

The Effects of the Healthy Families America Home Visitation Program on Parenting Attitudes and Practices and Child Social and Emotional Competence

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Abstract This study examined the effects of a Healthy Families America (HFA) credentialed home visitation program on the parenting attitudes and practices of a sample of at-risk parents. It also examined the social and emotional competence of children whose parents successfully completed the program. The HFA model is an intensive early intervention program that targets at-risk families through home visitation services. Successful completion of the program is a process that takes between 3 and 5 years. Results indicate that, relative to the baseline, parents who completed the program showed significant positive change in parenting attitudes and practices. In addition, relative to other children their age, the children of families who successfully completed the program exhibited significantly higher levels of performance on measures of social and emotional competence.

Keywords Child maltreatment prevention · Home visitation · Parenting skills · Child development

Introduction

Leeb et al. (2007) defined child maltreatment as “any act or series of acts of commission or omission by a parent or other caregiver that results in harm, potential for harm, or threat of harm to a child” (p. 11). Using this definition, the most recent data from the U.S. Department of Health and Human Services (USDHHS) indicate that, annually, there are more than 800,000 cases of child maltreatment involving 1.5 million children in the United States (USDHHS 2009). Since this figure only reflects substantiated cases, it does not include what experts agree is a large number

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of cases in which children's unhealthy living conditions go unreported or, if reported, unverified by authorities. It, nonetheless, supports the conclusion that a considerable number of children in this country live in conditions that have been associated with a host of negative physical, social, and mental health outcomes (Egeland et al. 2002; Pianta et al. 1989).

Specifically, child maltreatment has been found to create conditions that result in developmental challenges among children who are the victims of abuse and neglect. When caregivers are neglectful, children compensate by using emotional responses (e.g., crying, clinging, and attention-seeking) to receive reassurance and to alleviate chronic distress (Main and Hesse 1990; Sroufe 1990). When caregivers are abusive, they become sources of both fear and reassurance, evoking emotional responses in children that are a mixture of comfort-seeking and avoidance. These conditions result in interpersonal patterns that are disorganized, fragmented, and conflicted. Consequently, children reared under these circumstances have been found to struggle with such essential interpersonal skills as the ability to authentically label and communicate emotions, read social situations, and control impulses (Carlson 1998; Crittenden 1992). They also struggle with chronic insecurity; i.e., a view of others as unpredictable, themselves as unworthy and incompetent, and relationships as unfulfilling (Cicchetti et al. 1995). Children who operate from such a framework are less likely to engage positively with others, form mutually satisfying bonds, or become socially competent adults (Bowlby 1982; Cicchetti et al. 1995; Styron and Janoff-Bulman 1997). Support for these conclusions can be found in the robust body of research that has found that individuals who experience maltreatment in childhood are at significantly greater risk for the development of psychopathology (Alexander et al. 1998; Crittenden 1995; McLewin and Muller 2006; Muller and Lemieux 2000; Roche et al. 1999).

Early intervention programs that address the core mechanisms of child abuse and neglect may be an effective means of preventing these negative outcomes. This investigation will examine the effects of one such program: the Healthy Families America (HFA) home-based child maltreatment prevention initiative. It will begin with a discussion of the HFA model, including its essential treatment components and current evidence base. It will then examine the effects of a specific HFA program on two key outcome variables: (a) Parenting attitudes and practices and (b) Child social and emotional competence.

Review of the Literature

Overview of the HFA Model

The HFA model is used by home visitation programs to provide services to new and expectant at-risk parents at over 400 sites around the country. The overall goals of the program are to promote positive parenting, enhance child health and development, and prevent child maltreatment (Diaz et al. 2004). HFA is not a strict replication model. Instead, it is based on a set of 12 critical elements that guide program development, yet offer sites the option of tailoring program operations to

suit local needs and interests. The critical elements of the HFA model are as follows (Frankel et al. 2000):

1. Intervening early to facilitate warm, secure and nurturing child/caregiver relationships.
2. Using standardized assessments to identify families who are most in need of services.
3. Relying on voluntary participation and trust-building to engage and retain families.
4. Offering intensive services entailing weekly home visits for minimally the first 6 months after the birth of the baby and then tapering off to a leaner schedule and lasting for a period of 3–5 years.
5. Assuring that services are respectful of differences in cultural values and tradition.
6. Focusing services on three areas: (a) Stress reduction; (b) Positive parent–child interaction; and, (c) Stimulating child social, cognitive, and physical development.
7. Linking all families to appropriate services in the community.
8. Maintaining limited caseloads so that practitioners can devote sufficient time to meeting the unique and varying needs of each family.
9. Selecting service providers based primarily upon personal qualities, openness to cultural diversity, and skills for performing key job functions.
10. Giving home visitors a sound professional framework that includes knowledge of cultural differences, infant and child development, mandated reporting, domestic violence, mental health conditions, substance abuse issues, and community resources.
11. Providing home visitors with intensive training specific to their role, including principles of (a) family assessment and home visitation, (b) preventive health care and home safety, (c) trust building with consumers, (d) individualized family support plans, (e) behavioral observation, (f) basic teaching skills, and (g) crisis intervention skills.
12. Providing home visitors with ongoing, effective supervision.

The HFA model is based on a theoretical framework that draws from Attachment Theory (Bowlby 1982), the Ecological perspective (Bronfenbrenner 1979), and Constructivist views of child maltreatment (Watzlawick 1990). From the viewpoint of Attachment Theory—the essential tenet of which is that healthy social and emotional development depends on a strong, intimate relationship between child and primary caregiver—HFA derives its assumption that the inter-generational transmission of attachment insecurity is the core mechanism responsible for the cycle of abuse and neglect (Cicchetti and Rizley 1981; Cicchetti et al. 1995; Crittenden 1995, 2006; Crittenden et al. 2000; Fish 1993; Fonagy et al. 1995; Main and Hesse 1990; Moncher 1996; Styron and Janoff-Bulman 1997). From the Ecological perspective, which assumes that healthy social and emotional development depends upon productive and complimentary interactions between nested environmental systems, HFA derives its assumption that effective child rearing is facilitated by supportive systems that include good parenting partnerships and

strong social networks (Belsky 1980; Runtz and Schallow 1997; Werner 1993). Furthermore, from the Constructivist perspective, which is rooted in the belief that people create their own realities rather than find them ready-made in the outside world, HFA derives its assumption that meaningful knowledge is actively constructed by the learner, not passively transmitted by the teacher. This assumption includes the caveat that values and interests are important drivers of behavior (McPhee and Bronstein 2002).

Regarding attachment and bonding, HFA home visitors teach care-givers what Helfer (1987) described as the ability to “speak sensory;” i.e., to integrate sensory feedback such as hugging, cuddling, affectionate sounds and facial expressions, singing, soothing, and rocking into their day-to-day interactions with their children. In addition, parents are taught to deepen the parent–child bond through developmental activities such as reading and playing games. These activities also serve the purpose of developing children’s gross and fine motor skills, social skills, and cognitive abilities (Frankel et al. 2000).

With regard to ecological interventions, the HFA model is designed to assist caregivers with the tasks of creating safe, nurturing home environments and developing partner and extended family support. According to Frankel et al. (2000), these tasks include developing: (a) health risk assessment and intervention plans (i.e., procedures that identify home safety hazards and educate parents regarding proper health care and supervision for their children) and (b) psychosocial risk assessment and intervention plans (i.e., procedures that identify and seek treatment for unhealthy living conditions such as spousal/partner conflict, domestic violence, substance abuse, and mental illness). In the interest of building a supportive partner system, HFA interventions are directed at both the primary caregiver and the spouse or partner whenever possible. In addition, in light of the robust body of research that encourages the cultivation of protective networks of support around families at-risk for maltreatment, the HFA model places a strong emphasis on linking clients with healthcare, child development assistance, and social services (Egeland 1997; Egeland et al. 1993; Frankel et al. 2000; Runtz and Schallow 1997; Werner 1993).

In applying constructivist principles, HFA practitioners use active learning approaches such as direct instruction, modeling, observation and feedback to facilitate healthy caregiver-child interactions. In addition, voluntary participation and client-centered planning are used to assure that treatment plans are consistent with care-givers’ values and interests. Furthermore, HFA facilitates access to mental health care and supportive services that assist caregivers with the critically important task of assimilating their own histories of abuse and/or neglect. This process has been described by many as essential to the task of increasing caregivers’ resilience to adversity and enabling them to bond with their children more effectively (Cicchetti et al. 1993; Egeland et al. 1993; Farnfield 2008; Luthar et al. 2000). Furthermore, Wekerle and Wolfe (1998) indicate that this component is essential to improving caregivers’ empathy, sensitivity and protective instincts. Also within the constructivist framework are HFA components designed to build social and interpersonal skills that have been shown to deter child maltreatment and positively shape clients’ templates for relationships with others. Specifically, the HFA model provides clients with assistance in the areas of communication, social,

coping, and behavior management skills (Bavolek and Keene 1999; Bretherton 1996; Chaffin et al. 2004; Crittenden et al. 2000; Gershater-Molko et al. 2002; Kolko 1998; Main 1995; Miller-Perrin and Perrin 1999; Moncher 1996).

By synthesizing key perspectives on child maltreatment, HFA achieves what Farnfield (2008) described as a comprehensive, multi-faceted intervention approach. To implement this approach, HFA uses a home visitation model staffed by rigorously trained home visitors generally referred to as Family Support Workers (FSWs). Families served by FSWs are referred by community social service and child welfare agencies (e.g., hospitals, physicians, public health clinics, child development clinics, and county social service departments) based on psychosocial risk factors identified through screening assessments administered during pregnancy or at birth (Frankel et al. 2000). Home visitation with referred families usually begins prenatally or at birth, when caregivers are most open to information and assistance, and is designed to continue for 3–5 years. The extended nature of the HFA model encourages the development of a strong, trusting caregiver-visitor relationship. One of the essential purposes of this relationship is to provide clients with opportunities to revise their working models of attachment and, as a result, establish a foundation for more functional bonds with their children, spouses or partners, and others in their wider social networks (Rutter and O'Connor 1999; Sroufe et al. 1999). These improved attachments may be the most effective tool available for breaking the cycle of inter-generational transference of child maltreatment. (Cozzarelli et al. 2003; Mikulincer et al. 2002; Weinfeld et al. 2004).

Evidence Base for HFA

Clinical trials of the HFA model have produced mixed results. Encouraging findings were reported by Daro et al. (2007), Dumont et al. (2006), and Mitchell-Herzfeld et al. (2005). The results of these studies are summarized in Table 1.

Table 1 Studies of HFA programs that found positive treatment effects

Study	Scope	Findings
Daro et al. (2007)	Large-scale, multi-site investigation of the model	Relative to other home visitation programs, HFA was effective at: (a) Involving families in service planning; (b) Offering specific training to home visitors; (c) Encouraging a satisfying relationship between clients and home visitors; and (d) Engaging caregivers in high-risk communities.
DuMont et al. (2006)	Healthy Families New York (HFNY) program	Relative to controls, HFNY mothers reported committing fewer acts of abuse and neglect during their children's first 2 years of life. However, positive program impacts noted in the first year diminished to insignificance by the end of year two.
Mitchell-Herzfeld et al. (2005)	Healthy Families New York (HFNY) program	Relative to controls, participants exhibited lower rates of depression and more positive parenting attitudes. Children had significantly higher birth weights and were more likely to receive essential services.

However, less encouraging were the results of a multi-site trial completed by Duggan et al. (2004). This investigation of the Hawaii Healthy Start program followed participants and a control group over a 3 year period with fairly low attrition. Results revealed weak or no effects on all major outcomes. Based on these findings, the authors concluded that there was little evidence that the program was effective in preventing child maltreatment.

In the most comprehensive critical review of the research on the HFA model to date, Harding et al. (2008) analyzed 33 empirical studies of the effectiveness of HFA, including 15 that involved a control or comparison group. In the domain of child health and development, the authors concluded that HFA showed: (a) consistent positive effects on birth outcomes (e.g., low birth weight and birth complications) and breastfeeding, (b) some evidence for program benefits in the area of children's cognitive development, (c) mixed results on rates of well-child visits, and (d) little or no evidence for positive effects on immunization rates or linkages to healthcare providers.

In the domains of parenting and maternal life course, Harding and colleagues found mixed results. In particular, participants in HFA programs, when compared to controls, showed significant growth in positive parenting attitudes and patterns of parent-child interaction. In addition, they note that the model has been associated with modest impacts on rates of maternal depression and repeat pregnancy. However, the authors found minimal support for significant effects on a range of maternal life course outcomes including economic self-sufficiency, social support, domestic violence, and substance abuse.

Finally, regarding maltreatment indicators, Harding et al. focused on studies that used parent reports of maltreatment as a dependent variable. Their rationale for this decision was the conclusion of Olds et al. (1995) that official statistics on child abuse among families that participate in prevention programs may be tainted by surveillance bias. When these indicators were used, Harding and colleagues found that HFA programs showed modest benefits in clinical trials, particularly in the areas of psychological aggression and neglect.

Critique of the HFA Evidence Base

What should be readily apparent from this review of the literature on HFA is that the findings of research on the effectiveness of the model have been rather inconsistent. Reviewers of the evidence base have noted these inconsistencies and offered explanations for them. Specifically, Harding et al. (2004) contend that, because HFA is not a strict replication model, there is tremendous variability in site implementation. For example, their review of HFA programs across the country found significant disparities in the areas of service intensity, target population, service initiation point, and curriculum content. Sites were also found to differ markedly in how they interpret program goals and intervention strategies. In addition, Harding et al. (2008) speculate that HFA outcomes may vary as a function of program quality. This hypothesis is based on the fact that many of the studies included in the evidence base for the HFA model were done on sites that had not completed the HFA credentialing process prior to the onset of the study. Without the

assurance of credentialing, there is far less confidence that treatment was implemented with fidelity across programs.

Beyond issues of program implementation and quality, Harding et al. (2004) describe an important confounding variable in many of the studies conducted on the HFA model. Specifically, they found that median family risk level, a salient factor in determining program outcomes, varied markedly from one HFA site to another. In addition, the Coalition for Evidence-Based Policy (2009), a nonpartisan, nonprofit research and advocacy organization described the evidence base for the HFA model as plagued by flawed claims of effectiveness based on (a) selective reports of a small number of positive findings, (b) effects that are not statistically significant, and (c) effects that are short-term and found to be insignificant in subsequent follow-ups. These criticisms suggest that future inquiry into the effectiveness of the HFA model should provide a balanced presentation of results, have a longer term focus, and adhere to conventional standards of statistical significance when describing program benefits.

Finally, the present authors have noted some significant gaps in the evidence base for HFA. These gaps pertain to the context and range of outcome indicators used by most investigations of the effectiveness of the HFA model. Specifically, in terms of context, most studies of HFA have focused on urban settings or state-wide networks that include a mix of urban, suburban, and rural communities. Indeed, the only published study of the effectiveness of HFA that focused exclusively on rural/small town communities was completed by Whipple and Nathans (2005). This investigation found positive effects for HFA in concrete areas such as birth weight, breastfeeding, and material support for families. The model was, however, judged to be ineffective at facilitating change in more abstract domains such as caregiver-child attachment and beliefs and attitudes on parenting. The authors concluded by questioning the value of HFA's emphasis on outreach to remote rural areas. If this conclusion is to guide implementation efforts in rural communities, validation from additional research would be essential.

With regard to outcome indicators, most investigations of the effects of the HFA model have examined indicators of child and maternal health and welfare, parenting attitudes, parent-child interaction, and/or child cognitive development. To build the evidence base for the model, it would be beneficial for these results to be replicated and/or extended into broader discussions of parenting and child development. Specifically, in the domain of parenting, research on HFA would benefit from a more focused discussion of the effects of the model on parenting attitudes and practices that have been shown to predict child maltreatment. In addition, there is a dearth of research on the effects of HFA across multiple domains of child development. Of particular benefit would be an examination of the effects of the HFA model on the crucial domain of child social and emotional competence.

To address these gaps in the evidence base, this investigation will address the need for research that (a) has a long term focus, (b) uses sites that have been rigorously implemented, and (c) adheres to high standards of statistical significance when describing program effects. In addition, it will replicate efforts to examine program effects on parenting skills while extending this discussion to include parental attitudes and practices that predict maltreatment. Finally, it will investigate

the effectiveness of the HFA model on (a) a sample of individuals drawn exclusively from small towns and rural settings and (b) outcome measures that assess child social and emotional competence.

Methods

This study is based upon an analysis of clinical data from an HFA credentialed program based in rural Western North Carolina. The following narrative will describe the participants, treatment model, research design, sampling, instrumentation, and data analysis procedures that support the defensibility of this investigation and inspire confidence in its results.

Participants

Of the 201 families enrolled in the program between July 1, 2000 and June 30, 2008, 116 (58%) met HFA minimum engagement criteria defined as participation in 75% or more of scheduled home visits over the first 6 months of intervention. Of the 116 engaged families, 55(47%) graduated from the program during the study period. Of the 61 families that did not graduate, 18 (16%) withdrew from services prematurely and 43 others (37%) were still actively engaged at the time of this inquiry. These data indicate an overall retention rate of approximately 84% among engaged families. Periods of involvement for graduates of the program ranged from 2.5 to 5 years ($M = 3.5$ years, $SD = 9$ months).

Demographic data on the 64 individual participants (55 families) included in this investigation are profiled in Table 2. Highlights of these data include that the sample for this study was predominantly white (78%), under-resourced (i.e., eligible for one or more forms of public assistance such as food stamps, Aid for Families with Dependent Children [AFDC], or Medicaid) (100%), and English speaking (96%). In addition, the majority of participants were teenagers (73%) and/or first-time mothers (89%) who were unmarried (91%). Furthermore, 36% of enrolled families had more than one child living in the home and approximately one-third resided with extended family. With regard to employment and educational attainment, less than half of the participants held full- or part-time jobs (44%) and a majority (56%) had less than a high school diploma or GED. Also, more than two-thirds of the clients resided in rural (i.e., outside the city limits but less than 5 miles from municipal services) or remote areas (i.e., outside the city limits and 5 miles or more from municipal services). Finally, the majority of participants reported that they were coping with significant life stressors including family members with developmental disabilities (29%), physical disabilities (7%), mental illness (71%), substance abuse (76%), domestic violence (56%), and/or criminal histories (64%).

Treatment

Intervention consisted of the HFA in-home early intervention program for at-risk families. Services were provided by FSWs who served caseloads of 15–20 families.

Table 2 Demographic profile of the sample

	<i>N</i>	%
Maternal status (<i>N</i> = 55 individual mothers)		
First-time mothers	49	89
Teen mothers, ages 14 or less	6	11
Teen mothers ages 15–19 years	34	64
Family composition (<i>N</i> = 55 families)		
Single-parent home (unmarried single caregiver living with children <18)	25	45
Two-parent home (includes married couples and unmarried singles living together with children <18)	30	55
Unmarried mothers with children <18	50	91
Married couples	5	9
More than one child in home	20	36
Race/ethnicity of parents (<i>N</i> = 64 individuals)		
White	50	78
Black/African-American	11	17
Hispanic/Latino	1	2
Other	2	3
Mother's primary language (<i>N</i> = 55 individuals)		
English only	53	96
Spanish	1	2
Asian/Pacific Island languages	1	2
Poverty (<i>N</i> = 55 families)		
Families receiving public assistance (food stamps, AFDC, and/or Medicaid)	55	100
Geographic characteristics (<i>N</i> = 55 families)		
Lives in town	18	33
Lives in rural area (5 mile or less from municipal services)	32	58
Lives in isolated area (more than 5 miles from municipal services)	5	9
Employment of parents (<i>N</i> = 64 individuals)		
Employed full- or part-time	28	44
Unemployed	23	36
Not in labor force (e.g., under the legal working age)	13	20
Education of parents (<i>N</i> = 64 individuals)		
Attending high school	6	9
Seeking GED	7	11
High school graduate (includes equivalency)	28	44
Some college	(12)	(19)
Dropped out of high school	22	34
High school certificate of attendance	1	2
Family member with special needs/disabilities (<i>N</i> = 55 families)		
Developmental disability	16	29
Physical disability	4	7
Mental health issues	39	71

Table 2 continued

	<i>N</i>	%
Lifestyle characteristics (<i>N</i> = 55 families)		
Family member with substance abuse	42	76
Domestic violence history	31	56
Criminal history	35	64

All participants started the program during their children's prenatal period or shortly after birth and continued in services until graduation, which was determined by meeting designated criteria including, among other things, achieving specified participation rates, maintaining stability in the home, being responsive to parent-child interventions, developing a support network, establishing a medical home, and attaining goals on the Individual Family Service Plan (IFSP).

The services delivered to families in this study conformed to the HFA Home Visitation Model as described in the literature review. This means that they emphasized: (a) the development of a strong, trusting parent-visitor partnership; (b) education in child development and parenting; (c) assistance with coordinating a wide range of community resources; and (d) linking families with healthcare as a means of increasing protective factors that have been shown to reduce the risk of child abuse and neglect. Treatment fidelity was assured through the rigorous application of HFA standards to three key implementation drivers identified by Fixsen et al. (2005); i.e., staff recruitment, training, and supervision.

Regarding staff recruitment, the program, in accordance with HFA standards, actively sought employees from diverse backgrounds who had experience serving culturally and ethnically diverse clients. These efforts resulted in a staff that was 89% white and 11% African-American. While these ratios do not reflect a high degree of ethnic diversity, they closely matched the ethnic composition of the county and the clientele of the program and exhibited diversity in terms of age (30–50 years), parenting history (young parent, single parent, adoptive parent, parent of a child with a disability, and grandparent), and socio-economic background. In addition, all staff members had work experience in human services when they were hired, ranging from 6 to 20 years, with an average of 14.5 years. The effectiveness of the recruitment process was reflected in the agency's low turnover during the period of this study. Specifically, the mean length of service for the employees who participated in this investigation was 4.7 years.

Regarding training, all FSWs participated in an extensive regimen of rigorous, outcome-based training and development activities. These activities included: (a) *Connecting with Families: Family Support in Practice*, a 6-day training program that teaches essential intervention and treatment practices that are respectful to such factors as gender, age, race, ethnicity, religion, geographical region, family traditions, and lifestyle; (b) *Family-Centered Practice in Family Preservation Programs*, a second 6-day training program focused on principles of partnership, relationship-building, and strengths-based intervention; (c) *HFA Role-Specific Core Training*, a pre-service curriculum that addresses principles of home visitation,

family assessment, and/or program management; (d) HFA mandated continuing education, which includes a set of advanced training modules on maternal health, child development and parenting skills that all staff members are required to complete within their first year of employment; and (e) On-going in-service training on various topics through staff meetings, seminars, workshops, and conferences. In addition, to supplement formal training, supervisors provided opportunities for FSWs to shadow experienced practitioners and observe them apply the skills they had learned in training sessions.

Regarding supervision, the FSWs who participated in this study received weekly one-on-one reflective supervision and regular supervised co-visits throughout their tenure in the program. In addition, the performance of FSWs was routinely evaluated via direct observation and the collection of consumer satisfaction surveys. These data sources were used to assure program quality and fidelity to treatment goals and methods.

Research Design

This investigation utilized a one group pretest–posttest design. Authoritative sources (Campbell and Stanley 1963; Fraenkel and Wallen 2006) list the primary threats to internal validity applicable to this design as history, testing, maturation, instrumentation, location, implementation, mortality, and subject characteristics. Regarding history, the possibility that any one temporal event could have significantly affected outcomes is limited by the fact that the data for this study were gathered over an 8-year period. The length of this study was also an effective control for testing in that the long interval ($M = 3.5$ years) between pre- and post-test minimized the possibility that performance on the post-test could have been influenced by performance on the pre-test. Furthermore, with regard to maturation, one dependent variable—parenting attitudes and practices among at-risk caregivers—has not been found to vary significantly among at risk parents as a function of age (Massat 1995). The second dependent variable—social and emotional competence in children—was assessed with a norm-referenced instrument that accounts for maturation effects by comparing subjects to an age-based peer group. In addition, the use of objective scoring procedures and trained, well-supervised examiners minimized the threat of instrumentation. Similarly, location and implementation effects were controlled through the use of standardized conditions; i.e., in-home visitation with a standardized set of methods and materials. Finally, the threats of mortality and subject characteristics were addressed through participation incentives (e.g., food, transportation, child care supplies, and stress relief through supportive mentorship). This design feature was minimally effective in that approximately 58% of those originally enrolled met minimum engagement criteria (i.e., participation in 75% of home visits for at least 6 months of intervention) and 84% of those who engaged in the program were retained during the study period. A follow up survey of those who either did not engage in the program or who dropped out after meeting minimum engagement criteria revealed that employment conflict was the most consistent reason for withdrawal; i.e., difficulty balancing the visitation schedule with work and other commitments. This finding suggests there may be some important

differences between the subjects lost and those that remained. This possibility will be explored in the “[discussion](#)” section.

External validity threats applicable to this design as described by Campbell and Stanley (1963) included interaction of testing and treatment and selection bias. Because the effects of treatment were evaluated through reliable paper and pencil questionnaires that bore no direct relationship to the independent variable, the interaction of testing and treatment was not a significant rival hypothesis. However, given that this study used a convenience sample, it was vulnerable to the threat of selection bias and the results will be interpreted accordingly. In addition, to minimize the risk of Type I error and because one-group designs provide weak support for causal inferences, this study used an extreme alpha level ($p < .001$) to inspire confidence in its results.

Sampling

Participants in the program were referred from a variety of human service organizations (e.g., public health clinics, hospitals, obstetricians, social service agencies, and schools) and through self-referrals. Referrals were prioritized based on the results of an informal pre-screening checklist (Frankel et al. 2000) that included the following indicators of risk for child maltreatment: (a) Late or no prenatal care or poor compliance, (b) Abortion/adoption unsuccessfully sought or attempted during pregnancy, (c) Inadequate income, (d) Single parent, (e) No telephone, (f) Unstable housing, (g) History of sexual abuse, (h) History of substance abuse, (i) History of abortions, (j) History of psychiatric care, (k) Employment problems, (l) Marital or family problems, (m) Education under 12 years, (n) History of or current depression, (o) Inadequate emergency contacts, and (p) Child protective services history. The priority status of a referral depended upon (a) the number of at-risk indicators they exhibited and (b) their responses to the most critical indicators (i.e., items that are known to have the strongest relationship with abusive and/or neglectful parenting behaviors). Minimum requirements for a positive screen were an affirmative response to either item *a* or item *b*, affirmative responses to two or more indicators, or unknown responses to seven or more indicators.

To receive services, families who screened positive on the referral questionnaire were further evaluated on the Kempe Family Stress Inventory (KFSI; Korfmacher 2000; Murphy et al. 1985; Orkow 1985), an established indicator of parental risk for child maltreatment. To be eligible, families had to score in the “at-risk” range based on the normative standards of the KFSI. Because the participants were referrals from human service agencies, the sampling approach for this study is most accurately described as convenience sampling. This method of sampling, while not ideal, is defensible when dealing with participants that cannot be accessed through randomized procedures (Fraenkel and Wallen 2006).

Measures

The criterion measures for this investigation consisted of two standardized, norm-referenced behavioral inventories: (a) The Adult-Adolescent Parenting Inventory,

Revised (AAPI-R), a measure of parenting attitudes and practices; and, (b) The Ages and Stages Questionnaire Social-Emotional (ASQ-SE), a measure of child social and emotional competence. To assure scoring consistency and fidelity to standardized administration procedures, the practitioners who administered the AAPI and ASQ-SE received training in administration and scoring procedures.

The Adult-Adolescent Parenting Inventory, Revised (AAPI-2, Bavolek and Keene 1999) is an objective, norm-referenced, self-report measure of child-rearing attitudes and practices that uses Likert scale items to assess factors that have been shown to contribute to child maltreatment. It includes five subscales: (a) Inappropriate expectations of children, (b) Parental lack of empathy, (c) Strong belief in the use of corporal punishment, (d) Reversing parent-child roles, and (e) Oppressing children's power and independence. Subscale raw scores can be converted to sten scores (mean = 5.5, standard deviation = 2) and percentile ranks. The AAPI was standardized on a sample of 1,498 adolescent and adult parents from 53 different agencies in 23 different states, including both abusive and non-abusive parents. There are two forms of the AAPI—A and B—with alternate form reliability coefficients ranging from .80 to .97 across the various subscales with a mean of .89. Chronbach's alpha internal consistency reliability coefficients range from .80 to .96 with a mean of .87. In addition, to provide evidence of score stability, the authors report standard error of measurement statistics based on sten scores that range from .4 to .89 with a mean of .71 (approximately .35 standard deviations). Content validity of the AAPI was established through a survey of professionals in various helping fields. Construct validity was confirmed through principal components analysis. In addition, the authors report that the AAPI has been found to be highly effective at discriminating between abusive and non-abusive parents, an indication of its criterion-related validity.

The Ages and Stages Questionnaire: Social-Emotional (ASQ-SE; Squires et al. 2003) is a structured parent rating scale designed to assess the social and emotional competence of children from birth through five years of age. It includes eight subdomains: (a) Self Regulation, (b) Compliance, (c) Communication, (d) Adaptive Functioning, (e) Autonomy, (f) Affect, (g) Interaction with People, and (h) General Concerns. Items on the ASQ describe behaviors that parents rate in one of three response categories; "Most of the time", "Sometimes" or "Rarely/Never". The ASQ is standardized on a diverse sample of 3,014 preschool-aged children and their families. Since the ASQ focuses on problem behaviors (i.e., scores of zero are normal and high scores are abnormal), scores are not normally distributed. Therefore, the normative data is used to identify cutoff scores to which children's raw scores are compared. Results are expressed through the designations of normal (i.e., below the cutoff) and at-risk (i.e., above the cutoff). Because of the cut-off score format, some reliability and validity data is expressed in terms of percent of agreement. Specifically, test-retest reliability was measured by comparing ASQ-SE questionnaires completed by parents at intervals ranging from 1 to 3 weeks. The process resulted in a rate of agreement of 94%. Similarly, concurrent validity of the ASQ-SE was established by comparing its designations with designations based on scores from a variety of similar measures. The rates of agreement resulting from these procedures range from 81 to 95% with an overall agreement rate of 93%.

Criterion validity was measured by determining the ability of the ASQ to identify children with known social and emotional disabilities. The sensitivity rates resulting from these procedures ranged from 71 to 85% with an overall rate of 78%. By the same token, specificity rates—the rates at which the ASQ was found to correctly identify children without social or emotional challenges—ranged from 90 to 98% with an overall rate of 95%. In a more traditional format, the authors report Chronbach's alpha internal consistency reliability coefficients for the ASQ ranging from .67 to .91 with a mean of .82. However, the reader should note that the lowest reliabilities occurred, not surprisingly, at the ages of 6 and 12 months when children's behavior is most unstable. Starting with 18 months of age, all internal consistency reliabilities are at .80 and above.

Data Analysis

To draw conclusions regarding the effects of HFA on parenting skills and child social and behavioral adjustment, the following three null hypotheses were developed based on the review of the literature:

H₀ 1: Graduates of a credentialed HFA program will show no change between pre- and post-test on a standardized measure of positive parenting attitudes and practices.

H₀ 2: Compared to the standardization sample, graduates of a credentialed HFA program will perform significantly below the mean on a standardized measure of positive parenting attitudes and practices.

H₀ 3: Compared to the standardization sample, there will be no difference in the frequency with which children of graduates of a credentialed HFA program score in the at-risk range on a standardized measure of social and emotional competence.

To test hypothesis one, correlated t-tests were used to evaluate the significance of differences between pre- and post-test group mean scores on all portions of the AAPI. To test hypothesis two, participants' sten scores on the AAPI were compared to means for the normative sample. With regard to hypothesis three, ASQ scores on the children of graduates of the program were compared to the standardization sample. Specifically, the frequency of significant problem behaviors among children whose parents graduated from a credentialed HFA program were compared to that of children in the standardization sample using a 2×2 Chi-square procedure to evaluate group differences. As stated previously, because of weaknesses in the research design for this study, the .001 level of significance will be used to minimize the risk of Type I error. All computations will be performed on MS Excel.

Results

With regard to null hypothesis one, Table 3 provides a summary of comparisons of pre and post-intervention observations. As these data indicate, highly significant changes were noted between pre- and post-intervention assessments on all

Table 3 Results of *t*-test analyses

AAPI sub-domains	Mean pre-intervention score	Mean post-intervention score	Correlated <i>t</i> -test probability	Significant at $p < .001$?
Expectations	5.25	7.70	$p = 2.08 \times 10^{-12}$	Yes
Empathy	4.14	7.60	$p = 9.81 \times 10^{-16}$	Yes
Corporal punishment	4.60	7.21	$p = 1.50 \times 10^{-13}$	Yes
Family roles	4.35	8.33	$p = 1.80 \times 10^{-19}$	Yes
Independence	5.29	7.49	$p = 2.50 \times 10^{-9}$	Yes
Totals	4.73	7.67	$p = 4.91 \times 10^{-19}$	Yes

attitudinal and behavioral factors. Specifically, positive changes ranging from 2.2 to four sten scores ($p < .001$) were noted in each of the subdomains of the AAPI. In addition, a positive change of 2.94 sten scores was noted in the total AAPI score over the intervention period suggesting a substantial shift away from attitudes and practices that have been associated with child maltreatment. Given that these results were significant well beyond the .001 level, null hypothesis one can be rejected.

With regard to null hypothesis two, in Table 3, column three, the reader will find the post-intervention sten scores for the sample. Specifically, these scores, with a mean of 5.5 and a standard deviation of two, ranged from 7.49 to 8.33. Given that four out of six of these scores (Expectations, Empathy, Family Roles, and Total Score) are more than one standard deviation above the mean and the other two (Corporal Punishment and Independence) are at the upper limit of the normal range, null hypothesis two can be rejected. These findings indicate that graduates of the program were no more likely and in, many instances, significantly less likely than randomly selected individuals to espouse parenting attitudes and practices that have been associated with child maltreatment.

With regard to null hypothesis three, ASQ-SE scores were obtained on all 55 children whose families graduated from the program. As previously mentioned, the ASQ uses a cut-off score format. According to the manual, approximately 17.2% of all cases in the standardization sample scored above the cutoff and were, thus, in need of referral. This means that out of a sample of 55 cases, approximately 9.5 would be expected to be at-risk (i.e., beyond the cutoff) and 45.5 within the normal range (i.e., below the cutoff). However, within the sample for this investigation, there were no at-risk scores as all 55 children performed within the normal range.

Table 4 Chi square results ASQ-SE

	Observed	Expected	O-E	(O-E) ²	(O-E) ² /E
At-risk	0	9.5	-9.5	90.25	9.5
Normal	55	45.5	9.5	90.25	1.9835165
Totals	55	55	0	180.5	11.483516

Critical value = 10.827, $p = .000702$

Reject H_0 at $p < .001$

Table 4 compares the observed frequencies to the expected frequencies utilizing the Chi Square procedure. Results indicate that null hypothesis three (that there will be no difference between observed and expected frequencies) can be rejected at the .001 level. This means that, when compared to their age peers, children whose families graduated from an HFA credentialed program exhibit higher levels of social and emotional competence as measured by the frequency with which they display social and behavioral challenges.

Discussion

This investigation addressed the need for research on the effectiveness of the HFA model that has a long term focus and rigorous standards for implementation and methodology. In addition, it sought to extend research on the effectiveness of the HFA model to include a discussion of parental attitudes and practices that predict maltreatment, child social and emotional competence, and rural/small town settings.

With regard to design, this study did not contain a control group or random assignment and is, therefore, subject to the threats of mortality, and/or subject characteristics. In addition, while it did attempt to assure treatment fidelity through the rigorous application of evidence-based implementation criteria (Fixsen et al. 2005), intervention integrity was not directly assessed. These limitations suggest that the results of this study must be interpreted with caution. Specifically, there can be no assurance that the improvements noted in parental attitudes and practices and/or program benefits in child social and emotional adjustment did not result from variations in sample composition due to mortality, specific characteristics of the participants, or the regimen of services delivered over time.

Nonetheless, due to the extremely high standard of statistical significance set for this investigation, the results provide sound evidence that graduates of a home visitation program based on the HFA model exhibit significant positive change in a set of parenting attitudes and practices known to predict child maltreatment. These areas included setting reasonable expectations, conveying empathy, considering positive alternatives to corporal punishment, adopting flexible views toward family roles, and tolerating their children's normal developmental strivings for independence (Bavolek and Keene 1999). In addition, the results of this study support the conclusion that the children of parents who completed the program were significantly less likely to exhibit social, emotional, and behavioral challenges than their typical age peers. Benefits in the domain of children's social and emotional competence are especially noteworthy as these have not been found in prior research on the HFA model and because they are predictors of success in breaking the intergenerational transfer of behaviors associated with maltreatment (Carlson 1998; Denham et al. 1997; Egeland et al. 2002; Erickson and Egeland 1987; Fonagy et al. 1995; Sroufe et al. 1999). Nonetheless, in light of the limitations of this study, it must be stressed that these positive outcomes were found among the children of families who met graduation criteria. They cannot be generalized to the 60% of families who either did not meet graduation criteria or who were still enrolled and had not yet graduated. They do, however, indicate the need for a study that compares program completers

with non-completers on key outcome variables. Such an investigation may provide insight into the minimum dosage level required to achieve key program effects.

These results are also significant in light of the context for this investigation. Specifically, unlike Whipple and Nathans (2005), the data from this inquiry support the conclusion that HFA outreach efforts to individuals in small towns and remote rural areas are worthwhile and beneficial. Indeed, when compared to the effects of HFA in metropolitan communities, these efforts appear to produce some of the same or better program benefits. Factors that may explain this study's alternate conclusions include a greater emphasis on implementation factors and longer term involvement.

Conclusions and Recommendations for Future Research

Overall, the encouraging nature of these results contributes to the robustness of the HFA model and adds support to the conclusions of Durlak (1998) and Fixsen et al. (2005) that program implementation is critical. Specifically, the positive results of this investigation are in line with other studies of HFA that included rigorous controls over implementation (Harding et al. 2008). They, therefore, contribute to the growing body of evidence that suggests the need for more rigorous standards of implementation, credentialing, and accreditation. Such standards would provide the foundation necessary for future research into the effects of the model across multiple sites, diverse populations, and disparate regions of the country. They would also provide a basis for more controlled forms of inquiry such as randomized trials and comparison studies that evaluate the HFA model relative to other home-based early intervention programs. Such studies represent the next horizon in research on the effectiveness of home visitation with families at risk for child abuse and/or neglect. Greater methodological rigor would, in addition, provide a stronger basis for making data-informed decisions on such critical factors as the effectiveness of specific HFA components, active ingredients of the model, and optimal time frames for treatment. Clarification of these issues would be essential to efforts to refine and disseminate what appears to be a promising approach to the prevention of child maltreatment.

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