p. 1). The overall goal is to provide support systems for at-risk new parents.

### Program Description

This study evaluated knowledge gained by younger and older parents enrolled in the Healthy Families America-Cooperative Extension Service (HFA-CES) programs. HFA home visitation parent education programs existed in 16 counties within Oklahoma. Of the 16 counties, ten were funded under Oklahoma State University Cooperative

Extension Services. These ten counties were Alfalfa, Beaver, Canadian, Delaware, Johnston, Lincoln, McIntosh, Murray, Muskogee, and Pottawatomie. Alfalfa, Murray, Canadian, Delaware, Johnston, and some data from Pottawatomie counties were the six counties examined in the present study. Four of the counties were not chosen because two them were participating in another study and the other two did not have usable data. HFA-CES has its own framework designed to train their home visitors and family assessment workers. The framework was designed for the home visitors to enhance parents' knowledge of infant development and improve parent-child relations. The program structure consisted of a director, the home visitors, and a family assessment worker for each county.

The home visitors and family assessment worker underwent extensive training to facilitate instrumentation, trust, and education to first time parents. Each county site had established collaborative relationships with the hospital, high school counselors, and health clinics. When a baby was born the family assessment worker made a visit to the parents. The assessment worker administered the Kempe Family Stress Check List which is an assessment that gives a score determining the level of extreme stressors in parents' lives (National Committee to Prevent Child Abuse, 1998). These stressors were measured by a series of questions asking about childhood history, substance abuse, mental illness, criminal history, previous or current child protective services (CPS) involvement, self-esteem, available life-lines, stress concerns, potential for violence, expectations of infant's milestones and behavior, discipline of infant/toddler/child, perception of the new infant, and bonding and attachment issues. The assessment workers participated in extensive training in which they were prepared to administer and

score the check list. By participating in such extensive training they were able to administer the assessment by using verbal probing techniques and were instructed on how to make the parents feel as comfortable as possible when asked these private questions. Parents were instructed that they could refuse to answer any questions that they felt were too private in nature.

Once assessed every parent received parenting brochures or was put on a list of new parents and received parenting information in the mail every week or month. Every parent assessed received something. However, only those with high scores that were determined at higher risk qualified to enroll in the HFA-CES home visitation program. Parents were given information about the program and encouraged to enroll. It was strictly a voluntary enrollment. A parent could choose not to participate or could enroll and drop the service at any time during the program. After assessment and the parents voluntarily enrolling in the program, a home visitor began visits with the family once a week.

## Conceptual Framework

### Human Ecological Theory

Human ecological theory was selected as the theory for viewing the importance of home visitation. Bubolz & Sontag (1993) defined this theory as "human organisms in interaction with their natural physical-biological, social-cultural, and human-built environments comprise a human ecosystem. A family ecosystem consists of a given family system in interaction with its environment" (p. 431).

The child develops within the context of relationships. Brofenbrenner (1979) believed that a child developed not only internally, ontogenetically, but that a child's development was interactional and was always a relationship between the child and his/her immediate environment or family. Even today, the child's family has an enormous impact on that child's development. Home visitation help families in stressful situations by helping to relieve that stress and provide support to parents as a means of helping the child to develop appropriately and to his/her fullest. This is how we see the child benefiting from home visitation programs.

"Brofenbrenner views the individual as being embedded in a microsystem (role and relations), a mesosystem (interrelations between two or more settings), an exosystem (external settings that do not include the person), and a macrosystem (culture)" (Klein & White, 1996, p. 228). Home visitation programs function at the mesosystem level. It is a relationship built between the home visitor and families to provide support so as to reduce stress.

Olds, Kitzman, Cole, & Robinson (1997) utilized the human ecological perspective for two reasons. First, the family members influence each other. Next, the family influences the environment and, in turn, is influenced by the environment. The mothers should be the primary focus of the home visitation program; and home visitation programs should view parents, especially the mothers, as "developing persons". By mothers being the primary focus of the program, the children will benefit from the change in the mothers' behavior (Olds et al., 1997). Home visitation programs should "emphasize the development of the parent because parents' behavior constitutes the most powerful and potentially alterable influence on the developing child, particularly prenatal

environment, their face-to-face interaction with their children postnatally, and their influence on the family's home environment" (p. 10).

## Definitions

Concepts and terms used in this study are defined as follows:

Home visitation is parent education through home visits for new parents enrolled in the Healthy Families America-Cooperative Extension Service (HFA-CES) program.

Young mothers are under the age of eighteen.

Older mothers are eighteen years and older.

Knowledge of child development is how much the mother knows about how a child develops.

Subscale scores are part of the Knowledge Inventory of Development and Behavior: Infancy to School-age (Fulton, 1995) inventory. This inventory yields four subscale scores as well as a total score. The four subscales are infancy (birth to 12 months), toddler (1 and 2 year olds), preschool (3 through 5 years), and school-age (6 through 12 years).

## Objectives of the Study

The following objectives have been developed for this research:

1. To determine whether all mothers participating in the HFA-CES home visitation program are gaining knowledge about child development as measured by the total score of the KIDS (Fulton, 1995) inventory from baseline to six months.
2. To determine whether there is a change in all mothers' knowledge on the four subscales of the KIDS (Fulton, 1995) inventory after six months participation (Infant, Toddler, Preschooler, and School-age subscales).
3. To determine whether younger or older mothers' gain more knowledge of infant development after six months of program participation.

## Research Questions

Home visitation by a trained staff member is of vital importance to new parents and their children due to the adjustments parents must make (i.e., parenting questions, discipline, feeding). Parent education brings numerous resources into the home for parents who may have many risk factors of stressful life situations in their lives. The impact that the HFA-CES home visitation parent education program has on parents' knowledge of infant development is the focal point of this research. The main research questions of this study are:

1. Is there an increase in all new mothers' knowledge of child development as a result of home visitation parent education programming as measured at baseline and six months?
2. Is there a difference in mothers' subscale scores on the KIDS (Fulton, 1995) inventory after six months participation in the HFA-CES program as measured at baseline and six months?
3. Will younger or older mothers receiving home visitation gain more knowledge in infant development as measured at baseline and six months?

## Hypotheses

1. There will be a significant increase in total mothers' knowledge about child development for all mothers participating in the HFA-CES program, as compared at baseline and six months.
2. There will be a significant increase between all mothers' knowledge of child development subscale scores on the KIDS (Fulton, 1995) inventory when comparing baseline and six months program data.
3. Older mothers will gain more knowledge about infant development than younger mothers between baseline and six months.

## Summary

There is an increase in child abuse and neglect in the United States. Becoming a parent can be a stressful life changing event. Home visitation is critical for helping new parents cope with the stress of first becoming a parent by creating a social support system and providing needed education. Home visitation can impact the lives of those whom it serves. This study examines the success of home visitation.

# CHAPTER II

# REVIEW OF LITERATURE

Although early intervention had been investigated previously, this study examined home visitation for high-risk families. Home visitors provide support for new at-risk parents participating in home visitation. The home visitor provides caring support for the parents in the form of emotional encouragement for the parent through parent education. Healthy Families America Cooperative Extension Service (HFA-CES) parent education program for at-risk parents has the goal of reducing inappropriate interactions as well as helping parents learn to provide a stimulating environment for the child. Home visitors provided information about community resources and encouraged parents to access needed resources. Becoming a parent for the first time can be frightening and challenging as well as joyful. A home visitor's professionalism and friendship gives the parents someone with whom to share concerns and emotions.

## Professional/Paraprofessional Intervention

As Chapman et al. (1990) stated, "home visitation may be considered to be persons, either professional or paraprofessional, volunteer or paid, who provide a wide variety of support services in the home" (p. 1059). Chapman et al. (1990) reviewed

seven home visitation programs. The purpose of the review was "to discuss the state of the art in this field, stimulate interest and awareness among pediatricians, and consider the place of these programs within the health care system" (p.1059). All programs selected for analysis used paraprofessional home visitors with the exception of one which used nurses. Variables, which were used to evaluate the programs, were infant birth weight, prenatal care, use of health care and community services, maternal behaviors and use of social support, and child abuse and neglect. From this review Chapman et al. (1990) state that "it is our opinion that although some programs will be best served by professional visitors, for a significant proportion of family support-primary prevention programs, paraprofessional visitors may be preferred. Low-income families often find them culturally more compatible. In addition, paraprofessional visitors may fulfill the important role of enabling families to connect with other needed interventions such as therapists, social services, and health and nutrition services" (Chapman et al., 1990, p. 1065).

Home visitation has proven to show an increase in social support, greater access to social services, decreased psychological stress of at-risk pregnant mothers, and improved safety of the homes (Barrera et al., 1986; Culp et al.,1998; Marcenko & Spence, 1994). Home visitation was associated with more favorable mother-infant interaction (Barrera et al., 1986; Daro & Harding, 1999; Dawson et al., 1990).

Barrera et al. (1986) used the Transactional Model of Early Home Intervention developed by Barrera & Rosenbaum. This model "identifies the development of both infants and parents as targets of intervention, focuses on their ongoing interactions as the vehicle of intervention, and proposes to teach parents to use problem-solving strategies to

cope with the challenges of parents" (p. 21). They hypothesized that "improving parental responsiveness and sensitivity to the child's needs and behavioral cues would result in both environmental changes and developmental gains" (Barrera et al., 1986, p. 21). The sample consisted of 83 families. Using the Transactional Model of Early Home Intervention, home visitors were infant-parent therapists. Families were randomly assigned to three groups. The two experimental groups were a developmental intervention (the goal was to improve the developmental functioning of the child), and a parent-infant intervention (the goal was to improve parent-child interaction). The third group, a control group, received no treatment. Measures used for the study were the Bayley mental and Motor Scales of Infant Development, Infant and toddler Temperament Questionnaire, HOME inventory, observations, and video-taping the parent and child playing together. All infants were assessed at four, eight, twelve, and sixteen months of age. "The results suggest that although both intervention approaches were effective in modifying some aspects of the home environment and, to a lesser degree, in improving infants cognitive development, the parent-infant interaction approach seemed to have the greater impact" (Barrera et al., 1986, p. 20).

Marcenko & Spence (1994) conducted a study using home visitors from the same community as the target families. They received months of intensive training to prepare them for home visits. A social worker was used to assess the families needs and form a plan for meeting these needs. A nurse was used for helping with health issues. Mothers assigned to the control group received services at a clinic and no home visitation. Mothers assigned to the experimental group received the same medical care as the control group but also were provided home visitation. Instruments used for this study were the

substance abuse subscale of the Addiction Severity Index, history of CPS involvement, HOME inventory, the Norbeck Social Support Questionnaire, the Brief Symptom Inventory, Rosenberg's Self-Esteem Scale, and at follow-up the mothers were given a service use and satisfaction questionnaire. Findings indicated that there were no significant differences between the control and experimental groups on the HOME inventory and level of mothers' self-esteem as measured at baseline and follow-up. However, there was a significant increase in the experimental group and the social support they received, and they experienced a significant decrease in psychological stress between baseline and follow-up. "There was no indication that the intervention was successful at preventing child out-of-home placement" (Marcenko & Spence, 1994, p. 475). Marcenko & Spence (1994) reported that "overall, the present data indicate that approximately ten months of exposure to a program of comprehensive pre- and post-partum services provided in the home by a peer home visitor, a social worker, and a nurse produced reports of positive psychosocial outcomes on the part of mothers" (p. 477).

Dawson et al. (1990) evaluated the Parent-Infant Project. The 146 women who participated in the project were at least 16 years old when enrolled in the program. Services provided by the Parent-Infant Project through paraprofessionals included emotional support, meeting mothers and infants basic needs, improving mothers' social networks, improving community contacts, and parent education on infant care. It was determined by home observations, the Scale of Mothering Interaction Style (SMIS), and Authoritarian Family Index that mothers had more warm encouragement, alertness towards their infants, task persistence, and sensitivity than counterparts in the control group.

Home visitation helps parents learn how to cope with being a parent. Field, Widmayer, Stringer, & Ignatoff (1980) conducted a study with teenage, low socioeconomic, African American mothers and their preterm infants (N=150). Their objectives in the study were to "follow the development of preterm as compared with that of full-term infants born to teenage versus adult mothers belonging to a lower SES group and to assess the effects of an intervention provided for a subsample of the preterm infants born to teenage mothers (Field et al., 1980, p. 427). Home visits were made by a dual set of trained interventionists and a "teenage black, female work/study student" (Field et al., 1980, p. 428). Assessments were made at baseline, four months, and eight months. They found mothers who had received home visitation displayed higher quality and more interactions with their children. The mothers also significantly "rated their infants' temperaments more optimally, expressed more realistic developmental milestones and child rearing attitudes, and received higher ratings on face-to-face interactions" than the comparison control group receiving no home visitation (Field et al., 1980, p. 426).

A study conducted by Polit (1989) compared a Project Redirect sample (n=305) to a comparison group (n=370) who did not participate in Project Redirect. Project Redirect provided counseling services related to parenting, employment, education, health and life management, and peer group sessions to teen mothers who are considered high risk. Polit (1989) concluded that mothers receiving services from Project Redirect learned appropriate techniques for parenting, had improved skills in child health and development, and had significantly increased rates of employment.

Many studies have documented the findings of home visitation's effects in reducing child abuse and neglect and improving family functioning (Ayoub, Willett, & Robinson, 1992; Daro & Harding, 1999; Hardy & Street, 1989; Wolfe et al., 1988). Ayoub et al. (1992) asked the question "whether families with different sets of entry-level characteristics differ in the way that they respond to intervention" (p. 495). The intervention provided to 172 families was called Project Good Start. Home based intervention was conducted by social workers (professionals). In this study there was no control group only data collected on families using the instruments Family Problem Checklist and Family Function Scale. Ayoub et al. (1992) stated their findings suggest "that treatment is likely to be successful in stabilizing and improving the family functioning of the majority of families at-risk of child maltreatment" (p. 506) .

Hardy & Street (1989) evaluated randomly selected infants born to mothers 18 years and older (n=131). The control group consisted of 132 participants. All mothers were part of the Children and Youth Program. The home visitor was a paraprofessional who once lived in the same community as the participants and worked closely with the module educator and social worker once home visits began. Treatment included "curriculum developed for her [home visitor] use based on experience in providing parenting education to adolescent and more mature mothers in this population. It included topics appropriate for the age of the infants visited, thus ensuring that the mother received the information she needed for the development of adequate parenting and child care skills" (Hardy & Street, 1989, p. 928). Effectiveness of the program was measured by Children and Youth Program clinic records, medical records, data collected at a final visit, and a telephone interview. It was determined as a result of home visitation

that there was "improved compliance with well-child care, fewer illness visits, and sharp reductions in hospitalization and in neglect or abuse were found in the visited group compared with the control group" (Hardy & Street, 1989, p. 927). The findings also suggest that "an educational program of this type will not work optimally in isolation (i.e., without medical and professional social service support). Our program did not function as we and initially envisioned because more than parenting education was required" (Hardy & Street, 1989, p. 931).

Mothers with a greater potential for child abuse have shown less knowledge of child development (Fulton et al., 1991). Fulton et al. (1991) measured 76 females who participated in the Adolescent Parenting Program. Intervention included home visits twice a month by a trained paraprofessional who interviewed the mother to determine her needs and match cirriculum for the home visits accordingly. Instruments included the Knowledge Inventory of Child Development and Behavior: Infancy to School-Age, Child Abuse Potential Inventory, and the Self-Esteem Inventory. Findings indicated that the less knowledge the mothers had of child development, the greater the potential for child abuse. Likewise, "the greater the tendency toward child abuse, the lower the sense of self-esteem" (Fulton et al., 1991, p. 78). A particular interesting conclusion in this study was that "as knowledge of child development increases, the possibility of inappropriate interaction with children decreases" (Fulton et al., 1991, p. 79).

Wolfe et al. (1988) found that mothers (N=30) who participated in early intervention and received parent education reported fewer behavior problems and adjustment problems in their children associated with the risk of maltreatment than those in the control group. A pretest and posttest design was used to determine changes.

Measures administered included self-reports on the Child Abuse Potential Inventory, Home Observation and Measurement of the Environment (HOME) scale, Pyramid Scales, and Behavior Rating Scale.

Daro & Harding (1999) summarized 17 evaluation findings from different Healthy Families America programs across the United States. As an effective and efficient means for reporting child abuse and neglect, Daro & Harding (1999) report that Healthy Families America programs "home visitation increases the odds that a parent will be observed mistreating his or her child and that a child will be observed as being at risk of harm because of parental action or inaction" (p. 169). Thus, the home visitor making weekly visits to the home enabled them to be in a position to monitor child abuse and neglect within at-risk families.

The Healthy Start Program (HSP) was "a child abuse prevention program, which uses home visitors (paraprofessionals) to help families turn away from abusive and neglectful parenting behaviors and toward parenting that promotes healthy child development" (Duggan, McFarlane, Windham, Rohde, Salkever, Fuddy, Rosenburg, Buchbinder, & Sia, 1999, p. 66). An evaluative study conducted by Duggan et al. (1999) over Hawaii's Healthy Start Program found positive effects of home visitation. Six sites operated by three programs were evaluated, the Hawaii Family Support Center (HFSC), Child and Family Service (CFS), and Parents and Children Together (PACT). Families (N=730) eligible for the study were identified as at-risk and lived in the target community. The subjects gave consent to participate in the study, then were randomized into an experimental (participated in the Healthy Start Program) and control group. Frequency data was used to determine maternal reports at one and two year follow-ups.

This study found that after two years of home visitation with parents and their children there was an increase in the experimental group in use of medical care for the child, use of nonviolent means to discipline, mothers feeling more competent in their parenting skills, and a decrease in stress related to parenting experienced by the mothers. There was also an increase in child development outcomes, however, this finding was agency specific.

Roosa (1983) compared ninety never pregnant teens, fifty pregnant teens, and thirty-one older mothers (over 20). This study examined "the knowledge base of pregnant teenagers relative to that of their never-pregnant peers and adults" (Roosa, 1983, p. 215). There was no intervention or treatment program. The participants completed questionnaire's containing information about child development. Roosa (1983) found that adult mothers scored slightly, but significantly, higher than younger mothers on child development knowledge. Roosa (1983) concluded that this study "indicates that teenagers are almost as knowledgeable as adults regarding child development" (p. 221).

Culp et al. (1998) compared 38 adolescent mothers and 22 nonadolescent mothers who participated in a voluntary home visitation program. They found that adolescent mothers had lower scores on empathy and child/parent roles than the nonadolescent mothers. However, after six months intervention the adolescent mother's scores on empathy and child/parent roles improved. Culp et al. (1998) also reported that "adolescent mothers scored significantly lower than the nonadolescent mothers at baseline on only two measures, knowledge of infant development and understanding of child and parent roles; however, after six months of intervention, their scores were not significantly different from the nonadolescent mothers" (p. 111).

Home visitation programming that was focused mainly on parent-infant interaction "within a therapeutic problem solving model" (Barrera et al., 1986, p. 31) and visitation that began during pregnancy were found to be most effective for families (Dawson, Van Doorninck, & Robinson, 1989). In the study conducted by Dawson et al. (1989) randomly assigned mothers to two control groups and two experimental groups. Control groups received maternity and pediatric care, one experimental group received maternity and pediatric care and weekly home visits, and the second experimental group received all of the previous intervention as well as participating in biweekly parent groups. Measures included home observations, the Scale of Mothering Interaction Style, and Authoritarian Family Index. Results showed that mothers' who received home visitation and parenting classes had more favorable mother-infant interaction.

Results from a randomized trial study of Hawaii's Healthy Start home visitation program "indicate that an intensive home visiting by paraprofessionals produces measurable benefits for participating in the areas of parental attitudes toward children, parent-child interaction patterns, and type and quantity of child maltreatment" (National Committee to Prevent Child Abuse, 1996, p. 8). Similarly, if programs ensured the home visitor addressed parents' concerns, the parents were more likely to make progress (Kowal, Kottmeier, Ayoub, Komives, Robinson, & Allen, 1989). Kowal et al. (1989) studied 245 families participating in the program Good Start. This program serves perinatal mothers at eight different hospital sites in the Boston area. A home visitor began visits at either the hospital after birth or in the home on a voluntary basis. The Good Start program offered parent education, community networking, emotional support, and child care assistance. Kowal et al. (1989) findings indicated that the most common

problems among parents were finances, single-parenthood, self-esteem, and lack of transportation.

## Nurse Intervention

Studies conducted with nurses as the primary home visitor have shown positive effects on parents and their children. There are several following studies that are reviewed that were part of the Elmira Project. The Elmira Project was a study conducted in the state of New York beginning in 1981. The sample included 400 mothers. All mothers were placed in one of four treatment groups. Treatment 1 comprised of children 1 to 2 years of age that were screened for sensory and developmental problems and if a deficiency was found they were referred to specialists. Treatment 2 included treatment 1 and mothers and children were provided free transportation for regular visits to nearby clinics and physicians. Treatment 3 was provided the screening (treatment 1), free transportation (treatment 2), and home visits biweekly for the nine months the mother was pregnant. Treatment 4 was provided the previous three treatments as well as home visits until the child was two years old. In a few of the succeeding studies (Olds, Eckenrode, Henderson, Kitzman, Powers, Cole, Sidora, Morris, Pettitt, Luckey, 1997, Olds Henderson, & Kitzman, 1994; Olds, Henderson, Kitzman, & Cole, 1995; Olds, Henderson, Cole, Eckenrode, Kitzman, Luckey, Pettitt, Sidora, Morris, & Powers, 1998; Olds, Henderson, Tatelbaum, Chamberlain, 1986) for the analysis treatments 1 and 2 were combined to provide a comparison group. Nurses conducted all home visitation.

Further studies (Olds et al., 1997; Olds et al., 1994; Olds et al., 1995; Olds et al., 1998; Olds et al., 1986) discussed will refer to this summary.

Olds et al. (1986) examined the effects nurse home visitation from the Elmira project had on the delivery and outcomes of prenatal care and pregnancy. Olds et al. (1986) found that during pregnancy nurse home visited mothers statistically significantly increased their knowledge of community services, significantly increased their support systems, and significantly increased their attendance in childbirth classes.

Other studies conducted have found nurse home visitation programs to be essential for other aspects of life for high-risk families. Olds et al. (1994) studied participants from the Elmira project and had the goal to improve the "outcomes of pregnancy, qualities of parental caregiving (including reducing associated child health and developmental problems), and maternal life course development (helping women return to school, find work, and practice family planning)" (Olds et al., 1994, p. 90). The HOME inventory, observations, interviews, hospital records, and Child Protective Service records, measured all variables. This study found no long-term (two years after the program ended) program effects on child abuse and neglect or child's intellectual functioning. However, mothers who had nurse home visitation intervention had "lasting program effects on the safety of the households, children's use of the emergency department, use of physicians' offices for injuries and ingestions, and child behavioral and parental coping problems, and the qualities of care that poor unmarried teenagers provided to their children" (p. 93) as compared to other control groups.

A study by Olds et al. (1995) found families (participating in the Elmira project) who qualified as high risk for child maltreatment had lower scores of abuse after the

nurse home visitation program was implemented as measured by the number of state-verified reports of child abuse or neglect during the child's first four years of life. Families that were visited by nurses in the program also lived with safer home environments, "mothers were less controlling, paid 38% fewer visits to the emergency department and 87% fewer visits to the physician for injuries or ingestions" (p. 370). Olds et al. (1995) concluded this study indicated parents were able to manage care of their children more effectively while part of the home visitation program.

Follow-up studies (of the Elmira project participants) have shown positive effects of nurse home visitation on children's development. Data indicates that home visitation can reduce juvenile offending (Olds et al., 1998) and "reduce the number of subsequent pregnancies, the use of welfare, child abuse and neglect and criminal behavior on the part of low-income, unmarried mothers for up to 15 years after the birth of the first child" (Olds et al., 1997, p. 637).

Olds et al. (1997) and Olds et al. (1998) conducted follow-up studies on the participants from the Elmira project. Olds et al. (1997) "conducted detailed examinations of 17 background variables to determine the extent to which the treatment groups were equivalent for families on which 15-year assessments were completed" (p. 639). Demographic information was obtained as well as personality characteristics, health-related behaviors, health conditions, socioeconomic status (estimated by the Hollingshead 4-factor method), life-history calendar, estimation of the number of months mothers used AFDC, Medicaid, and food stamps, number of times the mother had been arrested or convicted in the last fifteen years, and questions regarding alcohol and drug use (National Comorbidity Survey). CPS records were also obtained for evaluation. It was found that

home visitation "can reduce the number of subsequent pregnancies, the use of welfare, child abuse and neglect, and criminal behavior on the part of low-income, unmarried mothers for up to 15 years after the birth of the first child" (p. 637).

The second phase of the fifteen year follow-up (of the Elmira project) (same participants as in the Olds et al., 1997 study) interviews of the parents and the children (now adolescents) revealed whether the child had been adjudicated, arrested, stopped by the police, sent to a youth correctional facility, school suspensions, and substance abuse (drugs, alcohol, and cigarettes). Results indicated that adolescents who were born to nurse home visited women had fewer arrests, convictions, violations of probation, sexual partners, cigarettes per day, and less consumption of alcohol (Olds et al., 1998) than those who had not been a part of the experimental group (treatment 1 and 2). It also had been reported that adolescents born to nurse home visited women had fewer behavior problems related to use of alcohol and drugs, fewer episodes of running away, as well as more positive mental states (Olds et al., 1998) than adolescents of women who had not had nurse home visitation during the Elmira project (treatment 1 and 2).

Kitzman et al. (1997) conducted a replication study of the Elmira project in Memphis Tennessee with 1139 mothers. Treatment was performed the same as the Elmira project. Kitzman et al. (1997) concluded that "women visited by nurses during pregnancy and the first two years of the child's life had fewer health care encounters [outpatient, emergency, and hospital admissions] for children in which injuries or ingestions were detected, days that children were hospitalized with injuries or ingestions, and second pregnancies. There were no program effects on preterm delivery or low birth

weight, children's immunization rates, mental development, or behavioral problems, or mothers' education and employment" (p. 644).

Interactions, actions, reactions and expectations of parents are influenced by their knowledge of child development (Jarrett, 1982). Jarrett (1982) found among a sample of mothers (N=86) between 15 and 21 years that mothers had limited knowledge of child development as measured by semistructured interviews and the Acceptance, Control, and Knowledge of Child Development scales. There was no home visitation intervention. Measures were administered in child care facilities or their homes by a maternal and child health nurse. Jarrett (1982) evaluated these mothers "to determine the relationship of maternal age, family structure, family size, and knowledge of child development to childrearing attitudes and practices of younger mothers" (p. 124). Findings indicated that "maternal age was significantly related to acceptance and control beyond the effects of all other maternal factors, and knowledge of child development was limited" (Jarrett, 1982, p. 124).

Thompson, Cappleman, Conrad, & Jordan (1982) examined participants who were mothers selected from patients expected to deliver their first baby at Duke University Hospital. "Mothers in the intervention group (n=19) received, subsequent to the birth of their baby, monthly early intervention home visits for two years, as well as the developmental follow-up evaluations. Mothers in the control group (n=18) did not receive the monthly intervention visits but were given the same sequence of developmental follow-up evaluations" (Thompson et al., 1982, p. 18). For this study at-risk was defined as IQ≤84 as determined by the Bayley Mental Developmental Index. Mothers were visited monthly by a nurse home visitor for the first two years of the

child's life. Thompson, Cappleman, Conrad, & Jordan (1982) found that adolescent mothers who experienced home visits by a nurse during the first two years of the child's life may lower the risk of cognitive delays and increase the child's developmental functioning as measured by the Denver Developmental Screening Test, Stanford-Binet, and Bayley Mental Development Index (Thompson et al., 1982). These scores were only somewhat higher than the mothers in the control group and differences were not statistically significant.

Researchers have examined programs and found several factors to increase the effectiveness of home visitation for nurses. Booth, Mitchell, Barnard, & Spieker (1989) wanted to answer the question "what type of treatment is most appropriate for which particular subjects?" (p. 411). They evaluated 147 high-social-risk women and their infants at pretreatment, during treatment and posttreatment of mother. Mothers were determined high-social-risk by completing questionnaires at pretreatment (measures of stress-Life Experiences Survey, social support-Personal Resources Questionnaire, depression-Beck Depression Inventory, social skills-Adult Conversational Skills Scale and Community Life Skills Scale), observations, and an interview about their psychosocial characteristics and demographic information. Treatment included assignment to one of two groups: the one-step Information/Resource model or two-step Mental Health model. Each group received nurse home visitation to help prevent emotional disturbance and developmental delays in the children and to provide support to the mother and child. Measures used for the study were maternal demographics, child characteristics (standard birth information), maternal social skills (Community Life Skills Scale, Adult conversational Skills Scale, Social skills aggregated scores), and maternal

psychosocial characteristics (Life Expectancy Survey, Difficult Life Circumstances Scale, Personal Resources Questionnaire, and Beck Depression Inventory) administered at posttreatment. Results indicated that there were no differences between the services given to the mothers. The more likely a nurse was to engage in therapeutic acts during home visitation, the greater the mothers' social skills were at posttreatment. However, in identifying the type of treatment most appropriate for subjects studied, it was concluded that services should be offered to the neediest families, rather than all families (Booth et al., 1989).

Powel & Grantham-McGregor (1989) first studied 152 children and the developmental effects on the child of home visitation from age six months until the child was thirty months of age. Home visitation was conducted by a paraprofessional who was supervised by a nurse form a local clinic. The purpose of the home visits were to improve child development, help mothers to be more effective teachers to their children, as well as improve parent-child interaction. Children were assessed at baseline (before treatment) and again each year for three years using the Griffiths Mental Developmental Scales, and the Peabody Picture Vocabulary Test. A second group was formed and received the same treatment and assessment only home visitation increased from biweekly visits to weekly visits. "As the frequency of visiting increased from none through monthly, to biweekly to weekly, the benefits to the development of the children increased both in degree of improvement and in the number of different areas of development affected" (Powel & Grantham-McGregor, 1989, p. 162).

Aronen & Kurkela (1996) evaluated 160 children who served as the initial sample. The children were visited by a psychiatric nurse in a counseling intervention

home visitation program for the first five years of their life. The children and their families were determined as at-risk by a risk index created specifically for this study. Eighty of the children and their families were placed into a control group and the other half were placed in the experimental group. Once determined at-risk they were placed into high or low risk groups as determined by a score given the child and their families (determined by the relationships between family members, health of family members, and socioeconomic status of the family). All information was gathered by the psychiatric nurse who visited the home. The control group received home visitation until the child was six months old. The experimental group received home visitation every 4 to 6 weeks for the first five years of the child's life. The aim of the intervention was to reform the parents' attitudes and interaction with the child. The fifteen-year follow up examined the long-term effects of the program which the children and their families participated in during the first five years of the child's life. Of the initial 160 families who began the intervention there were there were "138 parent reports, and 136 youth reports" (Aronen & Kurkela, 1996, p. 1668) available for the follow-up study. "Families were contacted by a letter accompanied by the measures [Child Behavior Checklist, and Youth Self-Report]" (Aronen & Kurkela, 1996, p. 1668). "The findings of this study suggest that an early home-based family counseling program can have positive long-term effects and prevent psychiatric symptoms in adolescents" as measured by parent (Achenbach Child Behavior Checklist) and youth reports (Achenbach Youth Self-Report) (Aronen & Kurkela, 1996, p. 1669).

## Adolescent Parenting

Adolescents, as well as their children, face a challenge when they become parents. Steir, Leventhal, Berg, Johnson, & Mezger (1993) examined 219 children born to inner-city adolescents 18 years or younger compared to 219 children born to women 19 years or older. There was no intervention. A review of medical records to determine maltreatment and a change in the child's primary caretaker was noted to determine parenting outcomes. Medical records that were obtained were reviewed as far back to the child's birth until the child was five years old. Identifying outcome variables which were examined to determine whether children born to adolescent mothers or the comparison group of children born to older mothers were at-risk of child abuse and neglect were maltreatment, poor growth, and whether there was a change in the child's primary caregiver. It was found "children of teenage mothers, compared with children of older mothers, are at increased risk of maltreatment and of changes in their primary caretakers" (Stier et al., 1993, p. 642).

Coll, Vohr, Hoffman, & Oh (1986) evaluated 21 adolescent mothers (14-17 years of age) and 21 nonadolescent mothers (21-29 years of age). There was no intervention. At baseline, when the infant was born, mothers consented to participate in the study. "When the infant was 4 months, the mother and child came for a laboratory visit, and two weeks later, a home visit [two hours] was conducted" (Coll et al., 1986, p. 231). Information collected at this point by interview and questionnaires were on the mother's child care support, life stress, and the home environment by research assistants. "When the infants were 8 months old, a similar laboratory visit was conducted, and 2 weeks

later, they were examined at a Neonatal Follow-up Clinic, where complete pediatric and neurological examinations were performed" (Coll et al., 1986, p. 231). The Bayley Scales of Infant Development, and the Mental and Motor Developmental Indices were administered. Besides chronological age, adolescent mothers also differed from older mothers in sociodemographic factors and educational achievement which was determined by interviews conducted during the home visits and a laboratory visit (Coll et al., 1986). Coll et al. (1986) found that infants born to adolescent mothers, compared to infants born of non-adolescent mothers had "lower mental developmental status at 8 months" and "adolescent pregnancy was associated with lower maternal educational achievement and SES" (Coll et al., 1986, p. 234).

Culp, Culp, Osofsky, & Osofsky, (1991) observed 100 adolescent mothers and 29 nonadolescent mothers interacting with their six-month-old infants. "Interaction data were based on behavioral observations of a ten minute mother-infant feeding episode and a five minute unstructured play episode video-taped in a "home-like" laboratory setting" (Culp et al., 1991, p. 197). They found that adolescent mothers demonstrated less patience, expressiveness, positive attitude, and delight toward their infants than nonadolescent mothers.

An indicator of positive adolescent parenting is the mothers' self-esteem and role identity (Hurlbut, Culp, Jambunathan, & Butler, 1997). Hurlbut et al. (1997) looked at 24 first time mothers (21 years and younger) participating in a parenting program. "This study explores the question of how the adolescent mother's self-esteem relates to her knowledge of parenting skills" (Hurlbut et al., 1997, p. 640). The Index of Self-esteem was used to measured the mothers' self-esteem and the Adult-Adolescent Parenting

Inventory measured knowledge of parenting skills. They found a significant positive relationship between adolescent self-esteem and developmental expectations of their children as well as the mothers' ability to empathetically respond to their child's needs. Hurlbut et al. (1997) hypothesized that adolescent parenting is related to role identity as determined by their self-esteem. They reported that parenting programs should focus on helping the adolescent mother develop her role identity. "By supplying the opportunity to develop an adequate role identity and therefore positive self-esteem the adolescent mother would be better prepared for parenting, with its generativity demands" (Hurlbut et al., 1997, p. 651).

Culp, Osofsky, & O'Brien (1996) compared a sample of 32 adolescent mothers' (n=18) interactions to those of nonadolescent mothers (n=14) and examined their variation in quality and quantity of that interaction. Measures used included transcribing infant vocalizations during fifteen minute snack and play time, coding infant gestures, coding mothers contingent responses "whenever she verbalized within 2 seconds to an infant's vocalization or communicative gesture" (Culp et al., 1996, p. 65), and videotapes that recorded communicative functions of maternal speech. "Adolescent mothers talked less often, shared less joint attention with their infants, spoke fewer proportions of object descriptives and labeling, fewer proportions of and affective speech and more proportions of command utterances than did older mothers" as measured by infant vocalizations, gestures, mothers' contingent responsiveness, and joint attention (Culp et al., 1996, p. 69). Overall, the findings in this study found that infants of adolescent mothers vocalized less than infants of older mothers. Culp et al. (1996) hypothesized that "children of

adolescent mothers are at risk for language delays and that language delays are associated with the 'language learning environment' in which they are reared" (p. 69).

## Summary

Overall, the literature review shows that home visitation has a positive impact on children and their families. In order to provide the best comprehensive care for children, professional, paraprofessional, and nurse home visitors should all be used for a program. Comprehensive care should be a combined effort of all three professions to provide the best care to at-risk families. Health and nutrition, home environment, child development issues, parental support, community resources should all be part of the comprehensive care. With these combined efforts and collaboration of professionals, paraprofessionals, and nurses, home visitation programs would seem to function on the highest possible level.

# CHAPTER III

## METHODOLOGY

This study was designed to determine the effects of home visitation on mothers' knowledge of infant development. It compared the knowledge of infant development of younger mothers to older mothers. Knowledge was measured by total score on the Knowledge Inventory of Development and Behavior: Infancy to School-age (KIDS) (Fulton, 1995) inventory. This study also examined differences in each of four subscale scores and mothers' increased knowledge of infant development on the KIDS (Fulton, 1995) inventory after six month's participation in the Healthy Families America-Cooperative Extension Service (HFA-CES) program.

As previously stated, few studies in recent years have examined home visitation effects on mothers' knowledge of infant development. This study examined the effects of home visitation on mothers' increased knowledge of infant development from the mothers' point of view. It is anticipated that the results of this study will provide a better understanding of the impact of home visitation on mothers' knowledge of child development.

## Research Design

The two purposes of the present study were evaluative and exploratory. This study was evaluative in that by measuring parental knowledge, the impact of the HFA-CES home visitation parent education program could be determined. It was exploratory because a study of mothers' knowledge of child development is limited. The units of analyses were the mothers. Only the mothers were chosen due to several factors. Many times in high-risk families, the father was not present and the mother had lost contact with the infant's father. At other times, the mother reported the demographic information on the father and it may have been incomplete or inaccurate. Since the present study examined mothers' knowledge of child development as measured at baseline and the same sample was measured again at six months; it is longitudinal in design.

The research method utilized was survey research. The home visitors administered the KIDS (Fulton, 1995) inventory and demographic questionnaire to the mothers. The home visitor administered the questionnaires on the first visit and then six months later in the home of the family. While the home visitor played with the infant the mother filled out the questionnaires, which took approximately 15 to 20 minutes. Survey research was chosen due to a shortage of funds to perform an experimental research design comparing a control and experimental group.

## Participants

Forty-seven (age range of 13 to 36 years) mothers provided data at baseline and after six months of intervention for hypothesis one and two. For hypothesis three forty-two mothers (16 younger, 26 older) provided data at baseline and after six months of intervention. Descriptive statistics for this population are presented in Table I. In some cases the mother did not complete all questions asked on the Parent Information Form (Appendix C). Thus, there were missing responses as well questions that were responded to more than once. Mothers' mean age was 19 years and the range was 13 years to 36 years. Sixty-six percent of the mothers responded that their current partner was the child's father. Eight percent responded that their current partner was not the child's father. Fifty-six percent of the mothers were single and never married, 46% had an educational level of less than high school graduate, and 58% were unemployed and not looking for work. Mothers were frequently hesitant in providing information on the father of the child. Mothers responded to the Parent Information Form for the father more frequently than fathers because he was not usually present during the home visit. Demographic information on the fathers (n=35) indicated a mean age was 23 years and a range of 17 to 44 years. Thirty-nine percent of the fathers had graduated high school and 65% were working full time (35 hours per week or more).

The target population under study was all new parents who were considered to be at-risk. At-risk is defined by the Kempe Family Stress Check List by asking questions related to the parent(s) childhood history, substance abuse, mental illness or criminal history, previous or current child protective services (CPS) involvement, self-esteem,

available life-lines, stressors or concerns, potential for violence, expectations of infant's milestones and behavior, discipline of infant/toddler/child, perception of the new infant, and bonding and attachment issues (National Committee to Prevent Child Abuse, 1998). According to this checklist description, a score of 25 or higher denotes a score high enough to consider the parents at-risk in interaction with their children. The family assessment worker after receiving intensive instruction in use of the checklist, determined if the parent(s) were at-risk and eligible for program service. If they were determined eligible, the parents were given information and encouraged to enroll in the program. It was a strictly voluntary enrollment. Parents could choose not to participate or could enroll and drop the service at any time during the program. Once enrolled, home visitation began.

Purposive sampling method was chosen for the data because there was a certain characteristic of the sample selected for the study. Purposive sampling method according to Vogt (1993) is when the subjects are "selected deliberately by the researcher, usually because he or she thinks certain characteristics are typical or representative of the population" (p. 182). One characteristic in this study was that the mothers under study had to be new parents enrolled in the HFA-CES program receiving parent education and home visitation. Another characteristic was that the parents had to have a score of 25 or higher on the Kempe Family Stress Check List (National Committee to Prevent Child Abuse, 1998).

## Instrumentation

The instruments administered were the Family Information Form and the Knowledge Inventory of Development and Behavior: Infancy to School-age (KIDS) (Fulton, 1995).

### Family Information Form

The Family Information Form was used to obtain demographic information on mothers participating in the program and their partners. Demographic information included mothers' age, marital status, education level, employment status, and ethnicity. Partners' demographic information included whether the current partner of the mother is the father of the child, age, education level, and employment status (Appendix C).

### Knowledge Inventory of Development and Behavior: Infancy to School-age (KIDS)

The KIDS (Fulton, 1995) inventory was used to obtain an ordinal level of measurement of parental knowledge of child development. This forty-eight item ordinal scale operationalized the concept parental knowledge of child development. According to Fulton et al. (1991), the KIDS (Fulton, 1995) inventory has a reliability alpha total score of .83, an infancy subscale alpha score of .69, toddler .67, preschool .66, and school-age .64. Content validity of KIDS (Fulton, 1995) was demonstrated by questions covering a wide domain of infant development such as fine motor skills, gross motor skill, social emotional and language development (Fulton et al., 1991) (Appendix D).

This study provided information for HFA-CES giving an understanding of whether all mothers were gaining knowledge of child development as measured by KIDS

inventory total score and subscale scores, and whether the there was a difference between younger and older mothers in their gain in knowledge of infant development.

## Data Collection

To begin data collection, the Institutional Review Board (IRB) (Appendix A) approved procedures prior to any training or administration of instruments. Actual data collection began in October 1997. The program coordinator traveled from the central office to each county site (Beaver, Alfalfa, Canadian, Delaware, Johnston, and some data are from Pottowatomie) to train home visitor staff. Each county site had a Healthy Families America-Cooperative Extension Services (HFA-CES) program established. One-day workshops were held at each site where home visitors and family assessment workers and program managers underwent training for using and scoring of the KIDS (Fulton, 1995) inventory and the demographic form. Each home visitor staff member was given a copy of a resource notebook that contained an explanation of procedures and a copy of the instruments. There was also material provided for staff to take notes during training.

Data collection by home visitors took place during home visits. First, the mothers in the program signed consent forms agreeing to participate in research being conducted (Appendix B). Parents with difficulty reading were assisted by the home visitor.

Instruments were administered at baseline, either before or after the birth of the baby. Consecutive data was collected every six months thereafter until the baby reached eighteen months of age. Once information was gathered from the mothers, the home

visitor took the information back to the county site and an ID number was assigned to each case. The information was entered and stored onto Microsoft Excel files. All individual data forms were kept in a locked cabinet at the county site. Every two months the EXCEL files were copied at the county site and sent to the central office where all files were merged into a master data base. It was this master data base that was used for the present study. The data collected at the county site left the county office only in EXCEL files. The central office did not have any names of subjects, only ID numbers attached to data in the EXCEL file which was assigned shortly after collection at the county site. In 1999, all EXCEL 1997-1999 data was converted to the Statistical Package for the Social Sciences for Windows (SPSS) and analyzed.

## Statistical Analysis

Statistical measures for this research included one-tailed t-test and frequency distributions. Frequency distributions were obtained to gather information on the parents. This was attempted to determine how participants were distributed on different variables and to generate a profile on parents participating in home visitation. The one-tailed t-test was utilized to evaluate the study's three hypotheses. The hypotheses were one-tailed because they looked at change over time. T-tests explore statistically significant differences in means. To obtain change scores in knowledge of child development between baseline and six months, the mother's scores at baseline were subtracted from their scores at six months. From these change scores, the average change (mean) was calculated and used in the t-tests. The t-test determined if the average change was

significantly different than zero. For the change scores a positive score indicated an increase in mothers' knowledge and a negative score indicated a decrease in mothers' knowledge.

## Limitations

1. Due to observations being made at baseline and again at six months, there was the potential that mothers could have moved away or dropped from the program.
2. Due to a small sample size, results may not be generalized for all parent education home visitation programs. However, the sample is representative of all first time mothers enrolled in the Healthy Families America-Cooperative Extension Service program in the six Oklahoma counties under investigation.
3. Due to only six county sites that were used, staff personalities and temperaments could have impacted parental knowledge gained.
4. Due to limited funding, no control and experimental groups were used for comparisons.

## Summary

This study was designed to determine the relationship between home visitation and increased parental knowledge. It also compared younger and older mothers' knowledge of child development. In addition, this study examined the subscales of the KIDS (Fulton, 1995) inventory. The sample included participants in a parent education

home visitation program called Healthy Families America-Cooperative Extension Service. The Knowledge Inventory of Development and Behavior: Infancy to School-age (Fulton, 1995) inventory was utilized to assess parental knowledge of infant development. One-tailed t-tests were utilized to explore the study's hypotheses.

**TABLE I**
**FAMILY INFORMATION FORM**
**DEMOGRAPHIC INFORMATION**

| Age of Parent | Mother | Father |
|---|---|---|
| Mean | 19 years | 23 years |
| Range | 13 years to 36 years | 17 years to 44 years |

| Current Partner of the Mother is the Child's Father | Yes | No | Missing |
|---|---|---|---|
| | 32 | 4 | 12 |

| Current Marital Status | Mother |
|---|---|
| Single and never married | 24 |
| Single and separated | 2 |
| Single and widowed | 1 |
| Married for the first time | 14 |
| Other | 2 |
| Missing responses | 4 |

| Educational Level | Mother | Father |
|---|---|---|
| Less than high school graduate | 19 | 6 |
| GED | 1 | 4 |
| Graduated high school | 10 | 12 |
| Attended college but did not graduate | 7 | 8 |
| Graduated college | 4 | 1 |
| Missing responses | 6 | |

| Employment Status | Mother | Father |
|---|---|---|
| Unemployed, not looking for work | 23 | 3 |
| Unemployed, looking for work | 7 | 3 |
| Working part time (less than 35 hrs/wk) | 3 | 4 |
| Working full time (35 hrs/wk or more) | 4 | 22 |
| Other | 3 | 2 |
| Missing responses | 7 | |

# CHAPTER IV

# RESULTS

## Family Information Form

The descriptive characteristics of the mothers participating in the home visitation program and their partners are presented in Table 1 (See Table 1). Data from forty-seven mothers were examined in this study.

Hypothesis 1: There will be a significant increase in total mothers' knowledge about child development for all mothers participating in the HFA-CES program, as compared at baseline and six months.

Hypothesis 1 was measured by the Knowledge Inventory of Development and Behavior: Infancy to School-age (KIDS) (Fulton, 1995). The relationship between total parental knowledge of child development and participation in the parent education home visitation was determined by utilizing one-tailed t-test analysis. A change score was calculated for the mothers' total knowledge of child development between baseline and six months. This change score was the total score at baseline subtracted from the total score at six months. The average change score for the sample was 2.28. The average change score (mean=2.28) indicates that on average, there was an increase in total mother knowledge of 2.28. Next, a t-test was conducted to determine if the average change score

(mean=2.28) was significantly ($p<.05$) different than zero. The results showed (using a 95% confidence interval) a significant increase (p-value=.021) in mothers knowledge about child development (See Table II). Based on this analysis, hypothesis one was accepted.

Hypothesis 2: There will be a significant increase between all mothers' knowledge of child development subscale scores on the KIDS (Fulton, 1995) inventory when comparing baseline and six months program data.

Hypothesis two was measured by the subscale score of the KIDS (Fulton, 1995) inventory. The relationship between all mothers' knowledge of child development and parent participation in the education home visitation was determined by one-tailed t-test analysis. Change scores were calculated for each subscale by subtracting baseline scores from six month scores. These average change scores for the sample were: [infancy mean=1.60, toddler mean=.319, preschool mean=.617, school-age mean=.553]. This indicated that on average there was an increase in mother knowledge on each subscale. Next, one-tailed t-tests were conducted to determine if the average change score for each subscale was significantly ($p<.05$) different than zero. The results indicated no significant change for parental knowledge of toddlers (p=.180), or preschoolers (p=.064). However, there was a significant increase for infancy (p=.000) and school-age (p=.044) (See Table II). Therefore, hypothesis two is partially accepted

Hypothesis 3: Older mothers will gain more knowledge about infant development than younger mothers between baseline and six months.

Hypothesis 3 was measured by the Knowledge Inventory of Development and Behavior: Infancy to School-age (KIDS) (Fulton, 1995). It was hypothesized that older

mothers would gain more knowledge of child development as compared to younger mothers because older mothers may have had more experience and may have resolved self identity issues that younger mothers (adolescent mothers) are still facing. The relationship between mothers' gain in knowledge of infant development and mothers' age was determined by one-tailed t-test statistical analysis. First, for all mothers, change scores were computed by subtracting baseline scores from six month scores on KIDS (Fulton, 1995) infant development subscale. Then an average change score was calculated each for younger mothers (n=16) (mean=2.25) and older mothers (n=26) (mean=1.42). This average change score indicates that both populations of mothers, younger and older, showed an increase in knowledge of infant development between baseline and six months. Next, the t-test was conducted (with equal variances assumed) to determine if the average change scores for younger mothers was significantly different from the average change score for older mothers ($p<.05$). The results indicated (at a 95% confidence interval) that the increase in younger mothers knowledge was not significantly different from the increase in older mother's knowledge, as measured between baseline and six months ($p=.128$) (See Table II). Therefore, the conclusions from this study reject hypothesis three. From baseline to six months, there was not a significant difference ($p=.128$) in the average increase of mothers' knowledge on infant development between the younger and older mothers.

**TABLE II**
**KNOWLEDGE INVENTORY OF DEVELOPMENT AND BEHAVIOR: INFANCY TO SCHOOL-AGE (KIDS)**

| | Mean | t | p-value |
|---|---|---|---|
| All mothers, Total score (Change between baseline and 6 months) | 2.28 | 2.11 | .021 * |
| All mothers, Subscale scores (Change between baseline and 6 months) | | | |
| Infant | 1.60 | 5.01 | .000 * |
| Toddler | .319 | .927 | .180 |
| Preschool | .617 | 1.55 | .064 |
| School-age | .553 | 1.74 | .044 * |
| Younger mothers, Infant subscale | 2.25 | 1.15 | .128 |
| Older mothers, Infant subscale (Change between baseline and 6 months) | 1.42 | | |

*p<.05

# CHAPTER V

## DISCUSSION

The first major hypothesis stated that there would be a significant increase in total mothers' knowledge about child development for all mothers participating in the HFA-CES program, as compared at baseline and six months. This hypothesis is found to be supported as determined by the analysis. Mothers participating in HFA-CES home visitation programs are gaining knowledge about child development.

The second major research hypothesis stated that there would be a significant increase between all mothers' knowledge of child development subscale score on the KIDS (Fulton, 1995) inventory when comparing baseline and six months program data. Scores on the infancy subscale score indicate that mothers are gaining the most knowledge about infant development ($p=.000$). Scores also indicate mothers are gaining knowledge about school-age children's development. It is hypothesized that school-age scores showed an increase ($p=.044$) because mothers could have been remembering their school-age years. It is also hypothesized the toddler and preschool scores did not show an increase because the mothers were not yet involved in home visitation with children who were of this age (data for this study was collected at baseline, birth of the infant, and when the infant was six months old).

The third major research hypothesis for this research study stated that older mothers would gain more knowledge about infant development than younger mothers between baseline and six months. Hypothesis three was rejected because there was no evidence to support that older mothers were gaining more knowledge about infant development than younger mothers.

## Conclusions and Recommendations

It was concluded from this study that home visitation does impact children and their families. Mothers were gaining more knowledge about child development, especially infant and school-age development, as a result of home visitation. With this gain in knowledge it is hoped that in the future child abuse and neglect statistics will decline and home visitation programs will thrive.

This study showed that positive effects are present as a result of home visitation. Home visitation should be comprehensive in the care for children and their families. It should have the goal to combine education and support in nutrition and health, developmental issues, home environment, parent support, and contacts with community resources. Programs also seem to provide the best care to families if programming is such that professionals, paraprofessionals, and nurses are all participants in the home visitation. Each profession adds a different aspect and important factor into the lives of at-risk children and their families. They should combine their efforts to provide the best comprehensive care. Not only should home visitation programs provide comprehensive care with professionals, paraprofessionals, and nurses but constantly be researching and

evaluating what is being done. Research conducted on programs shows they are constantly being changed to meet the needs of the families.

Recommendations for future practice are that home visitation does work. As mentioned before, future programs being developed or existing programs must collaborate together in order to provide the best services to at-risk families. Home visitation would be even more successful if professionals from the health community (nurses and physicians), social/child development community (professionals), and those willing to help who have training and experience (paraprofessionals) would combine their efforts in reaching at-risk families. In the future an increase in the number of subjects should be done. A larger number of participants in a study would mean more generalizable data. Further development of programming for fathers is needed so that data can be collected and analyzed. This would help increase the number of father participants in the program if programming was aimed at the father population as well. Finally, There should be an increase in research funding to obtain a comparison group. By having a comparison group there would be a clearer definition of how home visitation was affecting mothers' gain in knowledge as compared to a group of mothers with the same demographic characteristics.

## Summary

In summary, this study contributed to the existing body of knowledge by providing data on home visitation. Mothers' are gaining knowledge in child

development, and even more evident, new mothers' are gaining knowledge of infant development as a result of home visitation.

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# APPENDIX A

## OKLAHOMA STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD HUMAN SUBJECTS REVIEW

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

**Date: 07-17-97** **IRB #:HE-98-004A**

**Proposal Title: HEALTHY FAMILIES POTTAWATOMIE**

**Principal Investigator(s):** Jo Robertson, Arlene Fulton

**Reviewed and Processed as:** Modification and Continuation

**Approval Status Recommended by Reviewer(s):** Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING THE APPROVAL PERIOD.
APPROVAL STATUS PERIOD VALID FOR DATA COLLECTION FOR A ONE CALENDAR YEAR PERIOD AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

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**Comments, Modifications/Conditions for Approval or Disapproval are as follows:**

Signature: Thomas C. Collins Date: July 8, 1998

Interim Chair of Institutional Review Board
and Vice President for Research

Oklahoma Cooperative Extension Service
Division of Agricultural Sciences and Natural Resources
Oklahoma State University

FAMILY AND CONSUMER SCIENCES • FAMILY RELATIONS AND CHILD DEVELOPMENT
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## MEMORANDUM

TO: Gay Clarkson
OSU IRB Office (203 Whitehurst)

FROM: Dr. Arlene Fulton Arlene Fulton

DATE: 1/15/99

RE: IRB #HE-97-033

This is a request for continuation of "Healthy Families America OSU Cooperative Extension Program," expiring on April 2, 1999. We expect to continue to collect and analyze data as described in the IRB proposal submitted to your office last year. No changes have been made in the protocols or methods. We have added one additional county site, that being Lincoln County. This new site will follow the same programming and data collection protocols as described in the original application.

Please let me know should additional information be needed.

Oklahoma Cooperative Extension Service
Division of Agricultural Sciences and Natural Resources
Oklahoma State University

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Please let me know should additional information be needed.

# APPENDIX B

# CONSENT FORMS

# PROGRAM PARTICIPATION
# CONSENT FORM

I (we), _____ am (are) interested in having a Healthy Families Program family support worker contact me (us). I understand that this person will provide me with assistance as needed, to the best of their ability.

I understand that participation is voluntary, that there is no penalty for refusal to participate. I also understand that I am free to withdraw my consent and participation at any time through notifying the program coordinator; otherwise, this consent will remain in effect for the duration of services. I may contact Arlene Fulton or Jo Robertson at (405) 744-6231. I may also contact Gay Clarkson, IRB Executive Secretary, 305 Whitehurst, OSU, Stillwater, OK 74078.

Signed_____ Date_____

Signed_____ Date_____

Family Support Worker_____ Date_____

# CONSENT FORM
# FOR PROGRAM EVALUATION

I agree to participate with my child in the County Healthy Families Program and to provide information as necessary for the evaluation of the program. Evaluations may include questionnaires, and/or interviews. I understand that only an identification number, not my name, will appear on the program forms. All information provided will be placed in a group file, with no individual's responses singled out and reviewed on a person by person basis.

I understand that participation is voluntary, that there is no penalty for refusal to participate. I also understand that I am free to withdraw my consent and participation at any time by my written request to the program coordinator; otherwise, this consent will remain in effect for the duration of services. I may contact Arlene Fulton or Jo Robertson at (405) 744-6231. I may also contact Gay Clarkson, IRB Executive Secretary, 305 Whitehurst, OSU, Stillwater, OK 74078.

Signed_____ Date_____

Signed_____ Date_____

Family Support Worker_____ Date_____

## CONFIDENTIALITY POLICY

**How do we keep information about you confidential?**

- Records are kept in a locked file.
- Records cannot be removed from office areas unless they are signed out for a specific purpose.
- Information is shared only on a need-to-know basis with appropriate staff, consultants, and other professionals.
- Only your identification number, not your name, appears on shared papers. All information you provide will be placed in a group file, with no individual's responses singled out and reviewed on a person by person basis.

**Who can see you records?**

- **Appropriate** staff members of Healthy Families in my county.
- **Consultants & other professionals** on a need-to-know basis.
- **You** can see your own records, but not those of others.

**How do we use your confidential information?**

- To assess the needs of you and your child(ren) in areas of health, social services and education or training.
- To make reports to our funders.
- To work cooperatively, on your behalf, with other agencies (you will sign consent forms to allow this exchange of information with health professionals, consultants, etc.).
- To evaluate program effectiveness.

**Are there times when we would share information about you without your permission?**

- If we have reason to believe any child is being abused or neglected, we are required by law to report it to the Department of Human Services.
- You will be informed before any such report is made, except in a life-threatening emergency.
- Such reports are made so families will receive the assistance they need to help keep their children healthy and safe.

I understand that participation is voluntary and that I may withdraw from this program after notifying the project coordinator. I may contact Arlene Fulton or Jo Robertson at (405) 744-6231. I may also contact Gay Clarkson, IRB Executive Secretary, 305 Whitehurst, OSU, Stillwater, OK 74078

Parent/Guardian Signature:_____ Date:_____
Parent/Guardian Signature:_____ Date:_____
Family Support Worker:_____ Date:_____

## AUTHORIZATION TO OBTAIN OR RELEASE INFORMATION

Permission is hereby granted to the County Healthy Families Program to obtain or release information concerning myself and my family to the below-named agencies and individuals.

1. OB-GYN_____
2. Pediatrician_____
3. Housing Authority_____
4. Department of Human Services_____
5. County Health Department_____
6. Other_____

I understand that participation is voluntary and that I may withdraw from this program after notifying the project coordinator. I may contact Arlene Fulton or Jo Robertson at (405) 744-6231. I may also contact Gay Clarkson, IRB Executive Secretary, 305 Whitehurst, OSU, Stillwater, OK 74078

Signed _____ Date_____

Signed_____ Date_____

Family Support Worker_____ Date_____

## FAMILY'S RIGHTS POLICY

Healthy Families in my county shall ensure that the following policies and procedures are provided so that family's rights are protected in accordance with Federal and State requirements:

- The right to services that respect your personal liberty
- The right to an individualized, written service plan (to be developed upon program entry), periodic review and re-assessment of needs and appropriate revisions of the plan.
- The right to ongoing participation in the planning of services to be provided and in the development and periodic revision of the services plan.
- The right to refuse service.
- The right to confidentiality of records.
- The right to access, upon request, one's own records.
- The right to referral, as appropriate, to other provider's services at any time, including upon discharge from program.

I understand that participation is voluntary and that I may withdraw from this program after notifying the project coordinator. I may contact Arlene Fulton or Jo Robertson at (405) 744-6231. I may also contact Gay Clarkson, IRB Executive Secretary, 305 Whitehurst, OSU, Stillwater, OK 74078

Parent/Guardian Signature:_____ Date:_____

Parent/Guardian Signature:_____ Date:_____

Family Support Worker:_____ Date:_____

# APPENDIX C

## FAMILY INFORMATION FORMS: MOTHER AND PARTNER

Parent ID#_____ Date:_____ FSW:_____

## FAMILY INFORMATION FORM
## A. MOTHER

1. How old are you? (in whole years)_____ 2. What is your birthdate?:___/__/__
Mo/day/year

3. Are you currently pregnant?
   a. Yes (specify due date):_____
   b. No
   c. Not sure

4. What is your current marital status? (CIRCLE ONE ONLY)
   a. Single & never married
   b. Singe & separated
   c. Single & divorced
   d. Single & widowed
   e. Married for the first time
   f. Remarried
   g. Other:_____

5. How many ADULTS (NOT counting yourself) live in your home?_____

6. Which of the following **ADULTS** are living with you?(CIRCLE ALL THAT APPLY)
   a. No other adults
   b. my mother (baby's grandmother)
   c. my father (baby's grandfather)
   d. my adult sister(s)
   e. my adult brother(s)
   f. my spouse or partner
   g. partner's mother
   h. partner's father
   i. Partner's adult sister(s)
   j. partner's adult brother(s)
   k. other relative(s):_____
   l. other non-relative(s):_____

7. From oldest to youngest, write in the age (or birthdate if less than 1 year) of each child who lives in your household. Circle the sex of the child and your relationship to the child.

| **AGE** | **Child's Sex (Circle)** | **Your relationship to Child:** |
|---|---|---|
| Child 1:_____ | Male/Female | Mother Aunt Sister Other_____ |
| Child 2:_____ | Male/Female | Mother Aunt Sister Other_____ |
| Child 3:_____ | Male/Female | Mother Aunt Sister Other_____ |
| Child 4:_____ | Male/Female | Mother Aunt Sister Other_____ |
| Child 5:_____ | Male/Female | Mother Aunt Sister Other_____ |
| Child 6:_____ | Male/Female | Mother Aunt Sister Other_____ |
| Child 7:_____ | Male/Female | Mother Aunt Sister Other_____ |
| Child 8:_____ | Male/Female | Mother Aunt Sister Other_____ |

8. a. How long have you lived in your current hoem?YEARS:_____ MONTHS:_____

   b. How many times have you moved in the past 6 months?_____

9. How many rooms are there in you home (not counting bathrooms, hallways, or closets):_____

10. Which of the following best describes your current living arrangements?
    a. I own my home
    b. I rent my home
    c. I am a guest in someone else's home (not paying rent)
    d. I live with my family
    e. I live in a foster home
    f. I live in a shelter or group home
    g. Other:_____

11. Are you attending school now? (CIRCLE ONE ONLY)
    a. Yes, I am currently enrolled in school (where?_____)
    b. No, but I am planning to enroll (when?_____what program?_____)
    c. No, I am not currently enrolled
    d. No, I have completed my schooling

12. What is the highest level of education you have completed: (CIRCLE ONE ONLY)
    a. Less than High School graduate, specify grade completed:_____
    b. GED
    c. Graduated High School
    d. Attended college but did not graduate
    e. Graduated college

13. What is your employment status: (CIRCLE ONE)
    a. Unemployed, not looking for work
    b. Unemployed, looking for work
    c. Working part time (less than 35 hours per week)
    d. Working full time (35 hours per week or more)
    e. Other (specify:_____)

14. What is your total annual household income: (_Check here if only your income is given)

| | | |
|---|---|---|
| a. under $5,000 | c. $10,000 to $14,999 | e. over $20,000 |
| b. $5,000 to $9,999 | d. $15,000 to $19,999 | f. not known |

15. What type of health insurance do you have?
    a. Medicaid
    b. HMO
    c. Private carrier
    d. No insurance
    e. Other:_____

16. Please circle all the following you currently receive:
    a. AFDC
    b. WIC
    c. Food stamps
    d. Medicaid
    e. Housing Assistance
    f. Energy Assistance
    g. Social Security
    h. Unemployment payment
    i. School breakfast or lunch (free or reduced)
    j. Other:_____

17. What language do you speak in your home? (CIRCLE ONE):
    a. English only
    b. English mostly (What other language?)_____
    c. Both English and another language equally (What other language?)_____
    d. Another language mostly, some English (What other language?)_____
    e. Another language only (What other language?)_____

18. What is your **primary** racial/ethnic identity: (CIRCLE ONE ONLY)
    a. Native American (spcify Tribe or Nation):_____
    b. Asian-American
    c. African-American
    d. Hispanic/Latino(a)
    e. White
    f. Other (specify):_____
    g. Mixed (specify):_____
    h. Not known

19. What services have you used **in the past six months**? Do NOT include Healthy Families services. (Mark one box for each type of service)

| **Type of Service** | **Have used** | **Now use** | **Interested** | **NOT interested** |
|---|---|---|---|---|
| a. Medical services for you and your child (including family planning, well baby care, emergency care, etc.) | | | | |
| b. Public Health | | | | |
| c. Nutrition information | | | | |
| d. Parenting or Child Care Classes | | | | |
| e. Parent Support Group | | | | |
| f. Adult Education Programs (GED, college) | | | | |
| g. Employment Programs (job training, employment agencies) | | | | |
| h. Domestic Violence assistence | | | | |
| i. Drug/alcohol Treatment (Individual or Group) | | | | |
| j. Mental health/couseling | | | | |
| k. Transportation assistance | | | | |

| | | | | |
|---|---|---|---|---|
| l. Material goods such as food, clothing, toys, furnishings | | | | |
| m. Emergency child care | | | | |
| n. Head Start, nursery school, remedial education (for child) | | | | |
| o. Child Protective Services | | | | |
| p. Other (specify): | | | | |

Parent ID #_____ Date:_____ FSW:_____

## FAMILY INFORMATION FORM
## B. PARTNER

1. Is mom's current partner the father of the target child? YES NO

2. Partner's Age:_____ Partner and Mom Married? YES NO

3. Partner's Marital Status:_____

4. Partner's primary racial/ethnic identity: (CIRCLE ONE ONLY)
   a. Native America (specify Tribe or Nation):_____
   b. Asian-American
   c. African-American
   d. Hispanic/Latino(a)
   e. White
   f. Other (specify):_____
   g. Mixed (specify):_____
   h. Not known

5. Is partner attending school now? (CIRCLE ONE ONLY)
   a. Yes, currently enrolled in school (where?_____)
   b. No, but planning to enroll (when?_____what program?_____)
   c. No, not currently enrolled
   d. No, completed schooling
   e. Unknown

6. What is the highest level of education partner has completed: (CIRCLE ONE ONLY)
   a. Less than High School graduate, specify grade completed:_____
   b. GED
   c. Graduated High School
   d. Attended college but did not graduate
   e. Graduated college
   f. Unknown

7. What is partner's employment status: (CIRCLE ONE)
   a. Unemployed, not looking for work
   b. Unemployed, looking for work
   c. Working part time (less than 35 hours per week)
   d. Working full time (35 hours per week or more)
   e. Other (specify:_____)
   f. Unknown

# APPENDIX D

## KNOWLEDGE INVENTORY OF DEVELOPMENT AND BEHAVIOR: INFANCY TO SCHOOL-AGE

# KIDS

(Knowledge Inventory of Development and Behavior:
Infancy to School-age)

**INSTRUCTIONS: KIDS** describes the characteristics of children at different ages. Think about the age you would expect a child to be when he or she first shows the behavior described. Use this key when thinking about your answers:

**I** = Infancy (birth to 12 months) **P** = Preschooler (3 through 5 years)
**T** = Toddler (1 and 2 year olds) **S** = School-age (6 through 12 years)

Circle the age to the right which you think *MOST* children are at when they *First* show the behavior described.

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***At which age would you first expect most children to***

| | | | | | |
|---|---|---|---|---|---|
| 1. | cut most of their permanent teeth | I | T | P | S |
| 2. | boast or brag about what they can do | I | T | P | S |
| 3. | feed themselves with a spoon | I | T | P | S |
| 4. | attempt to imitate sounds made by people | I | T | P | S |
| 5. | identify and name basic shapes (circle, square, etc.) | I | T | P | S |
| 6. | like being played with, talked to and held | I | T | P | S |
| 7. | play games that require following rules and taking turns (checkers, monopoly, team sports, etc.) | I | T | P | S |
| 8. | pull themselves to a standing position | I | T | P | S |
| 9. | use scissors to cut paper | I | T | P | S |
| 10. | use the toilet with *little* adult assistance | I | T | P | S |
| 11. | be able to pick up small objects (raisins, beads, dimes, etc.) | I | T | P | S |
| 12. | enjoy pushing large objects, such as boxes, across the floor | I | T | P | S |
| 13. | want to play almost exclusively with children their own sex | I | T | P | S |
| 14. | hold and drink from their own cup or glass | I | T | P | S |
| 15. | want to do things by themselves even though they aren't yet capable of doing the task on their own | I | T | P | S |
| 16. | develop an interest in collections and clubs | I | T | P | S |
| 17. | learn to ride a bicycle (two wheeler without training wheels) | I | T | P | S |
| 18. | point to their nose when asked to do so | I | T | P | S |
| 19. | know that they are a boy or a girl | I | T | P | S |
| 20. | imitate grownup roles in their play (firefighter, teacher, etc.) | I | T | P | S |
| 21. | practice simple skills with objects (dropping and throwing, opening and closing, putting together and taking apart, etc.) | I | T | P | S |

I = Infancy (birth to 12 months) P = Preschooler (3 through 5 years)
T = Toddler (1 and 2 year olds) S = School-age (6 through 12 years)

***At which age would you first expect most children to***

| | | | | | |
|---|---|---|---|---|---|
| 22. | enjoy playing near other children even though they have difficulty with cooperating and sharing | I | T | P | S |
| 23. | enjoy telling jokes and riddles | I | T | P | S |
| 24. | *usually* understand what is being said to them even though they don't always do as requested | I | T | P | S |
| 25. | develop the skills needed to play ordinary games (ball, hopscotch, tag, jump rope, etc.) | I | T | P | S |
| 26. | touch, handle and taste everything within reach | I | T | P | S |
| 27. | be concerned about what others think of them | I | T | P | S |
| 28. | hop on one foot | I | T | P | S |
| 29. | have strong feelings about being treated fair | I | T | P | S |
| 30. | run to adults with complaints about other children | I | T | P | S |
| 31. | show fear or cry when a stranger approaches | I | T | P | S |
| 32. | put two or three words together in a sentence | I | T | P | S |
| 33. | be concerned with gaining approval from their friends | I | T | P | S |
| 34. | cut their first tooth | I | T | P | S |
| 35. | scribble when given a crayon or pencil | I | T | P | S |
| 36. | cry or be startled by strange objects or loud sounds and voices | I | T | P | S |
| 37. | do craft work with tools that require some skill and manipulation (making potholders, needlework, model airplanes, etc.) | I | T | P | S |
| 38. | pick out the larger of two circles when asked, "which is bigger?" | I | T | P | S |
| 39. | identify and name pictures of familiar objects (ball, truck, doll, etc. ) | I | T | P | S |
| 40. | object when mother leaves and squeal with joy when she returns | I | T | P | S |
| 41. | be eager to help around the house | I | T | P | S |
| 42. | sit alone | I | T | P | S |
| 43. | sleep through most nights without wetting | I | T | P | S |
| 44. | recognize and respond to familiar people (mother, father, sister, brother, etc.) | I | T | P | S |
| 45. | be able to cooperate and share with other children as they play | I | T | P | S |
| 46. | frequently say "NO!" to questions or requests | I | T | P | S |
| 47. | imitate simple movements such as clapping hands | I | T | P | S |
| 48. | understand that 10 pennies is the same as one dime | I | T | P | S |

VITA

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Candidate for the Degree of

Master of Science

Thesis. AN EXAMINATION OF KNOWLEDGE GAINED BY MOTHERS ENROLLED IN A HOME VISIATION PROGRAM FOR SIX MONTHS

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