The Massachusetts Healthy Families Evaluation-2 (MHFE-2):

A Randomized, Controlled Trial of a Statewide Home Visiting Program for Young Parents

Final Report to the Children's Trust of Massachusetts

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COMMONLY USED

Acronyms and Abbreviations

DCF	Department of Children and Families
DESE	Department of Elementary and Secondary Education
DPH	Department of Public Health
DTA	Department of Transitional Assistance
FY	Fiscal Year
GED	General Educational Development
GIS	Geographic Information Systems
HFA	Healthy Families America
HFM	Healthy Families Massachusetts
HVS	Home Visiting Services (Intervention Group)
ITT	Intent to Treat
MHFE-1	Massachusetts Healthy Families Evaluation – Phase 1
MHFE-2	Massachusetts Healthy Families Evaluation – Phase 2
PDS	Participant Data System
RCT	Randomized, controlled trial
RIO	Referral and Information Only (Control Group)
T1, T2, T3	Time 1, Time 2, Time 3 (data collection points)
TIER	Tufts Interdisciplinary Evaluation Research

Executive Summary

The Massachusetts Healthy Families Evaluation (MHFE-2) is a longitudinal evaluation of Healthy Families Massachusetts (HFM), a universal home visiting program for adolescent mothers across the state. The program's specific focus on adolescent parents is unique within the multi-site home visiting world, making the findings from this present study particularly noteworthy. MHFE-2 encompassed many complementary data collection methods, framed within a rigorous randomized controlled trial (RCT) design, in which eligible mothers were randomly assigned to receive HFM services or to receive service referral and parenting information only. This method enabled us to determine, with confidence, how HFM affects young mothers across a range of outcomes. Detailed information about program quality and utilization, and participants' experiences with the program, were also collected and presented within the Final Report.

This Executive Summary highlights key elements of MHFE-2. Its primary focus is on the major findings that emerged, both related to program operations and impacts; in addition, a brief summary of study methods and design is included. This document is meant primarily for a policy and program audience; readers with a greater appetite for technical detail are invited to read the full report.

This summary first provides a brief overview of the program (HFM) and the evaluation (MHFE-2), to set the background for the findings and implications that follow. Next, we review key evaluation findings related to program operations and impacts, highlighting those most salient for policy and practice. The summary concludes with implications and opportunities for HFM specifically, the home visiting field more generally, and other services that intersect with home visiting programs, as well as areas for future research and exploration.

Healthy Families Massachusetts (HFM) HFM is a statewide, comprehensive, voluntary, newborn home visiting program for all first-time parents ages 20 and under. An affiliate of *Healthy Families America* (HFA), HFM provides parenting support, information, and services to young parents via home visits, goal-setting activities, group-based activities, secondary contacts (i.e., phone calls), and referral services. The program's stated goals are to:

1. Prevent child abuse and neglect by supporting positive, effective parenting;
2. Achieve optimal health, growth, and development in infancy and early childhood;
3. Encourage educational attainment, job, and life skills among parents;
4. Prevent repeat pregnancies during the teen years; and
5. Promote parental health and well-being.

Although there are Healthy Families affiliates in 40 states, HFM remains the only statewide implementation of that model that specifically targets adolescent parents. Since its inception in 1997, HFM has provided services to more than 33,800 young families.

The Massachusetts Healthy Families Evaluation (MHFE-2)

MHFE-2 followed a sample of approximately 700 mothers and their children from 2008 through 2012. It employed a RCT design for its impact component, collecting and analyzing data from two comparable samples of these families: one that was offered HFM home visiting services and one that was not. The evaluation sought to answer the following key research questions:

- How do those mothers enrolled in HFM utilize program services?
- To what extent do programs operate, and do participants utilize services, as intended by the HFM model?
- Is program dosage associated with outcomes?
- What is the nature of the home visitor-mother relationship?
- Does participation in HFM yield positive effects in the five HFM goal areas?

The MHFE-2 study was framed by Jacobs's Five-Tiered Approach to evaluation, a developmental model that moves evaluation activities from a primary focus on descriptive and process-oriented information at the earlier tiers to an emphasis on program effects in the latter ones.[1] MHFE-2 employed a mixed-methods approach; the data presented in this report were collected at three time points—one month post enrollment, 12 months post enrollment, and 24 months post enrollment[2]—from a variety of sources, including open- and closed-ended interview questions; standardized, validated measures; home-grown surveys; and observations of parent – child interactions. In addition, the MHFE-2 team had access to comprehensive data from HFM (from the Participant Data System; PDS), state agency, and population-level (i.e., 2010 U.S. Census).

MHFE-2 participants were recruited through the combined efforts of HFM local and state personnel and MHFE-2 researchers at Tufts University. Eligibility requirements for participating in MHFE-2 included being a consenting female of at least 16 years of age, having not received any HFM services in the past (i.e., no transfers or reenrollments), being an English or Spanish speaker, and being cognitively able to provide informed consent. Eligible women who consented to the study were randomly assigned to either the treatment group (Home Visiting Services; HVS) or the control group (Referral and Information Only; RIO). In total, 704 participants enrolled in the study, of whom 433 (62%) were assigned to the HVS group, and 271 (38%) to the RIO group.

We used an Intent-to-Treat (ITT) approach for determining main program effects. This means that once mothers were assigned to the HVS (Healthy Families) group or the RIO (non-program, control) group, their assignment held—regardless of whether, for the HVS group, the mothers actually ended up receiving home visiting services. Indeed, about 14% of the mothers in that HVS group never did. While tempting to exclude these mothers from our analyses, that approach would invalidate the RCT design, as it is likely that the women who did not take up any, or took up few, home visits are somehow different from those who did participate. Including all participants in the outcomes analyses, regardless of whether they actually received the service, ensures that the main effect findings are robust and reliable.

Methodological highlights of MHFE-2 include:

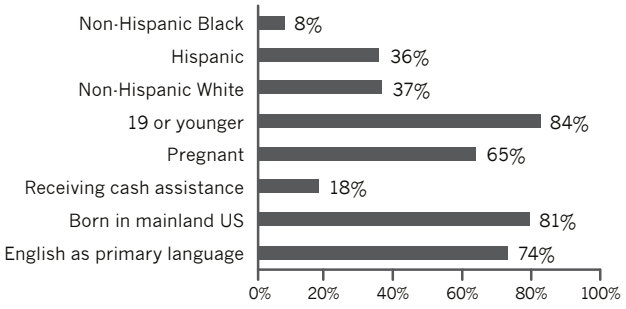
- Data on a large sample of adolescent mothers;

- A randomized controlled trial (RCT) longitudinal design;
- Multiple data collection methods;
- Mixed analytic approaches: qualitative and quantitative;
- A broad range of program and state agency data;
- Novel methods of measuring program utilization, program fidelity, and home visitor-mother relationships; and
- An Intent to Treat (ITT) analytic approach to detecting program impacts.

Characteristics of the MHFE-2 Sample

Figure ES1 provides a description of key demographic characteristics of participants at enrollment.

Figure ES1. **Demographics of Participants at Enrollment**



The MHFE-2 sample comprises first-time mothers under 21; the average age of mothers at enrollment was 18.6, and as shown in Figure ES1, the overwhelming majority was 19 or younger. This is significant because adolescent parents are simultaneously managing the difficult transitions to both adulthood and parenthood in the context of challenging life circumstances, which may demand different and additional approaches to programming. Mothers' challenging life circumstances at enrollment included:

- High rates of residential instability (average of two moves in the past year);
- More than one half had childhood history of maltreatment;
- More than one third were clinically depressed;
- High incidence of lifetime trauma (average of three traumatic events); and
- High rates of intimate partner violence in relationships, both as victim and as perpetrator (approximately 3.5 acts per year, on average).

Key Findings: Program Operations

Despite the implicit assumption that an evidence-based model will operate true to its design, it rarely does. For example, most home visiting evaluations find that participants discontinue services well before the recommended duration, and receive far fewer home visits than deemed optimal.[3] Documenting in detail how the home visiting program is operating, then, is crucial, both as a precursor and complement to the assessment of program effects.

Our evaluation investigated the extent to which the program was being implemented as intended, described how participants utilized and experienced HFM services, and analyzed the relations among different aspects of program operations, the associations with maternal characteristics, and the ways in which program use relates to outcomes.

It is important to note that all of these analyses focused solely on the HVS group, and therefore fall outside of the RCT; in other words, none of the associations described here can be interpreted as causal.

How do MHFE-2 participants assigned to the HVS group utilize HFM services?

On average, mothers enrolled in the program for nearly 15 months and received 24 home visits.[4] Mothers exhibited an extremely wide range of utilization, staying in the program anywhere from less than 1 month to 46 months, and receiving from 0 to 118 visits.

Approximately 58% of HVS participants received fewer

than 18 home visits, including 30% who received fewer than 5 home visits, and 14% who did not receive any home visits at all.

Secondary activities (i.e., non-visit activities conducted by the home visitor or HFM staff with, or on behalf of, the participant) were reported 62 times per mother, on average (median = 43). The vast majority of secondary activities had content related to issues of enrollment/engagement (10%) or scheduling of visits (38%), and attempted visits that did not happen (10%). Only 16% of secondary activities—10 activities per mother, on average (median = 4)—could be described as substantive, in which mothers verbally connected with their home visitors about something other than scheduling.

Based on characteristics at enrollment, mothers who were less active in HFM (based on the number of home visits received) enrolled postpartum, were less likely to live with an older relative or guardian, were less residentially and financially stable, were more likely to receive public programs since pregnancy, notably food stamps, and were less likely to be depressed at enrollment.

Although HFM uptake varied considerably, with a sizable proportion of the evaluation sample receiving no, or only a few, home visits, analyses of secondary activities revealed evidence to suggest that substantial effort was being made by home visitors to connect with mothers, including some who may not have been interested in participating at all or only for a short period of time. These findings are in line with utilization findings other home visiting evaluations have been reporting for the past two decades.[5] That the potential HFM participants are adolescents probably compromises utilization figures even further. We see here a pattern in which mothers' low utilization seems to signal both strengths *and* vulnerabilities. On the one hand, mothers who failed to engage with the program were less residentially and financially stable. On the other hand, mothers who used less of the program were less depressed, and perhaps more self-sufficient, at least based on the degree to which they are already hooked into services and supports, such as food stamps.

To what extent do programs operate, and do participants utilize services, as intended by the HFM model?

Our program-level fidelity index provides a broad overview of how faithfully HFM programs were *implementing* services at the time of data collection. Program-level fidelity was quite high, on average, and the range of program-level fidelity scores was quite narrow. In terms of individual-level fidelity—the way that mothers actually used the program—on average, mothers met about half of the indicators, and the scores ranged considerably. Mothers were more compliant with the HFM model for indicators related to initial exposure (i.e., implementation), than they were with indicators related to overall exposure (i.e., utilization). *Fidelity* generally is defined as the extent to which an intervention is implemented as intended by its designers. Considering that HFM is being implemented by multiple types of agencies across a state with considerable geographic and demographic diversity, the fact that such a high, invariant degree of fidelity has been achieved across programs is laudable, and unusual in a statewide initiative. There is a great deal of flexibility built into the HFM model; the expectation is that the home visitor will work with each participant to establish goals, settle on a service delivery plan, and adjust home visit content and schedule in both anticipation of, and reaction to, the participant's needs. It is perhaps not surprising, then, that when you look at utilization at the individual level, a radically different story of engagement and adherence emerges. What these data suggest is that even a program operating at considerably high standards may not consistently engage its target population.

Is program dosage associated with outcomes?

An examination of the associations between dosage (i.e., the number of home visits HVS mothers received) and program outcomes revealed similarly mixed results, with more dosage associated with both maternal strengths and vulnerabilities. (Main program effects—i.e., differences between HVS and RIO mothers—on the outcomes

related to the five HFM goal areas are discussed in the following section.) In sum, mothers who received more home visits were:

- Less likely to be reported to DCF for child maltreatment,
- More likely to use birth control,
- Less likely to have a repeat pregnancy, and
- More likely to report being a victim of inter personal violence.

What we can conclude from the analysis examining program dosage with outcomes—as we would from any correlational analysis—is that there is a relation between number of home visits and some outcomes, but that we cannot necessarily predict the *direction* of the association (e.g., does receiving more home visits result in better outcomes, or do women with better outcomes take up more home visits?); nor do we know if another variable is driving this association. It is likely the case, for instance, that some mothers may be better able to stay on course with the program and receive proffered services, and subsequently achieve more favorable outcomes. On the other hand, home visitors probably work harder to engage and serve young women who are faring poorly at enrollment, which may result in worse outcomes sometimes being observed among women with more home visits, even if they demonstrate relative improvements over time. The same argument can be made for women who leave the program early: It may be a signal of strength or vulnerability, and in the case of the child maltreatment outcome, whether women stay or go could be directly related to the outcome in question.

What is the nature of the home visitor-mother relationship?

The great majority of participants viewed their relationships positively. In-depth analyses of home visitor-mother relationships revealed that mothers' impressions of their home visitors fell into four relationship profiles, three of which were largely positive:

Positive Friend: characterized by closeness, comfort, familiarity, informality, compatibility, expertise, but also authority and boundaries;

Positive Family Member: characterized by emotional investment, caring, closeness, support, availability, directness;

Positive Professional: characterized by understanding, support, acceptance, flexibility, listening; and

Negative Primarily Professional: characterized by disagreements, lack of flexibility, disinterest, appearing judgmental.

Relationships in each of the positive profiles—Friend, Family Member, and Professional—seemed to strike a balance between emotional intimacy and what is generally considered acceptable professional distance, but each in a unique way. In contrast, mothers in the Negative Professional profile reported major "disconnects" that were sometimes intensified because other relational qualities or characteristics of the home visitor (e.g., the home visitor's skill at relating to the mother, her expertise and her ability to communicate it to the mother) were lacking. Not surprisingly, mothers in the Negative Professional profile received significantly fewer home visits than mothers in the other relationship profile groups.

Mothers across the relationship profiles were quite similar to one another, with a few noteworthy exceptions. Most strikingly, close to 60% of the mothers in both the Negative Professional and Positive Family Member profiles scored above the clinical cutoff for depression; this rate was nearly double that of the Positive Professional profile and nearly triple that of the Positive Friend profile. None of the four profiles stood out in terms of consistently achieving more favorable parenting and child outcomes.

The most commonly cited reason for remaining engaged in the program over time was mothers receiving useful help, followed by the belief that HFM was a good

program, mothers liking their home visitors, and finally, feeling that the program could be a future source of support for them. Participants attributed reasons for their discontinuing services to personal issues, the program's structure or content, qualities of their home visitors, or a combination of home visitors and personal reasons.

The great majority of participants viewed their relationships positively, including those who characterized their home visitors' posture as professional. The range of mothers' positive experiences of their relationships with their home visitors suggests there is no one "right" type of home visitor-mother relationship, but rather a wide range of relational styles that can work, with certain dyads, under certain conditions.

Key Findings: Program Impacts

A primary goal of this evaluation was to understand whether HFM was effective at achieving its five stated goals. To that end, analyses were conducted to see whether the intervention group (HVS) was significantly different from the control group (RIO) on a variety of indicators within the goal areas.

Results revealed that HFM had impacts on development in areas that are particularly relevant to adolescents, and especially to adolescent parents.

There are several facts about adolescent development that help to frame the findings below.

- Compared to older mothers, adolescent mothers are more likely to report unrealistic expectations regarding the needs of their children, and exhibit less supportiveness and positive regard toward their infants.[6]
- Adolescence often is marked by increases in problem behavior following the onset of puberty. Problematic behaviors typically begin to decrease around 17 or 18 years of age. However, preexisting problems may be accentuated for adolescents during times of transition or change.[7]
- The prefrontal cortex—the part of the brain responsible for critical planning, problem solving, and emotional regulation functions—is still developing during late adolescence and early adulthood. It may be particularly challenging for adolescents to resist the impulse to engage in risky behaviors, at a time when the potential impacts of, for example, substance use can have a particularly deleterious impact on brain development.[8]
- On the other hand, the fact that individual development is proceeding apace during adolescence underscores the opportunities to promote positive adaptation and growth.

Does participation in HFM yield positive effects in the five HFM goal areas?

Goal 1: Prevent child abuse and neglect by supporting positive, effective parenting. Although HVS and RIO mothers were no more or less likely to be reported to DCF for maltreatment, HVS mothers were more likely to be identified as a perpetrator of maltreatment in substantiated cases than mothers in the control group (RIO). Our findings underscore the *preventative* role home visitors may play as observers of early parenting behavior, with home visitors filling a crucial gap in the detection and prevention of child maltreatment. That is, an extra set of "eyes and ears" in the home probably made it more likely that HVS mothers' worrisome behaviors, which may have been subtle and hard to detect outside of the home, were flagged early on. This surveillance hypothesis was supported by additional subgroup analyses demonstrating that, among mothers with riskier behaviors, those in the HVS group were more likely than those in RIO to be reported to DCF.

Mothers in the treatment group (HVS) exhibited fewer negative parenting attitudes and behaviors than mothers in the control group (RIO). Notably, HVS mothers

were less likely to report parenting stress than were RIO mothers. Further, maternal reports of corporal punishment—both attitudes and actual behavior—were lower among some subgroups of HVS mothers compared with RIO mothers, including mothers with higher exposure to traumatic events, young women who enrolled while parenting, and non-Hispanic Black mothers. HFM, therefore, provided early support to mothers to help them reduce their negative parenting attitudes and behaviors, which could lead to improved maternal and child well-being, including declines in child maltreatment, down the road. The whole of these parenting findings are important, particularly when considered in the context of the adolescent sample, the obstacles they face as parents, and the promise early supports may offer.

Goal 2: Optimal health, growth, and development in infancy and early childhood. No program effects were found for outcomes in this goal area, including language development, behavioral problems, and birth outcomes, for the full sample.

The lack of impacts on target children must be considered alongside the fact that all mothers—regardless of whether they received home visits or not—were eligible for universal health coverage and insurance in Massachusetts, which may have provided sufficient support for very young children's health and well-being. There was not much variability between children of mothers in the HVS and RIO groups on some of the outcomes examined in the evaluation, particularly in terms of newborn health. In the present study, we know that mothers were involved with HFM for 15 months, on average—with significant variability around this average—thereby curtailing the home visiting support when their children were very young, and before the potentially challenging toddler years. As part of our ongoing longitudinal study of this participant sample (see Endnote 2 below), we will have the opportunity to investigate a fuller panoply of child outcomes, as well as to further examine other early childhood services mothers have since used as a result of their participation in HFM, and how the full package of supports mothers have received since pregnancy has affected their children's well-being.

Goal 3: Encourage educational attainment, job, and life skills among parents. Mothers in HVS were more likely than RIO mothers to have finished at least one year of college (17% vs. 10% for HVS and RIO, respectively). HVS mothers who self-identified as Hispanic were less likely to graduate high school or receive a GED than were Hispanic RIO mothers. No program effects on employment were found.

The finding that HFM mothers were more likely to attend college, a first among randomized controlled trials of Healthy Family America affiliates, is particularly exciting, given the age of this population. Although the percentage of women who attended college was small across the sample (14%), HVS mothers were 1.7 times as likely as RIO mothers to do so, which may have important implications in the future. Given a rising demand and premium for skilled workers, this finding is one to watch to see if first-year college attendance yields better educational and employment outcomes in the future.

Goal 4: Prevent repeat pregnancies during the teen years. Mothers in HVS were more likely than mothers in RIO to use condoms. Among women who were older at birth and self-identified as non-Hispanic Black, HVS were less likely than RIO to have a repeat pregnancy, and among women who enrolled postpartum, HVS were less likely than RIO to have a repeat birth.

With the exception of condom use, the program had no impacts for the full sample on reproductive health outcomes related to birth and future pregnancy. The increases in condom use among HVS participants, as well as being a finding related to reproductive health, could also be interpreted as a decrease in risky behavior (i.e., unprotected sex). From this standpoint, the finding on condom use aligns nicely with the findings reported for the Goal 5 area (see below). It is difficult to surmise what led to the decrease in subsequent pregnancies or births among only certain subgroups of mothers; further

analyses of these data, as well as additional data being collected as part of the longitudinal MHFE-2-EC, will allow us to develop a deeper understanding of these interesting patterns.

Goal 5: Promote parental health and well-being. Compared to mothers in RIO, mothers in HVS reported that they were less likely to engage in risky behavior, use marijuana, and perpetrate intimate partner violence. HVS mothers who had experienced more trauma, had higher levels of depression, and self-identified as non-Hispanic Black were less likely to smoke than RIO mothers with the same background characteristics. These findings suggest that in the midst of significant changes in these young women's lives (i.e., becoming parents), HFM was able to help participants manage their risky behaviors and begin an appropriate, more stable, transition to parenthood. Mothers' ability to manage and rein in impulsive and potentially harmful behaviors should have long-lasting effects on their own achievements, as well as on their children's health and well-being.

Implications and Opportunities

Implications are discussed in far more detail in the final chapters of the report. Here, we very briefly summarize some observations/recommendations related to HFM program operations, and its relationship to other organizations and agencies.

Recommendations for Program Practices

Consider prioritization of program goals.

HFM supports program goals in five areas of child and adolescent functioning: positive parenting, infant and toddler development, maternal health and well-being, educational attainment and employment, and family planning. On the one hand, these goal areas reflect the inextricably interconnected, core aspects of life within the young families the program serves. On the other hand, the sheer breadth of these goal areas creates challenges, both for the program and its evaluators. It simply is not reasonable to expect that all five goal areas will be equally salient, or achievable, to all participants at all times. Our data suggest a number of possibilities regarding goal achievement: It may be that success in one area tempers or delays success in another; it may be that success in one area is dependent on success in another; it may be that certain goals are important primarily to the program, and not to the participants themselves; and it may be that some goals require a longer duration in the program, or different timing of enrollment, than do others. A more explicit recognition of this tension among the goal areas—that some objectives may be more important, or may need to be accomplished before others are likely to be—may help HFM clarify expectations about what would constitute a "success" for each participant.

Revisit eligibility requirements in certain circumstances.

In light of the adolescent population HFM serves, we suspect that there are gains to be made by critically reviewing several of the program's current eligibility requirements. HFM policy states that new mothers must enroll before their babies turn one year old, but it may be that mothers who rejected HFM initially, or were not residents of Massachusetts during their babies' first year would greatly profit from the program once their children are more active, rapidly developing language, and becoming more assertively themselves. This could happen when the babies become 18-month-old toddlers or even two-year-olds, and their mothers have matured as well. Might HFM consider a smaller initiative that includes those mothers, who would otherwise be excluded? Relatedly, although the vast majority of participants left the program before their children turned three years of age (the age limit for HFM), about 15% did so because their children graduated from the program. Graduation is something to be celebrated, and indeed HFM appropriately makes much of these young mothers' successes. On the other hand, these eager consumers of the program, some of them still teenagers, might well benefit from, and probably would make good use of, a modest amount of continuing support.

Preserve home visitor-mother relationship in the context of participants' moves.

Our data suggest that residential instability is a critical challenge for many young mothers, who then cannot, or choose not to, maintain regular HFM participation. Many HFM home visitors already go to extraordinary lengths to keep these mothers enrolled. Might these efforts somehow be formalized, with HFM establishing a specialized arm of the program for these mothers, offering them the opportunity to drop in and out, perhaps use different forms of contact, even maintain initial home visitor continuity if they move out of the initial program's catchment area?

Focus less on initial engagement, and more on the re-engagement, of participants.

Two of our program findings taken together, (a) that home visitors invest a great deal of time attempting to find, enroll, and reach participants who may never be fully involved, and (b) that even the most engaged adolescents are likely to drop out of the services for a while, suggest that HFM may want to experiment with relaxing a few of those standards related to initial engagement. This would free up more time for home visitors to work with families who have already demonstrated both the willingness and ability to more fully engage.

Experiment with structural changes that may encourage longer participant engagement.

There are many possible approaches to lengthening participants' tenure, most of which HFM is well aware. Still, we offer two here as illustrative options:

A more varied menu of service modalities. The HFM home visit, as the program's core service, has demonstrated its effectiveness in a number of goal areas, and should remain in its central position. At the same time, however, it might prove worthwhile to more formally endorse/enable wider use of other forms of communication, ubiquitous with today's youth, such as Skype, FaceTime, chatting, texting, and even email for maintaining contact and providing services. Securing participants free calling cards or facilitating access to tablets or laptops might allow for continued engagement of mothers who would otherwise discontinue services.

Concerted effort to reduce home visitor turnover. Home visitor turnover is implicated in some mothers' decisions to cease program participation; in these cases it is the relationship with that particular home visitor, rather than with the local program, that is the key. Of course home visitors should be allowed the choice to leave their positions; we also note, however, the challenging (though obviously satisfying) nature of the job, its relatively low pay, and the relative lack of a career ladder within this field, and suggest that there may be steps yet untaken to stabilize the home visiting workforce.

Implications for HFM Within Communities and Across Sectors

HFM cannot be expected—nor should it expect—to solve the problem of child maltreatment on its own, but as a well-tooled, well-received, effective home visiting program for young mothers, it can join forces with others in communities to make its mark felt more considerably. The challenge here is to generate bold and innovative approaches across service systems; in our view, HFM is well up to that task. We offer the following thoughts.

Claim, and maintain, a "seat at the table."

The potential cross-agency policy implications of this research are numerous, and beg for collaborations at the state and federal levels of government as well. We note the increasingly vocal chorus of policymakers, program managers, citizens, and youth themselves who believe that developing and maintaining positive relationships is a critical component of successful living for all teens and young adults. Initiatives of this nature in the fields of juvenile justice, domestic violence prevention, child welfare, and secondary education, to name a few, are evidence of this wise approach. Given its expertise with a diverse population of young mothers, HFM has much to contribute to this conversation.

Continue to advocate for funding, programming, and public policy change, particularly in those policy areas most salient to the HFM population.

The success of HFM could be greatly enhanced by policy development in three arenas critical to these young families, namely housing, child care, and public support for college attendance. Admittedly, new public policy initiatives to benefit vulnerable children and adolescents are rarely popular, even less so in the current political climate. Yet it is unlikely that HFM participants and their peers will make the advances necessary to secure their own and their children's futures without a more coordinated, integrated, and yes, generous public investment in this hopeful, early developmental period of their lives—as infants, parents, and young families.

Conclusion

Results from this evaluation suggest that HFM is able, in some significant and critical ways, to help a teenage parent population navigate what can be a fairly tough time of transition. In this regard, HFM is a quintessentially preventive program, working with populations on the cusp—infants moving through early development, new families being formed, and young parents working to establish themselves as adults and caregivers—in contexts that often are extremely challenging. The idea that one home visiting program would be sufficient to "fix" the problems these families encounter represents overreaching to some considerable extent. And yet, as part of a more cohesive community strategy to help young families, home visiting has the potential to be a powerful family support tool. It is hoped that results from this and other home visiting evaluations will further this critical conversation.

Endnotes

1 Jacobs, F. H. (2003). Child and family program evaluation: Learning to enjoy complexity. *Applied Developmental Science*, *7*, 62-75.

2 As a result of continued support by the Children's Trust, and a grant from the Maternal, Infant, and Early Childhood Home Visiting Program (MIECHV), we have been able to add two more data collection time points to our study: approximately 4.5 years post-enrollment, and 5.5 years post-enrollment. The final report for this longitudinal study, entitled Massachusetts Healthy Families Evaluation-2-Early Childhood (MHFE-2-EC) is slated to be complete by September 30, 2016.

3 Boller, K., Daro, D., Del Grosso, P., Cole, R., Paulsell, D. Hart, B., Coffee-Borden, B., Strong, D., Zaveri, H., & Hargreaves, M. (2014). *Making replication work: Building infrastructure to implement, scale-up, and sustain evidence-based early childhood home visiting programs with fidelity*. Children's Bureau, Administration for Children and Families, U.S. Department of Health and Human Services. Princeton, NJ: Mathematica Policy Research.
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4 The median values were 10 months and 14 visits, respectively.

5 Boller et al., 2014

6 Brooks-Gunn, J., & Furstenberg Jr., F. F. (1986). The children of adolescent mothers: Physical, academic, and psychological outcomes. *Developmental Review, 6*(3), 224–251. doi:10.1016/0273-2297(86)90013-4
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INTRODUCTION TO THE

MFHE-2 Final Report

For over 15 years, researchers at Tufts University have been engaged in an ongoing, developmentally oriented evaluation of the Healthy Families Massachusetts (HFM) home visiting program. HFM is a voluntary newborn home visiting program for all first-time parents ages 20 and under; since its inception in 1998, HFM has worked with more than 33,800 families to meet five goals: (1) prevent child abuse and neglect by supporting positive, effective parenting; (2) achieve optimal health, growth, and development in infancy and early childhood; (3) encourage educational attainment, job, and life skills among parents; (4) prevent repeat pregnancies during the teen years; and (5) promote parental health and well-being.

The Massachusetts Healthy Families Evaluation (MHFE), launched in 1997, was similarly ambitious. The evaluation, rooted in Jacobs' Five-Tiered Approach to evaluation (see Appendix 1),[1] was undertaken to provide the Children's Trust with a comprehensive understanding of program operations and effects. The first phase of the evaluation (MHFE-1), completed in 2005, used a mixed-methods approach to describe program staff, services, and clients; examine program implementation compared to model standards; and provide feedback to HFM for program improvement (Tiers Two and Three evaluation activities). It also assessed the extent to which HFM was meeting its goals using outcome data and a non-experimental design (Tier Four evaluation activities).[A]

The second phase of the evaluation (MHFE-2), detailed in this final report, employed a randomized controlled trial (RCT) design with a new cohort of participants—with the aim of documenting program operations (Tiers Two and Three evaluation activities) and program effects

[A] Tier One activities produce needs and demand assessments, and usually are conducted prior to the program's implementation.

(Tiers Four and Five evaluation activities). The primary advantage of MHFE-2 was the use of an experimental design, introduced as part of Tier Five activities, which made it possible to attribute changes in participant outcomes to the work of HFM.

In the chapters that follow, we summarize the findings from MHFE-2 according to the Five-Tiered Approach. We begin, in Chapters 1 and 2, by providing an overview of HFM, the evaluation design, and the analytic approaches used for this report. Chapters 3 through 6 review findings from Tiers Two and Three evaluation activities—related to participant and community characteristics, program operations, as well as the relations between the two. Chapters 7 through 11 introduce findings from Tiers Four and Five evaluation activities—and focus on participant outcomes. Specifically, Chapter 7 reviews overall program impacts, and Chapters 8 through 11 review findings from follow-up analyses that were conducted in an attempt to further understand the pathways to program effects, subgroup effects, and the associations between outcomes and program operations. Chapter 12 highlights and synthesizes some of the key findings presented in the report, attempting to interpret what they might mean for the program going forward. Finally, Chapter 13 presents implications and recommendations for HFM, for its own operations and its relationship to other organizations and agencies, and to future home visiting research.

Staying true to the Five-Tiered Approach, the final two chapters were written following several meetings with and presentations to a range of core program stakeholders, including those who design and manage HFM, as well as those who help to implement it on the ground, to ensure that their views and interpretation of the findings are represented and that this report serves a practical purpose to inform future programming.

CHAPTER ONE

Evaluation Design

Healthy Families Massachusetts (HFM), a newborn home visiting program first implemented by the Massachusetts Children's Trust in 1998, is an ambitious effort to promote positive child and family development among young families across the state. In turn, the recently concluded Massachusetts Healthy Families Evaluation (MHFE-2), summarized in this report, was an ambitious attempt both to document the program's operations, and to establish its effects. Initiated in 2007, MHFE-2 employed a randomized controlled trial design for its impact component, collecting and analyzing data from two comparable samples of families—one that was offered HFM home visiting services and one that was not. In addition, detailed information was gathered and analyzed on the HFM families' experiences with the program and the varieties of approaches local programs took to offering their services.

This chapter provides the basic architecture of MHFE-2's research design. It begins with an overview of Healthy Families Massachusetts (HFM). We then describe the Five-Tiered Approach to evaluation,[2] which was used to inform the evaluation design and the analyses that are later described in this report. Finally, we elaborate on various aspects of the evaluation design, including information on the various data collection activities, subsamples, data collection timeframe, sample retention, and data sources.

1.1 Healthy Families Massachusetts (HFM)

HFM is a comprehensive, voluntary, newborn home visiting program for all first-time parents ages 20 and under in the state of Massachusetts. Affiliated with the Healthy Families America (HFA) home visiting program, HFM provides parenting support, information, and services to young parents, beginning

prenatally or until the child turns one year of age, and continuing until the child's third birthday. HFM program services include home visits, goal-setting activities, group-based activities, secondary contacts (such as through phone calls between home visitors and participants), and linkages and referrals to other resources. Since its inception, HFM has provided services to more than 33,800 families.

The program's stated goals are as follows:

1. Prevent child abuse and neglect by supporting positive, effective parenting;
2. Achieve optimal health, growth, and development in infancy and early childhood;
3. Encourage educational attainment, job, and life skills among parents;
4. Prevent repeat pregnancies during the teen years; and
5. Promote parental health and well-being.

1.2 The Five-Tiered Approach to Evaluation

This evaluation of HFM is rooted in Jacobs's Five-Tiered Approach to evaluation, a developmental model that moves evaluation activities from a primary focus on descriptive and process-oriented information to an emphasis on program effects (see Appendix 1).[3] Tier One activities produce needs and demand assessments, and usually are conducted prior to the program's implementation. Evaluation activities at Tiers Two and Three are directed at program processes: They describe program staff, services, clients, and costs; examine program implementation compared to model standards; and provide feedback to programs for improvement. Tiers Four and Five focus on outcome evaluation activities, assessing the extent to which a program is meeting both its shorter- and longer-term goals. The primary difference between Tiers Four and Five is the use of an experimental design in Tier Five. When such scientific rigor is possible, researchers are more confident that changes they observe in participants are the result of the intervention being studied.

The first cohort evaluation (the Massachusetts Healthy Families Evaluation [MHFE-1]) was initiated in 1997 and completed in 2005.[4] MHFE-1 focused on evaluation activities in Tiers Two, Three, and Four: program monitoring and accountability, quality review in relation to model and program standards, and measurement of outcomes. It employed a non-experimental design, relying on sources of comparison data that included state and nationwide historical data on key indicators and extant data from studies of adolescents and young parents. Using a mixed-methods approach, data were collected from a sample of 361 HFM participants, at six-month intervals, at four different time points over a period of 18 months. An ethnographic substudy, conducted in three communities, explored participants' beliefs about parenting, childrearing, and help seeking, and the extent to which HFM services were consonant with those beliefs. The findings from the first evaluation phase were promising; however, the non-experimental design precluded our ability to definitively attribute positive changes to the HFM program.

The second cohort evaluation (MHFE-2) began in 2007. MHFE-2, by virtue of its experimental design, was a Tier Five evaluation, and included research activities at all tiers except Tier One. Data generated at Tier Two allowed for a full description of HFM clients, their schools, and communities, as well as a description of the HFM programs in which they enrolled. Tier Three data provided documentation of HFM program operations, including an assessment of program-level fidelity (i.e., the extent to which a program is implemented according to the operational standards articulated for it). At Tiers Four and Five, evaluation activities focused on determining whether HFM achieved its intermediate and longer-term outcomes. The RCT design implemented at Tier Five allowed us to establish whether changes in outcomes could be attributed to the program. Data collected for this study also provided for a multi-faceted examination of the complex ecologies of first-time teenage mothers and their community contexts.

1.3 Study Design

MHFE-2 participants were recruited through the combined efforts of HFM-program-evaluation site personnel and MHFE-2 researchers. HFM was responsible for the first recruitment step. Eligible women who were referred to HFM were informed by trained HFM program staff about the study. Although HFM is a *universal* program, meant to serve every first-time parent under age 21 in Massachusetts, there were several eligibility requirements for participating in this MHFE-2 research project. To be eligible, participants had to be consenting females who were 16 years of age or older, had received no HFM services in the past (i.e., no transfers or re-enrollments), were able to speak either English or Spanish, and were cognitively able to provide informed consent.

Eligible women who consented to the study were randomly assigned to either the treatment group (Home Visiting Services; HVS) or the control group (Referral and Information Only; RIO). Participants assigned to HVS could receive HFM home visiting services.

Participants assigned to RIO were not eligible to receive HFM home visiting services, but were provided with information about child development and referred to other services (referrals were based on an intake administered by HFM at the time of assignment).

Once participants were randomly assigned by HFM to HVS or RIO, they were invited by the Tufts team to participate in several types of evaluation activities. Depending on which activities participants opted to complete, participants were categorized into various subsamples. Evaluation activities, subsamples, and attrition rates for each time point are described in the sections that follow.

1.3.1 Data Collection Timeframe, Activities, and Sample Retention

In total, HFM recruited 837 participants for the study, of whom 517 (62%) were assigned to HVS, and 320 (38%) to RIO (see Figure 1 for a flowchart illustrating MHFE-2 sample recruitment and retention procedures). Once participants were randomly assigned by HFM, the Tufts evaluation team assumed responsibility for recruitment and data collection activities.

The Tufts evaluation team recruited participants in two phases. First, each mother was asked to complete a half-hour interview on the phone, and sign a release allowing Tufts to access her agency (administrative) data.[B] Participants were given the option to do either or both activities. Given that participants were randomly assigned to HVS or RIO, this is the sample for which the causal effectiveness of the program can be established. For this reason, mothers who provided at least one source of data (via the phone interview or agency data release) were included in this sample, which we refer to as the *Impact Study sample*. Of the 837 mothers recruited for the study, 704 enrolled in the Impact Study sample. Of this group, 690 mothers (98%) agreed to release their agency data.[C]

Second, Impact Study participants (i.e., those who completed either a phone interview or released their agency data) were offered the option of participating in an additional 2–2.5 hour in-depth, in-person interview. Participants who consented to this research visit were considered to be part of the *Integrative Study subsample*. Data collected during the in-person interview were used to clarify findings that emerged from the Impact Study analysis; however, due to self-selection into this subsample, the assumption of random assignment no longer holds.

Sixteen percent (n = 133) of the initial 837 recruits did not participate in the evaluation—they are referred to as *excluded* in the flowchart—because they asked to be withdrawn or were deemed ineligible by Tufts (n = 91)[D], or were never located by the Tufts team (n = 42).

Interviews were conducted at three time points: Time 1 (T1) interviews were completed about one month after enrollment, Time 2 (T2) interviews were completed about 12 months after enrollment, and Time 3 (T3) interviews were completed about 24 months after enrollment.[E] T1 data collection proceeded from February 2008 to February 2010; T2 data collection proceeded from April 2009 to April 2011; and T3 data collection began in March 2010 and lasted until August 2012.

[B] Participating agencies include the Departments of Children and Families (DCF); Elementary and Secondary Education (DESE); Public Health (DPH); and Transitional Assistance (DTA).

[C] A small subsample of participants (see Figure 1) only released their agency data and did not complete the telephone interview. These participants are referred to as "Agency Only."

[D] Participants could be deemed ineligible by Tufts if they were enrolled into the study but did not meet HFM program-specific eligibility requirements (e.g., due to loss of their pregnancy through miscarriage or termination) or, if they did not meet MHFE-2 evaluation eligibility, as detailed earlier. All these participants were withdrawn from the study.

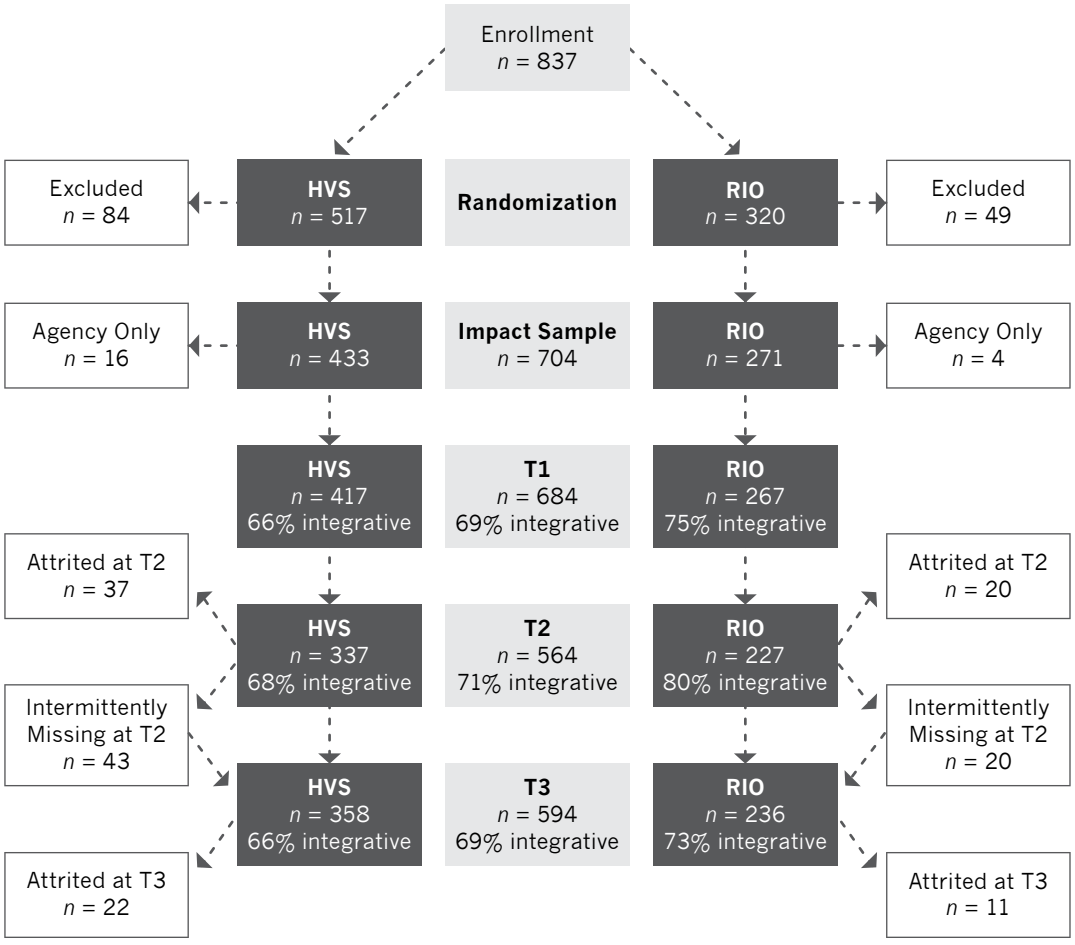
[E] This represents the average timing of data collection. Eighteen months from enrollment was permitted to collect T1 data (the majority of data were collected by four months); a window of 18 months between T1 and T2, and 18 months between T2 and T3. In total, no more than three years was permitted to lapse between T1 and T3 (average time between T1 and T3 was 24.84 months for the phone interviews and 24.72 for the in-person interviews). On average, there were 11.9 months between the T1 and T2 phone interviews, 12.1 months between the T1 and T2 in-person interviews, 12.4 months between the T2 and T3 phone interviews, and 11.98 months between the T2 and T3 in-person interviews.

As seen in Figure 1, phone interviews were completed by 684 mothers at T1 (97%), 564 at T2 (80%), and 594 at T3 (84%). The in-person interview was completed by 473 mothers at T1 (69%), 401 at T2 (71%), and 409 at T3 (69%). Of the 473 participants who elected to complete the in-person interview at T1, most (79%, *n* = 373) also completed it at T2 and T3.

Although not described in detail here, assessment of sample differences between (a) mothers who participated in the in-home visit (Integrative) vs. those who only participated in the phone interview (Impact Only); and (b) mothers in the study at T3 vs. those who had attrited by T3 were conducted and presented in a previous report. In brief, few differences were found.[5]

Impact Only and Integrative mothers differed on four characteristics. Mothers in the Impact Only sample were more likely to have already given birth at enrollment and to have received both cash assistance and food stamps prior to enrollment than mothers in the Integrative sample, and mothers in the Integrative sample were more likely to reside in neighborhoods with a higher percent of minorities. On all other parental, child, and neighborhood characteristics, the two samples were statistically equivalent. In terms of attrition, only one significant group difference was found: Mothers in the study at T3 were more likely to prefer speaking English than mothers who were lost due to attrition. On all other background characteristics, the two groups were statistically equivalent.

Figure 1. **MHFE-2 Sample Recruitment and Retention**



1.3.2 Data Sources

Data were collected from a variety of sources, including MHFE-2 phone interviews and in-person interviews, public agency administrative data, the HFM management information system (called the Participant Data System; PDS), and population-level data (i.e., 2010 U.S. Census). These data allowed us to accomplish a variety of analytic tasks, such as assessing program impacts, contextualizing the nature of HFM program operations and mothers' experiences in the HFM program, and unpacking the complex ecologies of first-time teenage mothers and their community contexts. Each of these data sources is described below in more detail.

Phone Interview

Semi-structured interviews were conducted by phone at each of the three annual data collection time points. These interviews generated data that helped characterize MHFE participants and their contexts, and included demographics (e.g., age, ethnic background, relationship status); current family resources and involvement of the baby's father; current residential and financial circumstances; and maternal well-being (e.g., social connection, depression). Information about participants' use of public and social services other than HFM was elicited to contextualize the impact of HFM services relative to the array of other services that mothers in both the HVS and RIO groups may have received.

In-Depth, In-Person Interview

In addition to participating in the phone interview, the majority of MHFE-2 mothers participated in an in-person interview in their homes. The in-person interview included a semi-structured interview, the administration of written questionnaires, and observations of mother-child interactions.[6]

During these visits, qualitative and quantitative methods were used to collect in-depth information about the use of and satisfaction with program services (i.e., HFM and other programs); social relationships and support networks (e.g., family/friend, father of baby, neighborhood/ community); mothers' histories of childhood care and victimization, and more recent histories of intimate partner violence; educational history and trajectory; and personal functioning/ well-being (e.g., depression, trauma history, stress and coping). These characteristics and contextual factors may influence, for example, the ways in which HFM program services are utilized by participants. Since child maltreatment represents only one component of parenting, with negative valence attached to it, indicators of positive, effective parenting, such as parenting attitudes and beliefs, and observations of mother-child interaction (e.g., maternal sensitivity and child responsiveness) were included in this protocol.

Public Agency Administrative Data

State public agency data were utilized to answer the primary research questions about the effectiveness of HFM in achieving the outcomes specified in its five goals. Participating agencies included the Departments of Children and Families (DCF), Elementary and Secondary Education (DESE), Public Health (DPH), and Transitional Assistance (DTA). These data were collected for all MHFE-2 participants who granted MHFE-2 researchers permission to access their administrative data. Through Memoranda of Understanding established between the Children's Trust and each of these agencies, data transfers from the agencies to MHFE-2 began in 2010.

HFM Participant Data

The Participant Data System (PDS) is the web-based management information system administered and maintained by the Children's Trust. Data entered by home visitors and supervisors provided background information about participants (e.g., pregnancy and birth information), detail about service planning and utilization (e.g., referral, enrollment, and service levels; the frequency and content of home visits and other HFM services; Individual Family Service Plans [IFSP's] goal setting and attainment), child and mother assessments and status reports, and discharge records.

Population-Level Census Data

Geographic Information Systems (GIS) was used to characterize the communities in which participants lived. Data were derived from spatially assigning participants to a community and then accessing spatially organized public databases (e.g., MassGIS, U.S. Census) that characterized the communities in which participants lived. Indicators of community-based assets and risks, such as socioeconomic stratification; risks in public health, public safety and environment domains; human and social capital; and community resources including infrastructure, public services, recreational and cultural facilities were used to inform and develop community-based constructs.

1.4 Chapter Summary

HFM is a universal newborn home visiting program for first-time parents ages 20 and under in the state of Massachusetts. It provides services such as home visits, goal-setting activities, group-based activities, secondary contacts (e.g., phone calls between home visitors and participants), and linkages and referrals to other resources. The program has five stated goals, which address the positive health and development of participating families.

This evaluation of HFM, as well as this report, is organized by the Five-Tiered Approach to evaluation, initially focusing on descriptive and process-oriented information and moving to an examination of program effects (see Appendix 1). As part of the evaluation, participants were recruited in two phases. Mothers were first invited to complete brief phone interviews and sign a release allowing Tufts to access her agency (administrative) data. Second, they were invited to participate in a more in-depth, in-person interview. In addition, data were secured from public agencies, the HFM management information system (Participant Data System; PDS), and population-level data. In the chapter that follows, the approaches used to analyze these data are described.

CHAPTER TWO

Analytic Approach

Analyses are organized by the Five-Tiered Approach to evaluation (see Section 1.2). Because Tier One activities produce needs and demand assessments, and are usually conducted prior to the program's implementation, this evaluation was conducted at Tiers Two through Five.

Tier Two evaluation activities focused on describing HFM clients and their communities. Tier Three activities focused on describing HFM program operations, including assessments of the *home visitor–mother relationship*, aspects of *program utilization* (e.g., number of home visits), as well as *individual-level fidelity* (i.e., the extent to which individual mothers utilize services as the HFM model intends) and *program-level fidelity* (i.e., the extent to which HFM programs operate as the HFM model intends). To this end, various analytic approaches were used to describe HFM clients and their communities, as well as the HFM program, and they are described first in this chapter.

For Tiers Four and Five, several different analytic approaches were used to determine whether HFM was successful at achieving its shorter and longer-term goals. First, overall program impacts were examined using an Intent to Treat (ITT) approach (described below in more detail). The RCT design, implemented as part of Tier Five, allows us to establish whether those outcomes can be attributed to the program. Next, pathway analyses (i.e., mediation models) were used to explore the mechanisms or pathways through which the program effects change. Then, we continued with more detailed examinations to explore whether effects might differ among several subgroups (i.e., moderation). Finally, analyses were run to examine whether outcomes might vary depending on several aspects of program utilization and model fidelity. The details of each analytic approach are described below in more detail,

according to their presentation in the report and the Five-Tiered Approach to evaluation.

2.1 Tiers Two and Three: Describing Mothers' Characteristics and Program Operations

Analyses conducted as part of Tiers Two and Tier Three evaluation activities were carried out using a mixed-methods approach. We describe the different analyses in the sections that follow, according to their presentation in this report.

2.1.1 Maternal and Community Characteristics

In Chapter 3, we describe mothers and the communities in which they live. This was done using quantitative data, which were then used to test for equivalency between treatment (HVS) and control (RIO) groups.

Maternal Characteristics

Section 3.1 presents descriptive information on a variety of maternal characteristics that were measured

at baseline.

Equivalency Tests (HVS vs. RIO)

After presenting descriptive information on baseline characteristics, t-tests and chi-square tests were used to examine whether there were systematic differences between HVS and RIO participants on these measures (Section 3.2). Randomly assigning mothers to HVS or RIO should ensure that mothers in these two groups are similar on all background characteristics. Despite careful implementation of the experiment, it is sometimes the case that random assignment is not executed perfectly in real-world field experiments. Equivalency testing is therefore a critical step; only if randomization was successful can differential outcomes be attributed to the home visiting intervention, rather than other differences (e.g., ethnicity, education level, parenting skills).

2.1.2 Program Operations

In Chapters 4, 5, and 6, descriptive information is presented for a variety of measures related to program operations in an effort to better contextualize mothers' experiences in HFM. The two main data sources for these analyses were (a) the PDS (the data system used by HFM home visitors to record information about all aspects of participants' service utilization), and (b) the in-depth, in-person qualitative interviews. With these data, we present descriptive information on how intensely participants used the program, the relationship that developed between the mother and home visitor, as well as a comprehensive depiction of mothers' living arrangements and the program's involvement in shaping them.

Program Utilization

As seen in Section 4.1, administrative data from the PDS were used to present descriptive information on several different aspects of program operations. These descriptive analyses were conducted on the *433 HVS participants only*. Descriptive information on quantitative variables related to *program utilization*, including duration (i.e., days enrolled in the program), number of home visits, secondary activities (i.e., any non-visit activities conducted by the home visitor or HFM staff with, or on behalf of, the participant), groups, and Individual Family Service Plan (IFSP) goals are described first.

Descriptive information on qualitative data related to secondary activities is presented in Section 4.1.3. As part of their documentation of services in the PDS, home visitors were required to enter every non-visit activity (regardless of whether contact was actually made) using a drop-down menu to select the type of secondary activity and a memo field to record the details of the activity. These memo fields were coded to further characterize the nature of the secondary activities. Specifically, data were coded to explore which parties were involved, who initiated the activity, the modality of the activity (e.g., phone call, ride, drop-by), whether the parties verbally connected, and what the content of the activity was (for more information on these codes, see Appendix 2, which reviews all measures used in this study).

Initially, an open coding approach was used with a selected number of cases to generate ideas about which codes to use. The team then worked iteratively to condense the codes and fine-tune the specific definitional parameters of each. A final set of codes was eventually established, with the intention of describing various aspects of the secondary activities. Each coder went through a several-week training process and was assessed for reliability before coding actual data. Over the course of the coding process 10% of the cases were coded by two coders, and inter-rater reliability was assessed to ensure that individuals were coding the data in a consistent manner. Regular team meetings were held to discuss any discrepancies that emerged during the assessments of inter-rater reliability.

Once this qualitative coding was finished, profiles of utilization were created using home visits, groups, and secondary-activities data. Descriptive information on these profiles is presented in Section 4.1.5. Mixture modeling, a statistical analysis for grouping participants

into subpopulations or subtypes, was used to create these profiles.[7] Mixture modeling is used when it is not known beforehand which participant belongs to which subpopulation, or subtype of program utilization.[8] Mixture modeling has advantages over other clustering techniques; specifically, it offers a principled, model-based approach to identifying subpopulations, and rigorous methods for evaluating alternative solutions.[9]

Home Visitor–Mother Relationships

In addition, mothers' experiences in HFM were contextualized using data from the in-depth, in-person qualitative interviews (see Section 4.2).

The full sample of T2 transcripts was used to generate the Relationship Substudy codebook for analyses related to valence (i.e., whether the relationship was considered a good one) and role (i.e., the perceived posture of the home visitor; n = 211). The full sample of T3 transcripts was used to generate codes related to relationship change (n = 194).

Codes were based on a series of questions about the nature of the mother's relationship with her home visitor, her satisfaction with the help offered, and the salience of various home visitor characteristics to her program participation. After a period of open coding using Atlas.ti software, which generated an expansive number of codes, the team worked iteratively to condense the codes and fine-tune the specific definitional parameters of each. Inter-rater reliability was ultimately established for the full sample.

The phenomenological interview data were analyzed in several ways. First, this report presents findings from qualitative analyses that focused on the *valence* (i.e., relationship quality) of the home visitor-mother relationship), *role designation* (i.e., whether the mother perceived the home visitor to be more like a friend, family member, or professional), *change* (i.e., the evolution of the home visitor-mother relationship over time), *reasons for continuation* (i.e., mothers' motivations for maintaining involvement in the program), and *reasons for discontinuation* (i.e., mothers' reasons for discontinuing enrollment). Thematic and pattern analyses were conducted in each of these areas, resulting in both in-depth, rich description and categorical variables.

These categorical variables were used to conduct a cluster analysis. This analytic technique is used to detect patterns within the data and create homogeneous clusters (or profiles) of individuals that are distinct from other clusters in some way. The cluster analysis used four factors to create these profiles, including the closed-ended choice *home visitor role designation* (i.e., friend, family member, or professional); *relationship valence* (i.e., good or not good); the *difference of positive to negative codes* pertaining to home visitor attributes and/or relationship characteristics (with negative values indicating more negative home visitor or relationship qualities); and the number of *major and minor disconnects* (i.e., misalignments with varying degrees of significance to participants). Ultimately, a four-level categorical variable was produced (for more detailed information, see Appendix 2, which reviews all measures used in this study). This categorical variable was used for descriptive purposes, as well as in outcome-related analyses.

As mentioned previously, the initial sample consisted of 211 participants; however, 32 participants were excluded since they received fewer than four visits, which would make it difficult or impossible for participants to establish views about their home visitors and/or their relationships. An additional 13 participants were also excluded as their responses related to the home visitor role did not fall into one of the established categories. This left us with a final sample of 166 participants. Yet, this number slightly changed in different analyses, due to item-level missingness on other variables included in that particular analysis.

The analytic sample for the initial valence analysis included 162 mothers; the analytic sample for in-depth analyses related to relationship profiles included 159 mothers. Since participants were able to select different roles for the closed- and open-ended questions (e.g.,

family for open-ended and *friend* for closed-ended), and because we were interested in understanding the essence of what each role represented to mothers, there is overlap between the samples used for each of the four relationship profiles.

The analytic sample for the cluster analyses included 157 of the 211 HVS mothers for whom T2 in-depth, in-person interviews were available (two additional participants were excluded from analyses due to missing data). Participants who never received a home visit (and thus could not have experienced the relationship) were excluded. Also excluded were mothers who did not categorize their home visitor in one of the three primary roles being considered here, and those for whom other essential data were missing.

The analytic sample for the change analysis included 64 mothers, specifically those who were still enrolled in HFM during the T3 interview. The analytic sample for the reasons for discontinuation analysis included 63 participants at T2 and 38 participants at T3. There were three analytic samples for the reasons for continuation analysis: 15 participants who discontinued their enrollment between the T2 and T3 interviews; 48 participants who were enrolled at T3 and who provided reasons for continuation at T2 or T3, and 20 participants who were enrolled at T3 and who provided reasons for continuation at both T2 and T3. If mothers discontinued program participation between T2 and T3, only their reasons for continuation provided at T2 were analyzed. If mothers were enrolled in the program at T3, any reasons provided at T2 and T3 were analyzed.

Individual- and Program-Level Fidelity to the HFM Model

In addition to program utilization, we also explored two dimensions of fidelity (i.e., the extent to which services were delivered as intended by the HFM model), including *individual-level fidelity* (i.e., the extent that individual mothers utilized services as the HFM model intends) and *program-level fidelity* (i.e., the extent that HFM programs operated as the HFM model intends). For these analyses, data were again drawn from the PDS (the data system used by HFM home visitors to record information about all aspects of participants' service utilization), for the 433 HVS participants only.

Linkages with Program Operations

After independently examining aspects of utilization and fidelity, we explored how these measures were associated with one another, as well as with maternal characteristics. First, we describe how continuous indicators of utilization and fidelity are correlated with one another. Second, we further unpack the four utilization profiles (which were created using information related to home visits, secondary activities, and groups) by describing each profile according to the full list of utilization and fidelity measures. Finally, we describe each of the home visitor-mother relationship profiles according to the full list of utilization and fidelity measures.

Preliminary Qualitative Analysis of Living Arrangements

Data were drawn from the in-depth, in person interview transcripts from T1 (n = 455), T2 (n = 248) and T3 (n = 146). During these interviews, mothers were asked to provide a timeline of their living arrangements and an accounting of each residence inhabited (i.e., where they physically lived, and with whom they lived) across the three time points of data collection; this resulted in a record of mothers' living arrangements from their birth until up to two years after enrollment. The coding scheme was developed using a random sample of transcripts from the T1 and T2 interviews, for mothers in both the treatment (HVS) and control (RIO) groups. Open coding was used to categorize the various types of living arrangements (i.e., types of residences in which mothers resided, and household compositions); Atlas.ti, qualitative data analysis software, was used to conduct open coding.

For the analyses presented in this report, themes were identified that focused on mothers' living arrangements, circumstances that led to stability and instability in living arrangements over time, and home visitors' involvement in helping mothers establish stability in their living arrangements. Once the final coding scheme

was developed, codes were applied to another random sample of transcripts to ensure that the themes were representative, and reliability was established. The final analytic sample included 20 mothers from the HVS group, and was purposefully selected to represent a range of residential stability experiences during the year prior to HFM enrollment and in the two years following enrollment. Summaries were then created, outlining each case in the sample according to the identified themes.

2.2 Tiers Four and Five: Outcome Analyses

The following section reviews the analytic approaches used when conducting evaluation activities for Tiers Four and Five. All analyses at this point incorporated the same list of outcome measures, corresponding to the five HFM goal areas. We review these analytic approaches in the order in which they are presented in the report.

2.2.1 Overall Program Effects

An Intent to Treat (ITT) approach was used to examine whether the intervention group (HVS) was significantly different from the control group (RIO) on all outcomes, meaning that analyses included all participants in the intervention group (the group intended to receive the program), regardless of whether they actually received any home visits. These analyses allowed for drawing conclusions about the causal impacts of HFM on mothers and children.[10]

ITT analyses are a conservative approach to estimating causal impacts of the program, since analyses include mothers who were assigned to HVS but did not receive services; indeed, effects indeed may be larger among mothers who actually receive a minimum number of home visits. Nevertheless, there are important benefits to the ITT approach. First, program effects closely reflect the reality of implementing the intervention at the population level, where non-uptake is an expected component in actual program delivery.

Moreover, ITT analyses make causal interpretation possible because random assignment ensures that any characteristics that could also influence the outcome are equally represented in both groups at baseline. Removing HVS mothers who did not receive home visits would invalidate the random assignment, preventing us from making causal statements about the effectiveness of HFM. It is likely that mothers who accept services are different from mothers who do not (e.g., they might be more motivated, less residentially mobile). If these mothers were removed from analyses, HVS and RIO groups would no longer be similar on baseline characteristics. In order to maintain comparability between HVS and RIO, it would be necessary to also remove RIO mothers who would not have accepted services, had they been randomly assigned to the intervention group. Given that it is not possible to determine which RIO mothers would not accept services, the only way to maintain comparability between HVS and RIO is to keep all mothers in the sample.

ITT analyses were conducted in Stata 13.0. Ordinary least squares (OLS) regression was used with outcomes that were continuous or measured on a ratio scale. Binary outcomes were analyzed using ordinary logistic regression. Whenever possible, outcomes were analyzed at both at T2 and T3, given that the program may have shorter-term and/or longer-term impacts. All models included a standard list of control variables to improve precision of the estimates of program effects (i.e., maternal age at the T1 phone interview [in years], target child's age at the T1 phone interview [in months], maternal race/ethnicity, whether mother was born in the U.S., whether mother moved at least once in last year, sum of public programs mother received since pregnancy, maternal level of depressive symptoms, and level of financial difficulties). An additional control for child sex was used in all Goal 2 analyses. Finally, calculated robust standard errors were calculated, to account for the clustered nature of the sampling design (within the catchment area where participants were recruited).

2.2.2 Pathway Analyses (Mediation)

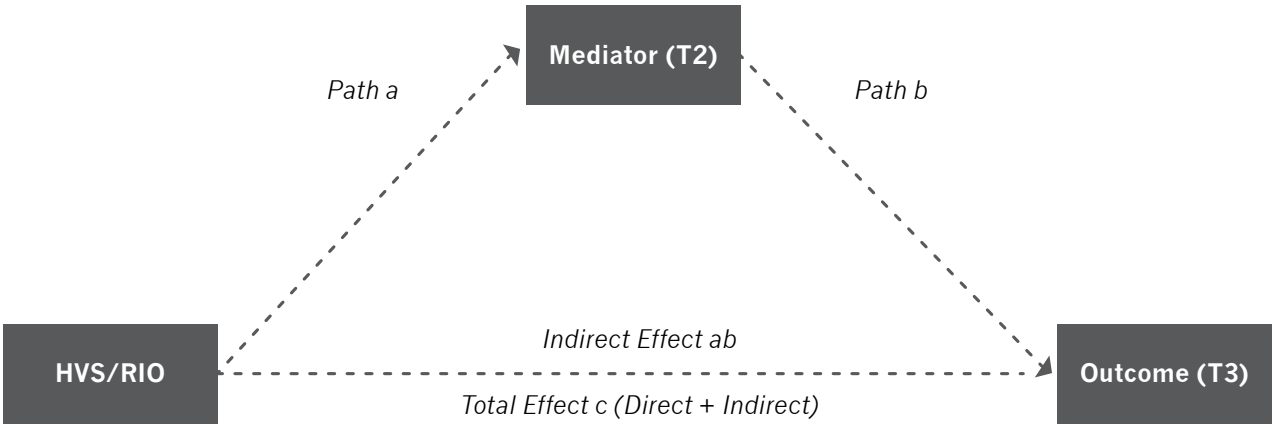
Mediation analyses were employed next, to explore *how* the program effects change in its participants. In other words, these analyses allowed us to explore the pathways that explain the causal impact of HFM on longer-term outcomes—specifically, whether the longer-term program impacts were achieved through effecting shorter-term mechanisms first.

A conceptual diagram of a mediation model is illustrated in Figure 2. Each goal area had its own unique set of mediators. To ensure temporal precedence (i.e., that the shorter-term mechanisms preceded the longer-term impacts), T2 measures were used as mediators and T3 measures were used as outcomes. Likewise, mediation models were not conducted when significant program effects were detected using administrative data from government agencies; these administrative outcome variables were measured over the span of the evaluation, and therefore it was not possible to ensure that the T2 mediator was measured before the outcome. Mediation hypotheses were tested only when significant direct effects (i.e., overall program effects in the five goal areas) were present for T3 outcomes.

As shown in the figure, testing a mediation model involves several steps. The first step explores the indirect effect of HFM on the outcome. This is done by first estimating the relation between random assignment status (HVS vs. RIO) and the proposed mediator (this is referred to as path *a*), and then the relation between the mediator and the outcome (path *b*). The indirect (mediated) effect of the program is thus estimated as a product of paths *a* and *b*. Next, a model is run to examine the direct effect of random assignment status on the outcome (path *c'*). A sum of the direct and indirect effects yields the total effect of the intervention on the outcome, (path *c*). We conclude that mediation occurs if the difference between *c* and *c'* is significant.

Mediation analyses were performed using PROCESS, a computational tool (macro) for IBM Statistics SPSS 21.[11]

Figure 2. **A Conceptual Diagram of a Mediation Model**



2.2.3 Subgroup Analyses (Moderation)

Next, we explored whether HFM might be more (or less) effective for specific subgroups of participants. Put differently, we explored whether certain mothers benefited more (or less) from the program, depending on their background characteristics.

Given the overwhelming number of possible subgroup analyses, we tested a common set of subgroups for all outcome areas. These subgroups were chosen by the analysis team, based on (a) whether the subgroup had been analyzed before in other HFA evaluations, and/or (b) whether there was a theoretical justification. All moderators in the common set were assessed at T1 or were time invariant. (See Appendix 2 for more detailed information about the variables used for subgroup analyses.)

Moderation analyses were conducted in similar fashion as the ITT analyses. Using Stata 13.0, continuous or ratio outcomes using OLS regression and binary outcomes using logistic regression were analyzed. All models controlled for the same variables used in the ITT analyses, and estimated robust standard errors. To test if program effects differed among particular subgroups, an interaction term between the random assignment variable (HVS = 1, RIO = 0) and the moderator was included. If significant, follow-up analyses estimated the marginal impact of the program within each subgroup.

2.2.4 Program Utilization

A mixed-methods approach was used to examine whether several aspects of program utilization were associated with outcomes. Necessarily, these analyses used an analytic sample that only included mothers assigned to the HVS group. All utilization analyses were conducted in similar fashion to the ITT analyses, meaning that they were run in Stata 13.0, and continuous or ratio outcomes were analyzed using OLS regression and binary outcomes using logistic regression. All models controlled for the same variables used in the ITT analyses, and estimated robust standard errors.

First, we examined how outcomes in the five goal areas were associated with three aspects of program utilization, including (a) number of home visits, (b) secondary activities, and (c) groups. Second, we examined whether program outcomes varied as a function of the home visitor-mother relationship. These analyses used a categorical measure of home visitor-mother relationship profiles, derived from the qualitative data.

Finally, piecewise regression, a deductive analytic technique used to determine nonlinear relations between continuous predictors and outcomes, was conducted. This approach allowed for testing the possibility that the association between home visits and outcomes might differ at a certain threshold of home visits (e.g., the association between home visits and the outcome might be small or nonexistent when mothers only received a few home visits, but large and significant after mothers received many home visits).

Piecewise regression with a predetermined *threshold* or *break point* was used; two possible thresholds were tested. The first threshold was five or more home visits. This was based on prior literature, which suggests that mothers need to receive a minimum number of visits before they are considered to have received the *treatment*. Next, a threshold of 18 or more home visits was tested. This threshold was chosen based on the HFM benchmark that states participants should receive "at least 18 visits per year enrolled."

After specifying the threshold, we estimated (a) the association between home visits and the outcome when home visits were *below* the threshold, (b) the associations between home visits and the outcome when home visits were *above* the threshold, and (c) whether the associations (estimated in steps "a" and "b") were significantly different from one another.

2.2.5 Program Fidelity

As part of Tier Four impact analyses, we explored whether mother and child outcomes vary as a function

of program- or individual-level fidelity. These analyses provided insight into whether the program was more effective at achieving its outcomes across the five goal areas when (a) programs operated as the HFM model intends, and/or (b) individuals within the program utilized services as the HFM model intends. For these analyses, a multi-level modeling framework was used, including only mothers assigned to the HVS group in the analytic sample.[12]

This approach involved several steps. First, we examined the extent to which mothers' outcomes were explained by the fact that they were "nested" in the same programs (i.e., 433 mothers assigned to the treatment group were enrolled in 22 program sites).[F] When mothers in the same program are more similar to one another, relative to mothers in a different program (e.g., mothers in a high-fidelity program might have more positive parenting attitudes because they all benefit from the same high-quality services), standard regression approaches are more likely to inaccurately model the associations between program-level fidelity and the outcome.[13] To address this possibility, the extent to which a given outcome varied *within* programs was compared to the extent that it varied *across* programs.[14, G] If most of the variability in mothers' outcomes was due to mothers' own characteristics, then most of the variability would be explained by individual differences among the mothers *within* program sites, and the proportion of variability *across* program sites would be very small (or even zero). When the proportion of variance in an outcome indicated *across*-site differences, we proceeded with a multilevel model. When the proportion was small or nonexistent, we did not proceed with multilevel analyses; instead, OLS regression with continuous and ratio outcomes and logistic regression with binary outcomes were conducted.

After specifying the model, we then estimated (a) the association between *individual*-level fidelity and outcomes and (b) the association between *program*-level fidelity and outcomes

2.3 Chapter Summary

A variety of analytic approaches were used in this evaluation, in an effort to describe maternal characteristics and program operations, as well as to establish program impacts. In subsequent chapters in which findings are presented, information about how the analyses were conducted is generally reprised. However, when needed, readers can return to this chapter for more detailed information.

In addition to the analytic approaches used, detailed information is also provided on the various measures used in this report (see Appendix 2). This appendix provides necessary detail on how measures were constructed, including those related to maternal characteristics, program operations, and outcomes. This appendix may be helpful to readers when trying to obtain a more nuanced understanding of the findings.

[F] Mothers were originally enrolled into 18 evaluation sites. However, for the purposes of the MHFE-2 evaluation, mothers were nested in the program within which they spent the most time. Because mothers could switch programs, this nesting approach includes an additional four evaluation sites.

[G] For continuous outcomes, the resulting statistic for a two-level partition of variance in the outcome by group is called the intraclass correlation coefficient (ICC; Luke, 2004, p. 18). For binary outcomes, the resulting statistic is often referred to as the variance partition coefficient (VPC; Goldstein, Browne, & Rasbash, 2002).

CHAPTER THREE

Tiers Two & Three: Participant Characteristics

The Five-Tiered Approach to evaluation argues that it is critical to understand who participants in a program, and in an evaluation, are, for at least two reasons. First, programs can do a better job in recruiting and engaging families with this information in hand. Furthermore, it helps programs and researchers interpret outcome findings—for example, by distinguishing the subgroups of mothers for whom the program was effective in particular domains (see Chapter 9). In addition, from a researcher's perspective, these data allow us to determine the integrity of the randomization process, since the treatment (HVS) and control (RIO) groups can be compared on a range of measures to determine whether they differed from one another from the onset of the study.

This chapter, then, describes MHFE-2 participants at the time of enrollment in the evaluation. It first presents descriptive information related to maternal and community characteristics that were measured prior to enrollment or that can be considered time-invariant characteristics (e.g., race/ethnicity). These measures are then used to test whether the treatment (HVS) and control (RIO) groups differed on these baseline characteristics.

3.1 Baseline Characteristics for the Full Sample

As seen in Table 1, mothers were 18.6 years old, on average, at enrollment; the babies' fathers were, on average, 20.9 years old. (Recall that, to be eligible, participants had to 16 years of age or older.) Over two thirds of the sample self-identified as non-Hispanic White or Hispanic (37% and 36%, respectively); the remainder self-identified as non-Hispanic Black (19%) or non-Hispanic "other" (8%). When asked about preferred language, the majority of mothers (74%) chose English; another 20% chose English and another language (most often Spanish), while 6% of mothers preferred Spanish only. Most mothers were born in the United States (81%), specifically in Massachusetts (68%). About two thirds of mothers were pregnant at time of enrollment (65%). At the birth of the target child (TC), mothers were, on average, 18.8 years. Fifty-three percent of children were male.

Administrative data from several state agencies also provide information about maternal characteristics at enrollment. According to DPH data, almost all births (99%) were singletons (i.e., not a twin). Data from DCF indicate that, prior to enrollment, 4% of target children had a DCF report. This figure includes all allegations of maltreatment, regardless of substantiation (i.e., regardless if there was sufficient evidence to warrant DCF intervention after investigation of child maltreatment). Further, it is worth noting that this number is based on the full sample, about two thirds of mothers were still pregnant at enrollment. Data from

DTA were used to assess receipt of cash assistance and Supplemental Nutrition Assistance Program benefits (SNAP; i.e., food stamps); prior to enrollment, 18% received cash assistance benefits and 17% received SNAP as grantees of their own accounts.

[H] **Within the Non-Hispanic Black group, the predominant ethnicities mentioned included Cape Verdean, African American, Haitian, and Caribbean. Within the Hispanic group, the predominant ethnicities mentioned included Puerto Rican, Dominican, and El Salvadorian.**

Table 1. **Baseline Characteristics for the Full Sample**

	%	*M*
Mother's Age at Birth of TC (Years)		18.8
Mother's Age at Enrollment (Years)		18.6
Ethnicity And Race		
White, Non-Hispanic	37	
Black, Non-Hispanic	19	
Hispanic	36	
Other, Non-Hispanic	8	
Mother Preferred Language		
English	74	
Spanish	6	
Other	1	
English and Other (Spanish Or Other)	20	
Mother Place of Birth		
United States	81	
United States Territory (Puerto Rico)	7	
Outside of United States	12	
Mother Born in Massachusetts	68	
Male Child	53	
Mother Parenting Status at Enrollment		
Pregnant at Enrollment	65	
Parenting at Enrollment	35	
Father of Baby Age at Enrollment		20.9
Plurality (DPH)		
Singleton	99	
Multiple Infants	1	
Presence of Maltreatment Report Prior to Enrollment (DCF)	4	
Received Cash Assistance Before Enrollment (DTA)	18	
Received Food Assistance Before Enrollment (DTA)	17	

Note. Percentages may not always total 100% due to rounding. DCF = Department of Children and Families; DPH = Department of Public Health; DTA = Department of Transitional Assistance; TC = Target Child.

3.2 Equivalency Tests (HVS vs. RIO) Using Baseline Characteristics

Randomly assigning mothers to HVS or RIO should ensure that mothers in these two groups are similar on all background characteristics. This design element is critical because if mothers in HVS have better outcomes than those in RIO, one can be confident that the impact is due to the home visiting intervention rather than other differences (e.g., ethnicity, education level, parenting skills).

Despite careful implementation of the experiment, it is sometimes the case that random assignment is not executed perfectly in real-world field contexts. To check whether random assignment was indeed successful, we examined whether there were systematic differences between HVS and RIO on baseline characteristics.

Baseline characteristics used in the following analyses come from data obtained through phone interviews, as well as from government agency databases. While T1 data collection occurred soon after enrollment, data from that time point cannot always be used for equivalence analyses to determine whether random assignment worked. In other words, if there are differences on T1 measures, it would be unclear whether the differences are due to problems with random assignment or shorter-term program impacts. To address this potential concern, we used data from the phone interview and administrative data sets that either are time invariant (e.g., race/ethnicity, place of birth) or predated enrollment (e.g., DCF reports of child maltreatment that occurred prior to participant's start of the program). Because agency data sets include information about mothers prior to their enrollment, it was possible to construct new variables that capture only information that occurred prior to mothers' enrollment into HFM.

HVS and RIO mothers were compared on the 13 baseline characteristics described above (see Table 1). For brevity, we only report statistically significant differences in this section (see Table 2). HVS and RIO mothers differ on two baseline characteristics, including racial/ethnic composition and country of mothers' birth. Specifically, HVS mothers were more likely to be Hispanic (39%) than RIO mothers (31%). HVS mothers were also less likely to be born in the United States (9% of which were born in Puerto Rico, 13% of which were born outside of the continental United States) compared to RIO mothers (4% of which were born in Puerto Rico, 10% outside of the continental United States).

Table 2. **Sample Descriptives and Group (HVS/RIO Equivalence Testing**

	HVS (n = 433)	RIO (n = 271)	HVS-RIO Difference	p
	%	%	%	
Ethnicity and Race				.025
White, Non-Hispanic	34	42	-8	
Black, Non-Hispanic	20	17	3	
Hispanic	39	31	8	
Other, Non-Hispanic	7	10	-3	
Mother Place of Birth				.005
United States	77	86	-9	
United States Territory (Puerto Rico)	9	4	5	
Outside of United States	13	10	3	

Note. HVS = Home Visiting Services, RIO = Referral and Information Only. Significant group differences are reported at the $p < .05$ level.

To conclude, HVS and RIO mothers were equivalent on the vast majority of background characteristics at baseline, with the exception of racial/ethnic composition and country of mothers' birth. To address these non-equivalencies, all analyses controlled for a standard list of control variables, including measures of ethnicity/race and place of birth, to statistically account for these differences and improve precision of the estimates of program effects (see Chapter 2 and Appendix 2 for more information about these control variables).

3.3 Chapter Summary

Data showed that mothers who participated in this evaluation came from diverse backgrounds with respect to cultural background, access to resources, and well-being. As mentioned previously, these characteristics were useful in other analyses, such as subgroup analyses that examined the extent to which program effects differed for mothers with particular background characteristics (see Chapter 9). This chapter also examined the extent to which baseline differences were apparent between treatment (HVS) and control (RIO) mothers, in order to assess the integrity of the randomization process. Results showed that HVS and RIO mothers were equivalent on the vast majority of background characteristics. In the chapter that follows, findings from Tiers Two and Three evaluation activities are reviewed, paying particular attention to program operations.

CHAPTER FOUR

Tiers Two & Three: Program Operations

The earlier tiers of the Five-Tiered Approach focus on describing the core elements of programs—participants, services, staff, and often costs—and exploring the experiences of participants as they make use of programs. This chapter takes on the latter topic, providing a comprehensive overview of mothers' experiences in HFM. The chapter begins by describing aspects of participants' *program utilization*, including duration in the program (measured in days), number of home visits, number of groups attended, number of secondary activities (i.e., non-visit activities conducted by the home visitor or HFM staff with, or on behalf of, the participant), and mothers' Individual Family Service Plan (IFSP) goals. This section is followed by a more in-depth examination of the secondary activities for which home visitor notes were used to characterize these activities along several dimensions, including *parties involved* (e.g., home visitor and mother, home visitor and a family member or friend), the *initiator* of the activity (e.g., home visitor, mother), the *modality* of the activity (e.g., phone call, text, note or mailing), whether the parties *verbally connected*, and the *content* of the activity (e.g., scheduling; resources, information, or referral). Finally, the utilization measures were used in analyses that allowed us to detect unique *profiles of utilization* among participants.

In this chapter, the home visitor-mother relationship is also described, using data from the in-depth, in-person interviews. Within this section, several aspects of the relationship are reviewed, beginning with *valence* (i.e., the mother's assessment of the quality of her relationship with the home visitor, and of the home visiting program), and the *role designations* used by the mother to describe the home visitor (i.e., friend, family member, or professional). Findings from analyses that used these two constructs to identify

distinct *home visitor-mother relationship profiles* are subsequently presented. Next, descriptions of how the home visitor–mother relationship developed over time are described. We conclude with descriptive finding from mothers' self-reported *reasons for continuing* and *reasons for discontinuing* their participation in HFM.

The final section of this chapter reviews aspects of fidelity. Two types of fidelity are presented: *program*-level fidelity, which reflect the degree to which programs operated as intended by the HFM model, and *individual*-level fidelity, which is defined as the extent to which individual MHFE-2 participants utilized the HFM services as the model intends.

4.1 HFM Program Utilization

This section presents descriptive information on the extent and nature of mothers' utilization of the HFM program. Data were drawn from the PDS, the data system used by HFM home visitors to record

information about all aspects of participants' service utilization.

4.1.1 Program Duration

Duration was calculated in days, from each participant's enrollment date through her discharge date. To calculate this measure, only those periods when mothers were actively enrolled in a program were considered. Thus, the duration measure accounted for the fact that mothers may have had multiple enrollments, with intermittent periods of inactivity (see Figure 3). For Mother "A," who had one continuous enrollment, her duration was calculated by subtracting her first discharge date from her first enrollment date. Alternatively, Mother "B" had two enrollments. Her duration was derived by (1) calculating the duration for her first enrollment (1st discharge date – 1st enrollment date), (2) calculating the duration for her second enrollment (2nd discharge date – 2nd enrollment date), and then (3) adding the first and second enrollment period duration calculations (derived in steps 1 & 2).

Results show that on average, mothers enrolled in the program for 448 days (almost 15 months). The median number of days in the program was 297 (almost 10 months), indicating that the average (448 days) was biased upwards due to the fact that a smaller number of mothers received a rather large number of visits[l]. This is reflected in Figure 4, which shows that there was great variation among mothers. (For more information about duration, including a detailed analysis of how duration is associated with maternal characteristics, see Section 6.1).

[l] The median is a useful measure of central tendency when the distribution of responses is skewed, as is the case for many of the utilization variables, in which the responses are clustered at the low end, with a few very high responses, which drive the mean upward.

Figure 3. **Logic Used for Calculating Program Duration**

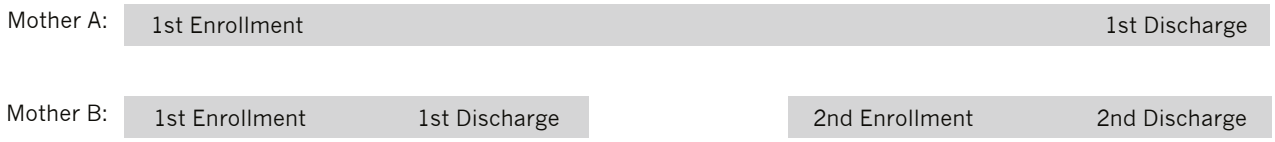
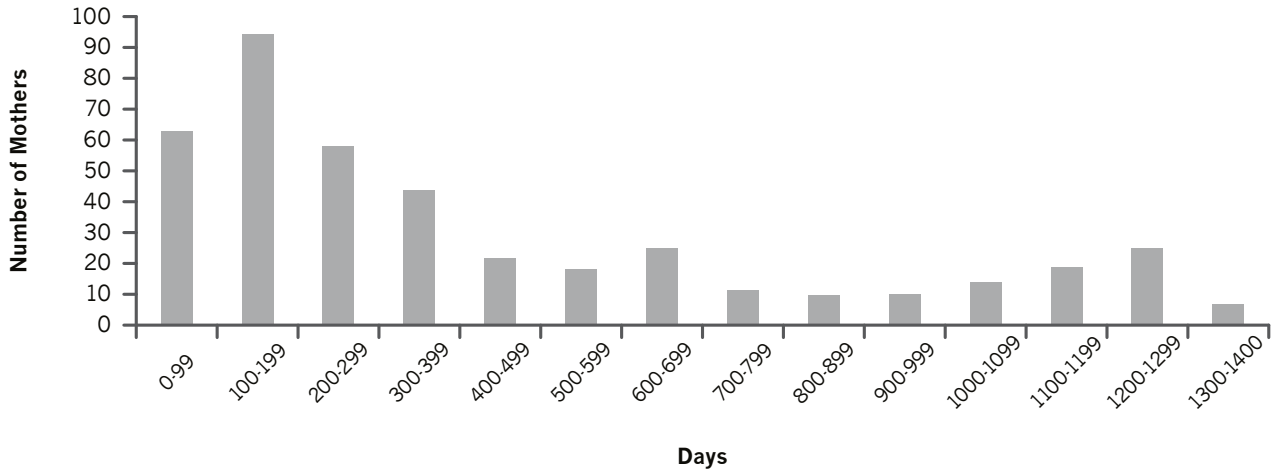


Figure 4. **Total Number of Days Enrolled in HFM**



4.1.2 Home Visits

Mothers received an average of 24 home visits over the course of their enrollment in HFM. The median number of visits was lower (14 visits), indicating that the average was inflated by a small number of mothers who received many home visits. This number varied greatly, from 0 to 118, as seen in Figure 5. Approximately 14% of the sample did not receive any home visits.[J] Additional analyses indicated that 30% of the sample received fewer than 5 home visits and 58% received fewer than 18 home visits in total (see Section 6.1 for a detailed analysis of how the number of home visits received is associated with maternal characteristics; see Chapter 10, where the possibility of threshold effects, using these cutoffs are tested).

Given that HFM aims to reach mothers prenatally, we also examined the number of home visits that mothers received while pregnant. ***On average, mothers received four visits while pregnant (range = 0–26).*** The median value on this measure was smaller (just one visit), indicating that the average was likely inflated by a small number of mothers who received many prenatal home visits.

[J] We examined differences in maternal background characteristics between mothers who received no home visits, one to four home visits, and five or more home visits over the course of their enrollment in HFM. Mothers who received no home visits generally were statistically equivalent to mothers in the other two groups. Several differences emerged, however, between mothers who received one to four home visits and those who received five or more. Notably, mothers who received five or more home visits were younger at the time of their child's birth, less likely to have been born in the US, and less likely to have received cash benefits or food stamps since enrollment than mothers who received one to four home visits.

4.1.3 Secondary Activities

Secondary activities is a term used to describe any non-visit activities conducted by the home visitor or HFM staff with, or on behalf of, the participant. As part of their documentation of services in the PDS, home visitors described any non-visit activity (regardless of whether contact was actually made) using a drop-down menu to select the type of secondary activity and a memo field to record the details of the activity. Home visitors were required to enter every secondary activity; therefore, secondary analyses in this section include more *substantive* activities (e.g., a phone call that includes conversation about domestic violence, an unannounced drop-by visit during which the home visitor delivers groceries to the mother), as well as less substantive activity (e.g., a phone call to schedule the next home visit, voicemails left by the home visitor).

On average, home visitors reported 62 secondary activities per mother. The median number of secondary activities was 43. As seen in Figure 6, however, the number of secondary activities mothers' received varied considerably from person to person.

Figure 5. **Total Number of Home Visits Received in HFM**

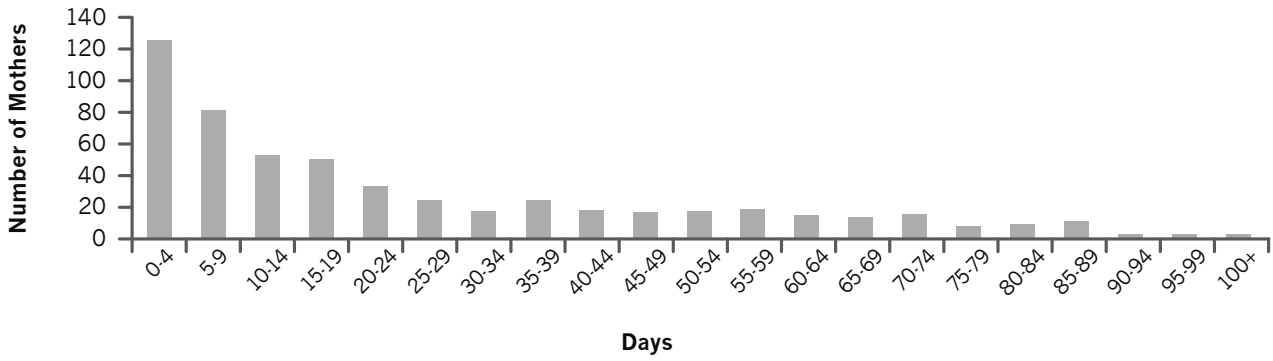
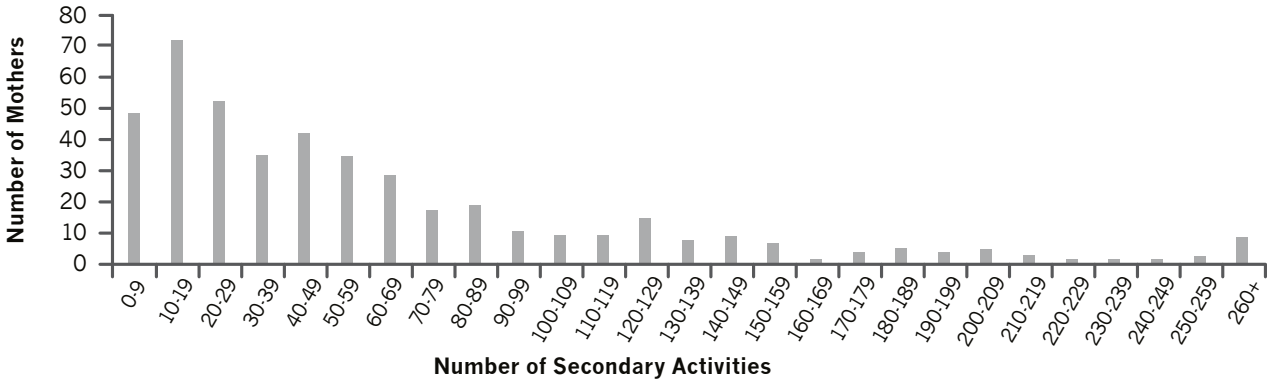


Table 3. **The Nature of Secondary Activities**

	Mean	Min	Max
Parties Involved			
Home Visitor and Mother	79	51.3	34
Home Visitor and Agency or Doctor	6	3.5	1
Home Visitor and Family or Friend of Mother	6	3.5	2
Home Visitor and HFM Staff	0	0.2	0
Home Visitor and Other	0	0.1	0
Home Visitor and Unknown	1	0.6	0
Mother and Unknown Party	0	0.1	0
HFM Staff and Mother	5	2.5	1
HFM Staff and Another Party	1	0.7	0
Other	0	0.0	0
Unknown	0	0.0	0
Initiator			
Home Visitor	72	44.8	31
Mother	10	7.5	4
Agency or Doctor	1	1.0	0
Family or Friend of Mother	0	0.3	0
HFM Staff	6	2.6	1
Other	0	0.1	0
Unknown	10	6.3	3
Modality			
Phone Call	64	40.9	25
Home Visit or Drop-By	14	8.7	5
Mailing or Note	14	6.6	4
Text	2	1.8	0
Ride	0	0.2	0
Other	2	1.6	0
Unknown	4	2.6	1
Verbal Connection			
Yes	29	19.2	10
No	55	31.9	22
Unknown	16	11.3	5
Content			
Check-In or Life Event	16	13.0	7
Enrollment or Gauging Interest	10	3.6	3
Home Visit or Drop-By Did Not Happen	10	6.7	4
Resources, Information, or Referrals	14	12.7	5
Scheduling	38	29.7	19
Social or Events	3	2.7	1
Other	1	0.7	0
Unknown	8	4.2	2

Note. It is possible for a single secondary activity to have multiple content codes; therefore, the percentage reflects how often a code occurred, relative to the total number of content codes for each mother. This is different from all other percentages, which were mutually exclusive, and reflect how often a code occurred relative to the total number of secondary activities for each mother.

Figure 6. **Total Number of Secondary Activities Received in HFM**



These secondary activities were coded for five different characteristics: (a) the parties involved (e.g., home visitor and mother, home visitor and a family member or friend); (b) the initiator of the activity (e.g., home visitor, mother); (c) the modality of the activity (e.g., phone call, text, note or mailing); (d) whether the parties involved verbally connected; and (e) the content of the activity (e.g., scheduling; resources, information, or referral). Each of these secondary activity characteristics is detailed below; they are also summarized in Table 3.

Parties Involved/Initiators

The following codes were used to describe (a) parties involved and (b) initiator of the activity. The following categories were used: *mother of baby (i.e., the participant*), *home visitor, HFM staff* (e.g., a HFM representative other than the home visitor, including coordinators, staff at different HFM sites), *family or friend of the mother* (including the father of the baby and foster care), *agency or doctor* (including any institution whose purpose is to provide resources, such as a public library, food pantry, welfare agency), *other* (used when the initiator or recipient is known, but does not fit into the other categories), and *unknown* (used when the code cannot be determined from the available data).

See Table 3, subsection "Parties Involved," for a summary of findings regarding which individuals were involved in the secondary activity, and the initiator of these activities. ***Not surprisingly, activities most often involved home visitors and mothers. Data showed that mothers had an average of 51 activities with the home visitor (79% of activities).*** The remaining activities most frequently occurred between the home visitor and agency or doctor (on average this occurred three times per mother; 6%), home visitor and family or friend of mother (on average this occurred three times per mother; 6%), and HFM staff and mother (on average this occurred two times per mother; 5%).

On average, home visitors were by far the most frequent initiators, initiating about 45 activities (72%) per mother, by far the most frequent initiator. On average, mothers initiated about eight activities (10%), and HFM staff (other than the home visitor) initiated about three activities (6%).

Modality

Modality was a code used to indicate the nature of the activity, and included the following categories: *phone calls, texts, home visit or drop-by* (used when the home visitor attempts a scheduled home visit or an unscheduled face-to-face encounter); *ride* (used when home visitor provides transportation directly to the mother, but not including instances where the home visitor arranges for a cab); *mailing or note* (when any correspondence was sent by mail, or a home visitor left a note at the mother's place of residence); *other* (any secondary activity that does not fit into other categories, such as email messages, Myspace messages);

and *unknown*. Note that these activities could have occurred between *any* category in the *parties involved* code; in other words, these codes not only include home visitor-mother activities, but also any one of the other dyad categories (e.g., a call between home visitor and a pediatrician).

As seen in Table 3, ***there were about 41 phone calls (64% of activities), 9 unannounced drop-bys or attempted home visits (14%), 7 mailings/notes (14%)[K], and 2 texts per mother (2%).*** Rides were extremely infrequent (i.e., less than 1% of activities) and, on average, occurred fewer than once per mother.

Verbal Connection

Next, the data were coded to indicate whether the parties verbally communicated with one another. Possible codes included *yes, no,* or *unknown*. In order to be coded as *yes* there had to have been explicit indication that communication actually occurred (e.g., "spoke with," or "talked to"). When there was evidence that the parties involved did not verbally communicate with each other, verbal connection was coded as *no*. By definition, this always included modalities such as mailings, texting, email, and faxing. When it could not be determined whether verbal communication occurred between parties, connection was coded as *unknown*.

As shown in Table 3, most secondary activities (55%) did not result in a verbal connection between the parties involved. ***Verbal connection was recorded in 29% of secondary activities, averaging about 20 times per mother.*** (The remaining 16% was coded as *unknown* verbal connection.) Note again that this prevalence of verbal connection includes not only home visitor-mother activities, but any dyad (e.g., a home visitor call to DCF).

[K] Note that home visitors recorded information about noncompleted home visits (e.g., a cancellation or no-show) in the "Secondary Activity" section of the PDS; information related to completed home visits was recorded elsewhere in the PDS. Within the modality category, a drop-by referred to an instance in which the home visitor attempted an unscheduled home visit. When a scheduled home visit was not completed, the secondary activity was coded as follows: modality was coded as a drop-by/home visit, and the content was coded as "home visit or drop-by did not happen."

Content

To describe in greater detail the different types of content within each secondary activity[L], a typology of eight codes was generated (see Table 3):

Check-in or life events refers to chit chat, checking in, conversations about life events, or, in the case of a missed visit, any explanation for why the mother was not available. The valence of any of these activities could be positive, negative, emotional, or neutral. When a reason for rescheduling was given, this was also considered check-in/life events (e.g., "Mom called home visitor and said she could not meet because she had a meeting at her job and she will be busy the rest of the week."). ***On average, 13 activities were related to check-in or life events per mother; this reflected 16% of all content codes.***

Enrollment or gauging interest refers to any activity related to changes in service level, enrollment, or discharge of the participant (e.g., conversations about being on the waitlist, welcome or discharge letters, transfer activities from one home visitor or program to another). ***On average, about four activities per mother were related to enrollment or gauging interest; this reflected 10% of all content codes.***

Home visit or drop-by did not happen refers to instances when a home visitor attempted a scheduled home visit or an unscheduled drop-by, but the mother was not physically there, could not complete the home visit for some other reason. ***On average, there were seven instances of the "home visit or drop-by did not happen" code per mother; this reflected 10% of all content codes.***

Resources, information, or referrals refers to activities where someone was discussing a material good or service, providing information to the mother, or helping with referrals. Examples include activities focused on teen

[L] A single secondary activity could have multiple content codes; therefore, the percentage reflects how often a content code occurred, relative to the total number of content codes for each mother. This is different from percentages presented elsewhere, which were mutually exclusive, and reflect how often a code occurred relative to the total number of secondary activities for each mother.

living programs (TLPs), maltreatment reports filed with DCF, and helping the mother obtain resources such as food stamps or groceries. By definition, if "agency/doctor" was one of the parties involved, the entry was always coded as *resources, information,* or *referrals*. ***On average, 13 activities per mother were related to resources, information, or referrals; this reflected 14% of all content codes.***

Scheduling refers to an activity that was related to scheduling a home visit (e.g., coordinating time, location and/or content of home visits; "please contact" letters). ***Scheduling activities occurred, on average, 30 times per mother and were the most common content code found, accounting for 38% of all content codes.***

Social and events refers to activities that contained information about social events (e.g., holiday or birthday cards mailed to mother, information about parties, newsletters about social events). ***Social or event-related activities, on average, took place about three times per mother, and accounted for only 3% of all content codes.***

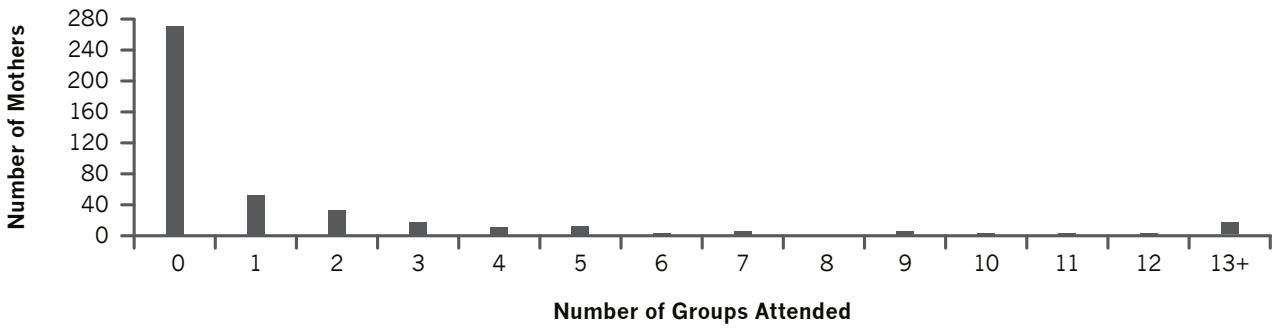
To summarize, secondary activities is a term used to describe any non-visit activities conducted by the home visitor or HFM staff with, or on behalf of, the participant. On average, home visitors reported 62 secondary activities per mother. ***Not surprisingly, activities most often involved home visitors and mothers. Most activities occurred over the phone, although unannounced drop-by/unsuccessful home visits and mailings/notes were modalities of communication reported in the PDS.*** ***The content of secondary activities most often focused on scheduling, followed by check-in and life events, as well as resources, information, and referrals.***

Together, these data provide a more comprehensive understanding of the range of activities home visitors undertake; indeed, their work is far more varied than their job title implies. These findings also suggest that home visitors worked diligently to engage mothers outside the context of the home visit. Moreover, in addition to engaging mothers, home visitors engaged with families and community resources in the service of helping their participants achieve HFM goals. Given the extent of the program-oriented activities represented here, the value of including secondary activities under the program services umbrella (in addition to home visits and groups) is clear. As such, in subsequent analyses, measures of secondary activities are incorporated in this way, providing a more complete understanding of both the experiences of the home visitor as well as the mothers in home visiting programs such as HFM.

4.1.4 Groups

Groups is a term used to describe HFM program activities that occurred outside of the actual home visit, such as parenting education classes and social outings. ***On average, mothers attended two groups, although the range was from 0 to 28.*** The median value on this measure, however, was actually 0, indicating that the average was likely inflated by a small number of mothers who attended many groups (see Figure 7).

Figure 7. **Total Number of Groups Attended in HFM**



4.1.5 Utilization Profiles

Next, analyses were conducted to identify groups of participants with similar program utilization profiles. Analyses were conducted on the full HVS subsample (n = 433) and were derived by combining information about the total number of home visits, groups, and secondary activities mothers received.

When exploring profiles of program utilization, we chose to focus on a subset of secondary activities—those that reflected *substantive* utilization. Put differently, the focus is on instances where the mother could be seen as actively consuming the program service in some way and excluded instances in which the mother was a passive (or perhaps non-) recipient of the service (e.g., home visitor leaves a voice mail for mother), or the activity was carried out on behalf of the mother but did not directly include her (e.g., home visitor faxed a form to a government agency regarding a public program, such as Women, Infants, and Children-WIC). To this end, in the creation of these grouping variables, only secondary activities in which (a) the activity included the mother and home visitor, or the mother and HFM staff (i.e., other dyads such as home visitor and family/friend, or home visitor and agency were excluded), (b) the parties involved verbally connected (with the exception of texting, which was also included), and (c) the content of the activity included something more than just scheduling (i.e., if the only content of an activity was "scheduling," it was excluded) were included. ***Only 16% of all secondary activities met these criteria for substantive utilization, about 10 activities per mother, on average (median = 4).***

Results revealed four distinct profiles of program utilization, which are summarized below (see also Figure 8).

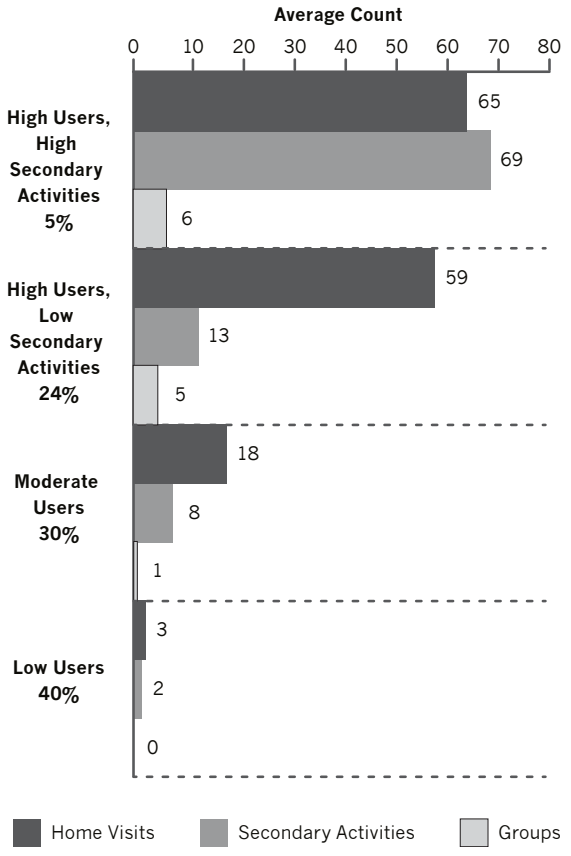
High Overall User, High Secondary Activities: This profile included 5% (n = 23) of mothers, and could be characterized as the most active utilization profile. Participants in this profile had, on average, 65 home visits (range 28-118), 69 secondary activities (range 35–138), and 6 group visits (range 0–21).

High Overall User, Low Secondary Activities: This profile included 24% (n = 105) of mothers. Participants in this profile averaged 59 total home visits (range 19-99), 13 secondary activities (range 0-34), and 5 groups (range 0–28).

Moderate User: This profile included 30% (n = 131) of mothers were described as exhibiting moderate utilization, as measured by an average number of 18 home visits (range 3–37), 8 secondary activities (range 0–41), and 1 group (range 0–12).

Low User: This profile included 40% (n = 174) of mothers. They averaged three total home visits (range 0–10), two secondary activities (range 0–10), and zero groups (range 0–2).

Figure 8. **Average Groups, Home Visits, and Secondary Activities for Program Utilization Profiles**



To conclude, these profiles suggest that there is significant variability among mothers in terms of how they actually utilize HFM. The largest proportion of mothers (40%) fell into the Low User category, but there also was a substantial portion of the sample (30%) who could be considered Moderate Users. In future analyses (see Chapter 6) we explore the extent to which maternal characteristics are associated with these profiles. Such analyses yield important information about how the program is targeting mothers, as well as the barriers that may prevent mothers from more fully utilizing HFM services. Finally, and perhaps most interestingly, the most engaged users were represented by two distinct profiles. Both profiles of users participated in a high number of home visits and groups; however, one profile engaged in many more secondary activities than the other. This suggests that even the most active users engage in HFM in distinct ways. Again, the extent to which these profiles are related to maternal characteristics is an important question (see Chapter 6), as it provides a more comprehensive understanding of which mothers are using the HFM program more actively than others.

4.1.6 Individual Family Service Plan (IFSP) Goals

This section presents descriptive information on mothers' Individual Family Service Plan (IFSP) goals. These are goals that mothers establish with their home visitors, with an expectation that the mother will focus on achieving these goals as part of her involvement in HFM. Once a mother achieves her initial IFSP goals, she has the opportunity to review existing goals and develop new IFSP goals with her home visitor. Data for these analyses were drawn from the PDS, where HFM home visitors recorded a variety of information about the IFSP goals, including a description of the specific IFSP goal (e.g., "Learn ways to calm a crying baby"), the goal area to which the specific goal corresponded (e.g., positive parenting, preventing repeat birth), and whether the goal was met.

Of those mothers assigned to the treatment group (n = 433), 66% set at least one IFSP goal. Descriptive information on mothers' IFSP goals is summarized in Table 4. ***On average, mothers had three IFSP goal-setting sessions*** (i.e., an initial meeting with their home visitor to set goals, followed by two additional meetings to review existing goals and/or set new goals). Over the course of these sessions, ***mothers set an average of seven IFSP goals***. These goals could be the same goals repeated over time if the mother did not meet the goal by the time of the follow-up session.

Significant differences emerged in terms of how many goals were set in each of the five goal areas. Most of mothers' goals pertained to the health, growth, and development of their child (Goal 2) and educational attainment, and job- and life-skill development (Goal

Table 4. **Descriptive Information on Mothers' IFSP Goals (n = 285)**

	Mean	Min	Max
Total Number of IFSP Goal-Setting Sessions	2.95	1	8
Total Number of IFSP Goals Mother Set	6.96	1	33
Number of IFSP Goals Set, by Goal Area			
1. Supporting Parenting and Nurturing Home Environment	0.92	0	10
2. Health, Growth, and Development of Child	2.70	0	13
3. Educational Attainment, Job, and Life Skills	2.94	0	16
4. Prevention of Repeat Pregnancy	0.06	0	2
5. Parent Health and Wellness	0.33	0	5
Total Number of IFSP Goals Met	4.03	0	18
Proportion of IFSP Goals Met to Set	0.40	0	1

Note. IFSP = Individual Family Service Plans.

3). They set three goals on average for both goal areas. In contrast, mothers set less than one goal on average in the areas of supporting parenting and nurturing home environment (Goal 1), prevention of repeat pregnancy (Goal 4), and parent health and wellness (Goal 5). These findings are consistent with findings from the first phase of this evaluation (MHFE-1),[15] which also found that mothers set fewer goals in the areas of supportive parenting and nurturing home environment (Goal 1) and the prevention of repeat pregnancy (Goal 4), compared to education/economic attainment (Goal 3) and health, growth, and development of the child (Goal 2). (Note that Goal 5 did not exist until after the completion of MHFE-1.)

Information on whether the goal was met was recorded only 60% of the time (in 174 cases). We used data from these cases to calculate the average number of goals met. As shown in Table 4, those participants for whom this information was recorded met the goals they set 40% of the time, on average.

4.2 The Home Visitor–Mother Relationship

There is great interest in the field—among both researchers and program providers—in developing a more sophisticated understanding of the relationship between the home visitor and the participant. Despite its being arguably the central feature of the home visiting approach, relatively little is known about how the relationship actually works for participants, or how it contributes to participant outcomes. Since the initiation of MHFE-1 in 1998, the Tufts team has sought to understand this core element of HFM. The Relationship Substudy, data from which are presented in this section, used a mixed-methods approach to characterize the qualities of the relationship that developed between the mother and the home visitor, to describe mothers' satisfaction with their home visiting services, to explain why mothers used home visiting services in particular ways, and to assess the extent to which these relationship dynamics were associated with outcomes in the five goal areas (see Chapter 10).

To investigate the nature of the relationship between the home visitor and her client, analyses examined the following themes:

Valence: the quality of the home visitor-mother relationship (e.g., how well mothers enjoyed the relationship, what relational or personal home visitor characteristics were salient to mothers);

Role designation: the perceived postures of the home visitor (e.g., friend, family member, or professional) and the promises and challenges of each;

Development of the relationship: the changes in longer-lasting relationships over time; and

Reasons for discontinuation: mothers' reasons for terminating HFM services.

Data were drawn from the in-depth, in-person interview transcripts. The full sample of T2 transcripts (approximately one year after enrollment; n = 211) were used to generate the Relationship Substudy codebook for analyses related to valence and role. The full sample of T3 transcripts (approximately two years after enrollment; n = 194) were used to generate codes related to a change in the relationship over time. Reasons for discontinuation codes were developed from both T2 and T3 data. Codes were based on a series of questions about the nature of the mother's relationship with her home visitor, her satisfaction with the help offered, and the salience of various home visitor characteristics to her program participation. After a period of open coding, which generated an expansive number of codes, the team worked iteratively to condense the codes and fine-tune the specific definitional parameters of each. Interrater reliability was established for the full sample.

This section of the report presents findings from investigations of the each of the four themes listed above. First, results from analyses that focused on the *valence* (i.e., relationship quality) of the home visitor-mother relationship are reviewed. Although mothers reported considerable satisfaction with their home visitors,

there remained a small number of participants, whose relationship was not a positive one, thus adding some variability to the responses. Second, role designation helped us understand how mothers viewed their home visitors and the relationships that were established. The in-depth analyses of the three home visitor role designations—*friend, family member, or professional*—document the differences in these relationships from the mothers' perspectives, and help to contextualize findings that highlight variations in valence. Third, findings from analyses that examined changes in the home visitor-mother relationship over time are presented. Finally, descriptive findings from mothers' self-reported reasons for maintaining and discontinuing their participation in HFM are presented.

4.2.1 The Valence of Home Visitor–Mother Relationships

Valence is a term used to describe the mother's assessment of the quality of her relationship with the home visitor, and of the home visiting program. Valence was initially measured through participants' self-report of relationship quality at T2 using an open-ended question from the in-depth, in-person interview (i.e., "How well do you get along with your home visitor?").

Initial examination of the valence question revealed little variation. Among participants who received at least four visits and who identified a role designation for their home visitors (n = 162), 142 participants (88%) described the relationship as *good*, 13 participants (8%) described it as *mediocre*, and 7 participants (4%) as *bad*. Mediocre and bad responses were collapsed into a new category: *not good*. This step was taken for two reasons: First, as separate groups these subsamples were too small to conduct analyses, and second, mothers who reported their relationships to be mediocre appeared unenthusiastic about the relationship and therefore could be appropriately categorized as being in *not good* relationships. Four additional mothers' assessments were categorized as not good despite initial positive responses to this direct question because, later in the interview, they attributed their leaving the program to their home visitors.

Although these data suggest that mothers were satisfied with their home visitor relationships overall, we assumed that some participants might not have been comfortable negatively characterizing their relationship with their home visitors, even if they were unsatisfied with it. In part, this interpretation is based on the limited description offered by many participants about the relationship overall. In addition, there appeared to be more range and nuance in mothers' discussion of the relationship throughout the interview that was not captured in their initial, brief assessments in response to a direct question. It is also possible that some mothers were not familiar with these kinds of service relationships. As such, they might not have had much of a comparison to make or may not have used home visiting for a sufficient amount of time to develop and articulate a negative assessment. This may have led many mothers to characterize the relationship as fine. To address this concern we continued to explore other elements of the home visitor-mother relationship that might provide a more comprehensive depiction of relationship quality.

4.2.2 Role Designations in Home Visitor–Mother Relationships

Role was measured two ways in the T2 in-depth, in-person interview. First, mothers responded to an open-ended question (i.e., "What type of role do you feel she plays in your life?"). Second, mothers responded to a closed-ended question. Possible categories included *teacher, nurse, social worker, therapist, parent figure* or *older relative, friend,* or *other*. Both the open- and closed-ended questions were coded, as well as any open-ended statements by a participant during the interview in which she referred to her home visitor as playing a particular role in her life (i.e., as *friend, family member*, or *professional*).

Using data from both the closed- and open-ended measures of role, 75 mothers (47%) described their home visitors as professionals, 90 (57%) described them as friends, and 65 (41%) described them as family members.[M]

[M] It is important to note that participants' responses to the open-

4.2.3 The Intersection of Valence and Role: Home Visitor–Mother Relationship Profiles

We begin this discussion underscoring the general finding that mothers were pleased with their relationships with their home visitors; there was relatively little explicit and direct dissatisfaction expressed. Yet to the extent that there was variation in the perceived quality of these relationships, we suspected that relationship valence (i.e., relationship quality) was closely tied to the home visitor role categorizations (i.e., *friend, family member,* or *professional*). We initially explored this through descriptive analyses.

As seen in Table 5, which is based on the closed-ended role designations only, ***participants who characterized their home visitors as a friend or a family member seemed to enjoy their relationships more fully than those who considered their home visitors as professionals***. For example, mothers who described their home visitors as professionals were more likely to report major *disconnects*[N] (30%), and mismatches in the type of help they preferred from home visitors and what they actually received (47%), compared to mothers who described their home visitors as friends (10% and 35%, respectively) or family members (11% and 34%, respectively). Further, there were differences in how mothers described the home visitors' qualities, depending on role designation. Mothers who described their home visitors as friends or family members appeared to find more personal enjoyment of the relationship (42% and 29%, respectively) compared to mothers who chose the professional role designation (19%). In addition, mothers who described their home visitors as *professionals* were less likely to report qualities of the home visitor, such as caring (25%) and approachable (34%) compared to those who described the home visitor as a *friend* (37% and 63%, respectively) or family member (51% and 46%, respectively).

and closed-ended questions did not always match (e.g., participants may have described their home visitor as a friend in the open-ended question, but as a family member in the closed-ended question). Since participants were able to select different roles for the closed- and open-ended questions (e.g., family for open-ended and friend for closed-ended), there is overlap between the samples used for each of the three role groups. Therefore, percentages do not sum to 100.

[N] ***Disconnects*** were defined as misalignments or disagreements between home visitors and mothers, and were categorized as either major or minor depending on the degree of influence the disconnects had on the relationship. See Appendix 2 (Measures), and Relationship Profile 4, below, for a more detailed definition of major disconnects.

Table 5. **Comparison of Relational Features and Home Visitor Characteristics, Across Closed-Ended Role Designations**

	Professional (*n*=64)	Friend (*n*=60)	Family Member (*n*=35)
Presence of Disconnect			
Major	30%	10%	11%
Minor	34%	27%	31%
Types of Help			
Ideal/Preferred			
Informational	42%	40%	31%
Emotional	31%	35%	49%
Daily Living	23%	18%	20%
Received			
Informational	75%	58%	46%
Emotional	14%	38%	49%
Daily Living	14%	10%	14%
Help Mismatch	47%	35%	34%
Home Visitor and Relationship Qualities			
Personal Enjoyment of Other	19%	42%	29%
Home Visitor Respect of Participant	22%	12%	20%
Approachability	34%	63%	46%
Similarity	30%	35%	43%
Caring	25%	37%	51%
Reciprocity	13%	23%	17%

Note. The analytic sample was restricted to mothers who designated a usable role category.

After descriptive results confirmed our hunches that mothers in relationships with *professional* home visitors seemed to have less favorable relationships than those with *friend* and *family* home visitors, more advanced statistical techniques were used to develop relationship profiles to group participants whose relationships with home visitors were similar to one another. The profiles were created using data related to closed-ended role designation, valence, positive and negative home visitor qualities, and number of major and minor disconnects in the relationship (see Chapter 2 for more information). ***Results revealed four distinct home visitor-mother relationship profiles: Negative, Primarily Professional; Positive Professional; Positive Friend; and Positive Family Member*** (see Table 6).[0]

The first profile Negative, Primarily Professional represents the most negative depiction of the home visitor-mother relationship. Within this profile, almost three quarters of respondents characterize the home visitor's role as professional. The average number of major disconnects (M = 2.00) was high relative to the other profiles. This stood out as one of the key differentiating qualities of the profiles. Mothers in this relationship profile were also more likely to endorse negative characteristics than mothers in the other profiles (M = -1.16).

In contrast, the remaining three relationship profiles are positive, and can be differentiated by the home visitor role designations: Positive Professional, Positive Friend, and Positive Family Member.

The Positive Family Member profile appears to be the most positive profile. Mothers endorsed the most positive characteristics in this profile (M = 6.85).

It is also worth noting that ***mothers could have minor disconnects—disagreements or misalignments with their home visitors, and still perceive the relationship as a good one along other indices***. For example, mothers in the Positive Professional relationship profile reported similar levels of *minor* disconnects as those mothers in the Negative, Primarily Professional relationship profile. And yet, mothers in the Positive Professional relationship profile still perceived the overall relationship as good, whereas mothers in Negative, Primarily Professional relationship profile perceived the overall relationship as not good.

[0] For more a detailed analysis of how these relationship profiles are associated with maternal characteristics, see Chapter 6.

Table 6. **Profiles of Relationship Valence and Home Visitor Role**

	Negative, Primarily Professional (n = 19)	Positive Professional (n = 49)	Positive Friend (n = 56)	Positive Family Member (n = 33)
Home Visitor Role				
Friend	16%	0%	100%	0%
Family Member	11%	0%	0%	100%
Professional	74%	100%	0%	0%
Relationship Valence				
Good	0%	100%	100%	100%
Not Good	100%	0%	0%	0%
Difference of Total Positive and Negative Home Visitor and Relationship Statements	M = -1.16 Range = -9–5	M = 5.08 Range = 0–11	M = 5.88 Range = 2–13	M = 6.85 Range = 0–16
Number of Major Disconnects	M = 2.00 Range = 0–4	M = 0.16 Range = 0–2	M = 0.11 Range = 0–2	M = 0.15 Range = 0–2
Number of Minor Disconnects	M = 0.47 Range = 0–2	M = 0.49 Range = 0–2	M = 0.32 Range = 0–2	M = 0.36 Range = 0–2

The strong association between professional role and negative valence, identified in both the descriptive and profile analyses above, was somewhat surprising to us. To better understand this association, additional profile analyses were conducted to explore whether a more complex measure of role would reveal different patterns. Given that mothers could identify multiple roles in the closed- and open-ended question, we were particularly interested in how participants appraised those relationships that had *any* professional role characterizations compared to those with *none*.

Results showed that the professional role description remained overrepresented in the least favorable profile, while the most positively oriented profiles ***excluded professional role depictions altogether***. Indeed, it appears that ***when professional characteristics were identified in combination with other role characterizations, the appraisal was more positive***—that experiencing one's home visitor as more than only a professional, in essence, improves the mother's assessment.

To conclude, ***the professional designation encompassed a considerable amount of dissatisfaction with the home visitor-mother relationship. Nevertheless, it is important to note that the great majority of participants viewed their relationships positively, even including those who characterized their home visitors' posture as professional***. Indeed, there are some participants for whom this role that their home visitor adopted seemed particularly well suited.

4.2.4 In-Depth Analyses of Relationship Profiles

The choice of a paraprofessional model of home visiting reflects a set of assumptions about the centrality of this relationship in engaging and sustaining participation, and about the conditions that optimize its positive development. Simply put, the belief is that well-trained "lay" workers, many of whom come from the same communities as the participants themselves, are better able to establish and maintain personal connections that keep young mothers involved in the program. Further, the assumption is that information and guidance offered by paraprofessional home visitors is more easily and productively metabolized than would be the case with professional home visitors. This position represents one side of a longstanding debate in the field that pits paraprofessional models such as HFA (of which HFM is a close adaptation designed for young mothers) against other models that employ professional staff, such as the Nurse Family Partnership (NFP). Although to date the accumulated weight of empirical evidence supports professional approaches (primarily NFP), an increasingly robust literature now credits paraprofessional home visitation (primarily HFA) in achieving a range of program goals. MHFE research on home visitor-mother relationships, then, stands to make a contribution to the national dialogue on home visiting programming and policy.

To this end, we continued to unpack the relationship profiles— at the center of which are role designations—through in-depth analyses of each of the four relationship profiles (i.e., Positive Friend, Positive Family, Positive Professional, or Negative Professional). The aim of these analyses was to highlight what was most salient when exploring the nature of the relationships between home visitors and mothers within each of the profiles, as opposed to comparing each profile on a specific set of characteristics. For the in-depth analysis, both closed- and open-ended data were incorporated. That is, if mothers identified their home visitor in a particular role category in response to *either* the closed- or open-ended questions, they were included in the in-depth analysis for that particular role profile. We wanted to use the full range of data for this analysis given that mothers' views of their home visitors were fluid and multidimensional.

Relationship Profile 1: Positive Friend Home Visitors—A Friend, but not Exactly

When participants described their home visitors as *friends*, it was clear that their estimation of relationship qualities differentiated this relationship from a friendship in the usual peer sense. For example, 29 of these participants also indicated that they viewed their home visitors as having authority—a quality usually

reserved for professionals. An additional 15 reported that their home visitors were similar to a friend, yet had both authority and expertise, where expertise is defined as knowledge or skill in a particular area. A third group (22 mothers) specified ways in which their home visitors were different from a friend, but in ways that did not imply a hierarchical relationship. Below we decipher aspects of this "friendly" home visitor-mother relationship that are both similar and dissimilar to friendships.

Friend-Like Qualities of Home Visitors and the Relationship Dynamic

When discussing the ways that their relationships with their home visitors were *friend-like*, participants focused both on the home visitor's ***personal qualities***, and on the ***qualities of their interpersonal dynamic. Friend-like characteristics ascribed to home visitors by participants included being similar to the participants' other friends, being dependable or available to the participant, being of a similar age as participant's other friends, and being trustworthy.*** Thirteen participants said that their home visitors had personal qualities similar to a friend in that they provided the participant with support and help by, for example, sharing experiences, information, and resources, or expressing concern or interest in the participant. As one mother noted, "'Cause friends you can talk to and they give you information sometimes and they help you with things, and that's what she did."

Mothers also identified qualities of their interpersonal dynamic with their home visitors as being similar to those of a friendship, including closeness; comfort, familiarity, or informality; and personal compatibility between the participant and the home visitor. Elements of comfort, familiarity, or informality, noted by 23 participants, included "hanging out" or having fun together during visits, getting to know one another better over time, ease of communication, and openness on the part of the participant in terms of what she was willing to discuss with the home visitor and the way she discussed topics with the home visitor. For example, one participant said, "I don't feel like I have to censor myself, or speak a certain way because she is older, I feel like I can just be myself." Another participant explained,

> *She's just down to earth. She's not—you know when you might talk to someone in the professional atmosphere you're both, not uncomfortable, but just have that . . . not tension. What's the word I'm looking for? I don't know but I'm sure you know what I mean. It's just more informal and comfortable with her. That's why I can say it's more like a friendship. At the beginning it was like that but as we got used to each other it became like a friendship.*

In sum, participants who identified their home visitors as friends seemed to recognize in their home visitors qualities that were similar to other friends, or related to their home visitors on a personal level through the expression of closeness, comfort, familiarity, informality, and personal compatibility.

Authority, Boundaries, and Expertise in the Positive Friend Profile

Participants also noted ways in which their relationship *did not* resemble the usual friendship, and home visitors apparently made these distinctions apparent to participants as well. ***Authority was coded as an element of the home visitor-mother relationship when a participant made statements that indicated a hierarchical relationship, such that the home visitor ranked "above" her and that the relationship was distinct from a peer-to-peer relationship***. Qualities of authority most frequently noted here included boundaries or restrictions on the relationship, maturity, and age. Other qualities of authority included the home visitor being a source of experience-based knowledge or information (e.g., because she is older), and professionalism or formality.

Boundaries or restrictions on the home visitor–mother relationship included not socializing with the home visitor; restrictions on the home visitor's time, availability, or ability to be involved with the participant and her family (e.g., not attending child's birthday party); and limitations on the part of the participant in terms of what she was willing to share with her home visitor or the way she interacted with her. For instance, several participants indicated that they were careful not to joke around with

the home visitor—as they would with their friends. One participant echoed this guardedness when she characterized her home visitor as "a friend, but not that type of friend I tell things to." Although these dimensions of authority were framed as restricting the relationship, these restrictions were not generally framed negatively by participants, as reflected in the following participant quotations:

> *It's more on a professional level; all we can talk about is my goals and my relationship with my daughter and her father, just family relationships. That's pretty much all we can discuss. But what we do with that is comforting.*

> *She's different because I don't tell her personal things like my other friends, just like a person that comes here, gives me support, helps [with] my son. Like my other friends, they won't like go to the trouble of like searching on the internet for things or talking to other people and that's the difference between [her and my] friends.*

Mothers who identified their home visitors as being similar to a friend but also having expertise described them as a source of professional experience, knowledge and information. For example, one mother noted, "She gave me advice and she talked about different situations and different things I might run into. Things I might have to handle if I ran into certain things. Stuff like that." For some mothers, expertise set home visitors apart from other friends they had. As one explained, "She's very professional and she knows a lot, and that's something that my friends don't have. I am able to have that professional relationship, but also that friendship." For other mothers, however, the expertise they identified in their home visitors reminded them of their friends and family which made the relationship similar to the friendships they maintained. For example, one mother said, "I guess besides my family and my friends, she's somebody who's given me advice. Or like, I know that I can go to, and she'll know things. Just in case I have a question about the baby or anything, she's one of my resources."

Although these home visitor-mother relationships appeared to have some qualities differentiating them from professional relationships in the pure sense, mothers in these dyads described relationship boundaries that helped to maintain a degree of professional distance. They also viewed their home visitors as having authority and expertise that enabled them to rely on their home visitors as a source of support and knowledge.

Summary of the Positive Friend Profile

Taking a closer look at the dimensions of the home visitor-mother relationship that the adolescent mothers considered to be similar to, yet distinct from, friendships revealed that *friend* did not quite capture the nature of this relationship, as it is not viewed by most teen mothers as a standard peer-to-peer friendship. The key qualities distinguishing these relationships from a typical friendship were home visitor authority and expertise, and interpersonal boundaries that helped to maintain a more professional tone in the relationship. However, these relationships did appear to share some qualities with friendship, as the term was understood by program participants, such as more personal (rather than strictly professional) elements of closeness, informality, and personal compatibility. So while some home visiting programs might view friend as an overly intimate categorization of a home visitor, the "friendly" aspects of this relationship may well fall within the range of appropriate home visitor-mother engagement. Indeed, this hybrid friendship may be what a paraprofessional home visitor model is after, at least for some of the parents involved. And it may, in turn, help increase program participation, thereby influencing program effects.

Relationship Profile 2: Positive Family Member Home Visitors—A Combination of Personal Connection and Expert Help

Participants who categorized their home visitors as family members used a variety of specific family roles to describe them, including *mother, parent figure* or *older relative, sister, aunt, grandmother, cousin,* or simply *family*. For example, one participant described her home visitor as being "Like a big sister. Someone who is there to help

me with my life, and help me with my baby."

Help Received from Home Visitors in the Positive Family Member Profile

One might assume that emotional help was the most frequent type of help received by participants who identified their home visitor as being like a family member. Indeed, as seen above in Table 5, when comparing closed-ended responses among mothers in the friend, family member, and professional role groups, ***those in the family group were the most likely to rank emotional help as the type of help they received most often from their home visitors*** (49%) compared to those who categorized their home visitors as friends (38%) or professionals (14%). When considering all types of help mothers reported receiving, as described through open-ended responses during the in-depth, in-person interview, 82% of mothers who considered their home visitor to be like a family member reported receiving informational help, compared to 64% reporting having received emotional help, and 51% reporting having received daily living help.

It is clear that all forms and categories of help provided to the mothers in the Family Member profile, such as in the areas of child health and development, parenting practices, education, and employment, were seen as valuable, as evidenced by the following participant accounts:

> *She would bring me pamphlets about my daughter, because I always felt like my daughter was . . . sometimes I felt like she was advanced, but sometimes I felt like she was behind and she would bring me pamphlets on her age and it would say what to expect, what to feed her, what she can't do, and the milestones. She helped me in my daughter's development.*

> *My mom [and I] were not getting along well at first. She… had moved here before when I first got into [HFM], and we were not getting along. I would sit and talk to my home visitor about my mother. She would give me advice. My mother was not really in my life, so she just gives me advice like, "I think this is how you should handle the situation. I think she loves you." It really helped me forgive my mother in some way, and it helped me learn that I could not always yell at her, and tell her, "I am mad at you because of this. You don't want to listen to me." I would have to sit and talk to her and explain to her why I am hurt and the reasons why I am upset with her.*

> *She was really nice, and any time I needed information about anything like housing or welfare or jobs or anything, I would just go to her, and she was always up for it. Like, yeah, "I'll bring you here, I'll bring you there!"*

Mothers in this profile were highly likely (91%) to cite the HV's preparedness—defined as the home visitor's ability to provide the participant with the specific type of help she needed—as a quality they appreciated. One participant who described her home visitor as a big sister spoke of described her home visitor's critical help in the early days of motherhood:

> *She taught me a lot of stuff I don't know. I never learned to do this or that to a baby, like I never knew what a sponge bath meant! I hear the nurse just talk to me when I just gave birth, I would just nod. And then [baby] has diarrhea the third day, she was born she had diarrhea I'm like: "I dunno how to clean [her] I can't put her in a shower 'cause I'm scared I might drop her. My mom, she wasn't there to help me that time because she was in Washington for a couple of days 'cause her uncle just died and I was actually by myself a week and two days, just me and my boyfriend and my two sisters and the baby. . . . I just called [HV] and [HV] is like: "Sponge bath." I'm like: "What does that mean?" She's like: "Ok, this is what you do: get a towel, get a blanket, and bucket, make sure you keep her warm," 'cause it was pretty cold and then she actually got me through it by phone and then when I stopped talking to her and then when I'm done I'll text her like: "oh I'm done, thank you," and she's like, "good."*

To summarize, while participants underscored the expert help that they received with their goals and needs, it is also clear that ***there was a personal element to the relationship with the home visitor who is described as a family member***. This personal element was demonstrated to participants through the home visitor's style (i.e.,

her approach to working with or relating to a mother within the home visiting context, such as her method of conveying information). The stylistic tendencies of home visitors that were noted as being helpful included good listening skills, encouragement, persistence, and patience.

The next two sections focus on the two most prominent elements of home visitors' style, which included (a) participants' perceptions of their home visitors' emotional investment in their well-being, and (b) their comfort and ease in relating to and receiving help from their home visitors.

Perceptions of Home Visitors' Emotional Investment in Mothers' Well-Being in the Positive Family Member Profile

Sixty-eight percent of participants who categorized their home visitor as being like a family member reported that their home visitor had at least one of the following qualities: *availability, support, caring*, or *closeness*, each reflecting what participants perceived as indicators of their home visitors' emotional investment in their well-being. Thirty-seven percent of all participants in the Family profile reported feeling that their home visitor had more than one of these qualities.

One way participants described their home visitors as displaying this emotional investment in them was by demonstrating that they cared about the participant's overall well-being, success, and achievement of her goals in a way that seemed to transcend the fulfillment of professional responsibilities. As one participant explained, "I mean, you can't fake that when you're really happy for somebody else, that they're doing good. She always tells me to keep it up." Similarly, another participant remarked that the home visitor's behaviors suggested to her that she would care about her even if she wasn't her home visitor: "It doesn't feel like she has to come here 'cause of her job; sometimes she calls just to check up, or she passes by my job just to say hi, and how's the baby, and stuff like that." Participants seemed to appreciate this personal touch, as the following participant quotation indicates:

> *She's very down to earth, understanding, very caring, convenient, like flexible with my schedule, anything I need she'll help me with. Even if I say something, I don't ask for help for it, she'll go out of her way to help me for it. She's very caring. She always sends me cards, like Mother's Day cards, birthday cards, stuff like that. Anything that she knows about that's going on that she thinks I may be interested in she lets me know. She's very caring.*

The belief that home visitors were going the extra distance for their mothers, as opposed to just meeting the minimal requirements of the job, was interpreted as caring, and these mothers perceived caring as an expression of an emotional connection:

> *My home visitor was just there to be behind me whenever I needed her. She was very sweet. She just took the time. Sometimes our meetings were supposed to be an hour or at least half an hour she had to meet with us; we would probably be there for two hours.*

As reflected above, another way of representing participants' perceptions of this relationship was that their home visitors were not simply doing their job. ***Participants described home visitors proving their sincerity of caring by being available, or going "above and beyond" their job descriptions in trying to provide help***. Availability can be described as participants' perceptions that their relationship with their home visitors was not restricted to the context of the home visit or the Healthy Families curriculum, thereby seemingly pushing the boundaries of a strictly professional relationship, and possibly suggesting a familial commitment to the participant. This is reflected in the following participant quotations:

> *She calls me twice a week, and if I don't answer she don't stop calling until I answer. . . . She makes sure the baby, like I have what I need and stuff like that.*
>
> *She was very dedicated to her work. I had her cell phone number she would give anyone her cell phone number. When I was struggling, at the points when I was struggling, she would tell me, I don't care if it's two or three o'clock in the*

morning and I'm getting a phone call from you, I'm going to answer, just make sure you call me if you need anything. She's just really supportive and dedicated to her work, her mothers.

Regardless of whether the actions described in these quotations actually surpass the typical behaviors of home visitors, participants perceived these actions to reflect extra effort on their behalf, and this seemed to represent a deeper caring than a professional helper could be expected to develop for a client.

As demonstrated, there appeared to be a distinctly personal dimension to the helping relationship between mothers and home visitors who have been characterized as family-like. Although the content of the help provided was not primarily emotional in nature, the way the help was given and how it felt to receive the help could be characterized by participants as having an emotional element:

> *She is real. She tells you what she thinks. She is helpful. She is caring because she calls me, even days that she won't be able to make it; she will call me and explain to me the whole reason why she can't come. Basically she showed me that she cared. When she came we just instantly made a connection that day. I enjoyed talking to her. I enjoyed her asking me questions. I didn't feel like she was trying to get all in my business. I felt like she was caring.*

Participant: *She's part of the family, that I can't deny 'cause his first birthday party she's going to be there, she went to the hospital when he was born, and I wouldn't think she would do that, but when I called to tell her that he was born, she was, "I already got the gift, I'm on my way already," you know.*
Interviewer: *So she went to the hospital to see you.*
Participant: *Yeah. She brought me a gift. It wasn't major or anything like that, but just the thought counts. And then the fact that she just—I just couldn't, I actually hugged her and my eyes got watery 'cause we've been waiting for [the baby] for so long and then, every single time I was in the hospital, she was involved, she knew everything even before I told her because she had all my doctor's records and she could get into my doctor information, stuff like that.*

In sum, the way the family-like home visitor and mother related to one another seemed to be similar to how family members might relate to each other: by exhibiting caring, closeness, support, and availability in times of both high and low need.

Comfort and Ease in the Positive Family Member Profile

Reflecting the familial nature of the relationship between mothers and home visitors in this profile, ***there was a high degree (83%) of comfort and ease of relating*** noted by mothers in the Family Member profile. Participants used descriptions like "she is easy to get along with," "she is somebody I could relate to," and "I can tell her anything" to convey this dynamic. There were several factors that seemed to contribute to this sense of comfort and ease: relating well to the home visitor, trusting the home visitor, and feeling respected and understood by the home visitor.

Some mothers reported relating easily to home visitors on the basis of shared characteristics:

Interviewer: *And do you feel like there was anything that you guys had in common or that made you feel connected to her?*
Participant: *Yeah, we were both parents and we were both Spanish, 'cause Spanish people have cultures or different beliefs on how to raise a baby, so we both agreed on stuff and little myths that we believe in. Like, when they drool they're teething and she believed that with me, so it was nice instead of having somebody who didn't agree and probably thought I was crazy or something.*

Similarly, another mother noted similar background experiences, but also surprise and appreciation at the home visitor's willingness to share that personal side of herself with the mother:

Interviewer: *Was there anything about her in particular that made you feel like you could really connect with her and she could connect with you?*
Participant: *Umm, well how she grew up like, when she*

would come in I'd tell her how I was feeling or if I was having a bad day or something, and she would like tell me about her life and I was like surprised because usually they wouldn't do that and they keep their lives somewhere else. But she was the type that would like, she would sit there and if I was telling her about mine she would feel comfortable to tell me about hers and she would say, like she would relate to her life and to her kids and how she was. And she had a lot of things that were like me, when she grew up.

An important element of comfort and ease seemed to be the way mothers were received by their home visitors when they had questions, were upset about something and needed to talk to someone, or were just going about a normal home visit. The mothers who identified comfort and ease in these relationships seemed to trust that their home visitors would not judge them, would respect them, would honor their privacy, and would be both willing and equipped to help them. ***Comfort and ease may be appropriately represented as emotional safety, and the presence of this in a home visiting relationship seemed to make mothers feel relaxed and able to be themselves***, as suggested by the following participant quotations:

> *She tries to make sure. . . . She understands. She has kids. She has grandkids; she knows how difficult it is. So, she never tries to make you feel like you are being judged. She always tries to make you feel comfortable. She is always open to anything. You can be honest with her. You can ask her any questions; she will be honest with you too.*
> *She just made it really personal for me. So that made it really easy for me to, you know, open up to her and be able to talk to her about certain things.*

Some participants highlighted a quality of their home visitors that suggested a robust relationship in which both parties were comfortable and at ease with one another: home visitors' directness. *Directness* was defined as straightforwardness or candor in providing advice or guidance to mothers. For example, one mother described her home visitor this way: "She was a good listener, she was very supportive, she was very honest with me, and she spoke her mind regardless of if I want[ed] to hear it or not."

Other participants expressed a similar sentiment:

Interviewer: *Is there anything special about her that makes you feel more connected or less connected?*
Participant: *She bossed me around, she always makes me do stuff that I don't want to do.*
Interviewer: *Did that make you feel more connected to her or less connected to her?*
Participant: *More connected.*
Interviewer: *And how did that make you feel more connected?*
Participant: *'Cause, I guess I needed somebody to do that, 'cause I was always in the house, and she forced me to go to the doctors and stuff like that.*

Participant: *Sometimes she kind of pushes me more than I wanna go but that's the only way I get somewhere! She's like, "listen you need to do this, this, and this" and I'm like: "well I'll do it some—" "No! You need to do it now! That's the only way it's gonna get done is if you do it right now! And then it's done!" So she gives me that push. . . . So that's how basically how she helps me in all around ways. And plus she's wiser and she's dealt with this for a while now so I can take her advice. Most people I don't wanna hear 'cause I'm like, "You don't know." She knows.*

As is suggested in the quotes about directness, some of these relationships can be characterized by an informality that grows out of feeling comfortable and believing the relationship to be secure:

Participant: *It's kind of like, I like her but she talks too much. . . . She gives good advice that's why. She just tries to help, that's all. [I] just don't wanna hear it. Like [mimicking the home visitor], "You should use teething gel, and then you should use teething gel. And what about using teething gel?" [laughs] It's good advice that she's giving though. I get mad at her sometimes. She knows when I'm mad at her.*
Interviewer: Do you feel safe enough with her to tell her, like, "I'm mad at you?"
Participant: *No she knows that I'm mad at her. She just smiles or like kind of plays around with me a little bit, trying to shake it off, and then eventually I'll end up breakin...'cause I'm stubborn.*

Sometimes it is informality that seemed to be the foundation of a sense of comfort and ease, as the following participant quotes suggest:

She was like, I don't know right when she came like the first time she came to my house she just took her shoes off and came in and sat on my couch and was like, "What's up?" And I was like, "Hey, how's it going?" And she said her name and I was like, "Nice to meet you too" and she just like, the house was packed with people like my brother had friends over...and she was like hey how's it going everybody, got all comfortable and she was like it was cool, she was cool. It was like she was like a friend of the family coming in. It was perfect.

I can relate to her in a lot of ways; she's really down to earth. She doesn't announce when we meet [that] it's on a professional basis, it's her job. But she kinda tones down and is down to earth when we meet so I don't get nervous, I'm not afraid.

When home visitors in the Positive Family Member profile behaved in a way that made mothers feel respected and understood, mothers were able to relate to and trust their home visitors. When mothers felt this way, it was manifested as comfort and ease in the dyad's dynamic. In some relationships, informality and directness in communication emerged. These relational elements may be indicators of emotional safety being present in the relationship.

Summary of the Positive Family Member Profile

Home visitor-mother relationships in which the mother perceived the home visitor to be similar to a family member appeared to have a balance of both professional and personal elements, and these elements had an almost symbiotic relationship. These mothers reported that their home visitors seemed to have an emotional investment in them; they were comfortable and at ease with their home visitors; and their home visitors had the expertise and skills necessary to provide them valued informational, emotional, and daily living help.

Participants' belief that their home visitors genuinely cared about them, as expressed through an apparent emotional investment in the mothers, seemed to have a beneficial effect on the helping relationship. Mothers trusted their home visitors and could open up to them and share things they might not share with someone else, which presumably supported visitors' ability to help mothers with their needs, as indicated by the following participant quote:

I feel really safe with her. I mean I trust her and I can tell her pretty much anything, and I can go to her if I need to, so we have a really good relationship, I mean we're pretty close actually. We talk about pretty much everything that is important to me.

The comfort and ease in these relationships appeared to have the potential to support goal-setting activities, because mothers felt comfortable discussing goals with their home visitors, and trusted their expert feedback:

Participant: *She tells me things that are good for me—what I should do that's the best.*
Interviewer: *And so how do your goals get decided?*
Participant: *I think about it, and then I decide what to do, and I talk to her about it, and we decide together.*

One mother noted that her sense that her home visitor really cared about her was a primary reason she stayed enrolled:
Interviewer: *Why have you never wanted to stop being in the program?*
Participant: *I think that's mostly because of my relationship with my home visitor, because I know she genuinely cares and she'll help me with anything I need help with, if I need to find information or anything I can depend on her to get it for me. That's pretty much the reason why.*

As was discussed in regard to the Positive Friend profile, research has pointed to caring as an important ingredient in the development of healthy relationships, [16] and mothers report that they value this quality in their relationships with home visitors.[17] Likewise, when home visitors are seen as being engaged—or involved, committed, and attuned to the relationship—the home visitor-mother

relationship seems to gain strength.[18] Family-like relationships between mothers and home visitors in the present study seemed to have these important elements, and they appeared to be paying off.

Relationship Profile 3: Positive Professional Home Visitors—Flexibility and Responsiveness to Mothers' Needs

Participants who designated their home visitors in the professional category in response to either a closed- or open-ended question, and whose relationships had a positive quality, overwhelmingly categorized their home visitors as being similar to either a teacher (36%), social worker (31%), or therapist (22%). The remainder of mothers in this group described their home visitors as being similar to either a nurse (7%) or a professional in a general sense (4%).

Mothers in this profile appreciated a variety of their home visitors' qualities, particularly their sound preparation as parenting experts, and their ability to create a comfortable relational environment for participants through their stylistic approaches. This section explores those qualities, as well as the component of *professional distance*—the relative sense of intimacy or lack of intimacy established—within this relationship.

Distance in the Positive Professional Profile

In-depth analysis of the nature of this relationship suggests that dyads in this profile fell along a broad continuum of professional distance and intimacy. ***That is, some of these mothers experienced a personal, more intimate relationship with their home visitors, while others experienced a more formal, distant relationship, and some fell in between these margins.***

When mothers described a more distant relationship with their home visitors, these relationships were viewed by mothers as a formal relationship with a prescribed set of boundaries and expectations. As the quotations below demonstrate, this formality was identified in the home visitor's behaviors, the mother's behaviors, the ways advice was given by the home visitor, and topics discussed during home visits:

Interviewer: *Is there anything you wish Healthy Families would provide more of?*
Participant: *I know that because it's a profession, it's their job, they can't really get personal. But I find it more comfortable if they are. It lets me know that they understand what I'm going through. That they can relate to me and in ways give me examples of their own, to let me know that I'm not the only one out there with this situation. Or going through something or been through it. But I know they can't. But I would like that.*

Participant: *I won't tell her personal business that has to do with the family, but I would tell her enough information for her to help me.*

Participant: *She's supportive, that's her job to be supportive. She can't sit there and say, "That goal doesn't fit me." Because that wouldn't be really appropriate on her behalf because she's supposed to support me.*

Interviewer: *In what other ways is [your home visitor] like you?*
Participant: *I don't know we don't really get into that because when she comes its more work-type and we don't really get into talking about other things. It's more like her work; she comes to do her work.*

These participants seemed to have restrictive ideas of what role was appropriate for a home visitor to play, which may have been communicated to them through the actions of their home visitors, or may reflect preconceived notions of the appropriate scope of professional-client relationships. As can be seen above, the formal tone of these home visitor-mother relationships was deemed appropriate by some mothers, and somewhat limiting by others.

Some participants seemed to have a more flexible, less prescribed type of relationship with their home visitors, characterized by a degree of informality:

[My home visitor and I] see eye-to-eye on things. I don't know if we have much in common; we don't really talk too much about her personal life—mostly me ranting and raving about mine. But we do see eye-to-eye on a lot of things. She's very understanding; she can take a joke and not take it seriously. If you make a joke, that's okay. She's nice. Honestly, she's just really nice.

Several of these quotations speak to the issue of reciprocity—or in these cases, lack thereof—between home visitors and mothers. Some home visitors shared personal information, anecdotes, and feelings with participants, and others did not. Similarly, some participants shared what they considered to be private details from their own lives with home visitors, and others did not feel comfortable doing so. The mothers in these quotations described a relationship that was somewhat one-directional when it came to sharing or giving in the relationship: The mothers were the ones providing the "material" on which the pair focused their interactions. There are several possible explanations for this lack of reciprocity: It may be a function of the nature of the relationship that developed over time between the home visitor and client—reflecting their level of comfort or intimacy with one another; in other cases, it likely reflects the mother's image of what this kind of service relationship should be like; and in still other cases, it may reflect an affirmative act of agency on the part of the mother. The mother can disclose personal information or not, attempt to elicit and/or enjoy more intimate engagement from the home visitor or not. It may be that for some mothers who have experienced the role of caretaker in other intimate relationships, such as with siblings or parents, or mothers upon whom a kind of intimacy with service providers has been forced, a more distant, businesslike relationship, especially in which the focus is primarily on their own needs, is particularly appealing.

As shown in the following quotations, some mothers did appreciate a degree of reciprocity from their home visitors, one that was not overly intimate:

We talk about other stuff besides just the Healthy Families stuff. Like I was just saying, she would talk about her dogs, and I'd talk about my dog. Sometimes, my brother has a snake and she's scared of it. So every time she comes in, she'll be like "The snake's not near me right?"

I could talk to her about anything. She was really laid back and cool. She was informative. Talked about her personal experiences and stuff so I could relate to her.

In general, these Positive Professional relationships were not characterized by a depth of emotional connection. Nonetheless, sometimes that quality did surface, and was welcomed by the mothers, as is evident in the quotes below. It is noteworthy that most participants who identified this personal dimension in their relationships were those who identified their home visitor as playing the role of a family member or friend *in addition to* a professional, as opposed to those who described their home visitor as a professional in both closed- and open-ended responses.

When we're [my home visitor and I are] talking about something serious, she pays attention to me. Or if I need, if I feel depressed and I start crying, she's not laughing or telling me something else, but instead she tries to help me feel better. In addition, when she hears what I tell her about, she'll start to cry with me.

Participant: *Yeah, it was really good, she was so nice, she was actually from the same country that my boyfriend is, El Salvador, so it was fun. I was in Blaine hair school when she was coming over and stuff, so I would tell her about nails, and it was fun. She was cool.*
Interviewer: *So you had kind of a personal relationship with her too?*
Participant: *Yeah. It was a bond...I told her like this little design thing, the stripeys with her nails, and then the next time she came she had the design on...It was cute.*

Interviewer: *So you talk to her about things other than parenting?*
Participant: *Oh yeah. Definitely . . . like my school stuff and how I'm doing with my friends and guys. She's like one*

of the girls. I can even text her.

Despite the level of intimacy, it seems that all mothers in this profile experienced a relationship that more or less met their needs, expectations, or preferences, because they all judged the relationship as positive and helpful, overall. It is hard to say what exactly led to this variation in levels of intimacy in the home visitor-mother relationship within this profile, but it is clear that both home visitors and mothers made a contribution to the tone of the relationship. Some mothers may have experienced other professional relationships that had a personal dimension and therefore had a less limited template of what such a relationship can look like. Or they may have had alternative sources for the personal support, and thus looked to their home visitors for other kinds of help. In turn, some home visitors may have had more stringent standards about the appropriate boundaries for such relationships. Personalities, cultural and community contexts, and past experiences in relationships of all sorts likely also determined the nature of these home visitor–mother relationships.

Next, we explore the elements of the Positive Professional relationship that apparently promoted overall satisfaction among participants.

Comfort in Talking with Home Visitors in the Positive Professional Profile

Fifty percent of those who identified their home visitors as being solely in a professional role (in both closed- and open-ended responses) indicated that their home visitor was someone they felt comfortable talking to, while 80% of those who identified their home visitors as being in both a professional role and a family member or friend role (in other words, they saw them in both lights) felt this way. This distinction between mothers who viewed their home visitors in a multidimensional versus a unidimensional professional role suggests a greater distance, or more boundaries, among home visitor-mother dyads in the exclusively professional role designation. Overall, mothers in this profile described their home visitors as someone "easy to talk to" or someone who "made me comfortable with talking."

As has been established, home visitor–mother dyads in the Positive Professional profile had variation in the nature of their relationships, with some experiencing more or less distance. This range of experiences can be seen in participants' descriptions of the comfort they felt with their home visitors, with some experiencing a more formal level of comfort, others a more informal level, and still others a more intimate level.

When discussing their comfort in talking with their home visitors, some participants described comfort and ease that was clearly situated within a professional relationship dynamic, such as "We used to talk about things, like anything that I didn't know about the baby," or,

> *When I have a problem, I can call her and she will tell me how to resolve the problem that I have. For instance, I needed to get some clothes for my son because I was not able to afford them. She helped me get some stuff for him and equipment and the crib and everything for him. She also helps me. . . . I have a spending problem sometimes. She helps me manage my money so that I will have stuff left over so that I can get stuff for my son.*
>
> *She's taught me a lot. She's, she's the only [person] I can—besides my doctor—that I can feel like I'm comfortable. Because I feel like, my parents and my family are just like, they just give me advice of what they would do, and [besides] a doctor, [home visitor] would tell me what I should really do.*

Some participants described a dynamic with their home visitors that was less bounded by provider-client edicts than the relationships described in the above examples:

> *I liked it because it was helpful. I had someone come over and that I could talk to other than Welfare and all these people that have rules and regulations. It is just someone I can talk to and get stuff off my shoulders, and they could help me get stuff that I needed for the baby too.*
>
> *She listens to me all the time. I feel I can talk to her about anything. When she visits here with me I talk to her about school work or something that happened. Just friendly*

conversation I guess. . . . What [she] really offers me, through the program, is just some time to talk and I really don't get enough of that. So just time to talk and socialize.

In these examples, participants spoke of their interactions with their home visitors as having a more casual quality than other professional relationships might have; nonetheless, the home visitors did have a clear agenda that comes through: to support the mothers in their parenting roles.

Some participants in this profile seemed to experience more of an intimacy with their home visitors than described in the quotations above, as reflected in their ease of communication with one another:

Participant: *Not so many people you get personal with and you talk about stuff when you're really a participant [in a program]—like, "oh, girl, last night I did this," you know? I could talk to her and feel comfortable and stuff and not just be, "[home visitor], I need a parenting group; [home visitor], I need this." I can really talk to her and express what's going on as a parent, if I'm stressed, the stages that my son goes through, I can call her and be, "my son's teething, what should I give him?" Stuff like that, you know? I can talk to her.*
Interviewer: *What about her specifically, her personality, what was she like?*
Participant: *Really bubbly, willing to listen to anything I had to say. We talked about more than, you know, pregnancy and the aftermath of it. We talked about lots of stuff that I think that was important to me, more or less, 'cause she didn't just come in there to do that part of her job, you know.*

These participants seemed to be describing relationships that had both the personal and professional elements that were seen among mothers in the Positive Family Member profile. Other participants also described this apparent balance, indicating that they could discuss personal issues with their home visitors, that their home visitors would sometimes share personal experiences from their own lives, or that the two felt comfortable with one another and could "talk normally." Situated at the "higher" end of the intimacy continuum, these participants saw their home visitors in a professional light and relied on them for purposes clearly within the scope of the program, yet they also developed a degree of closeness and comfort with their home visitors. Even in these examples, though, the depth of intimacy and closeness described by participants in the Positive Family Member profile is not apparent, where in the latter many participants believed that their home visitors had expressed an emotional investment in their well-being, and some participants were receptive to a directness of communication from home visitors that was typically seen only in close relationships.

Home Visitors' Style in the Positive Professional Profile
Participants' descriptions of home visitors depicted as being Positive Professionals provide important insight into what these home visitors did to achieve the level of comfort with mothers that we have just examined. Seventy percent of participants in this profile noted an appreciation of various aspects of the home visitor's style, or way of delivering the service and interacting with mothers. ***The most commonly cited aspects of style that seemed to support positive helping relationships in this profile included the home visitor being understanding, supportive, non-judgmental, and a good listener.***

The style of delivering program content that was exhibited by many of the home visitors in this relationship profile seemed to promote mothers' ability to receive it as welcome and useful, as seen in the following participant quotation:

I guess she was just that type of person that can talk to you and open you up to feel like, to make you feel comfortable, in order to talk. 'Cause I'm just, I'm not that type of person. I don't, I'm just not open with anyone, you know? So I just feel like she just knew what to say in order to make me feel comfortable, in order to express what I needed to express to her.

Another mother reported, "She'll make sure I know what's needed or expected to be a parent, but…she's not criticizing; she's helping me." Other mothers expressed similar sentiments, indicating that their home visitors reacted to the questions they had and the experiences

they shared in validating ways, such as by not "looking at me funny" and not making the mother feel judged.

A trend among these home visitors was that they seem to have accurately interpreted, and to have been responsive to, the mothers' preferences, styles, and needs. For instance, one mother explained,

> *I am open with her most of the time. When she does come, she comes just the right amount of minutes because I don't like being with her too long. We just talk about the basic things. She does not waste my time. She just talks about what needs to be talked about, asks me any questions, asks me if I need any help with anything, and then she goes on about her business.*

The home visitor in this dyad seemed to have appropriately read the mother's signals about the type of relationship she was willing to have. While the above quotation may seem to some to reflect a helping relationship that is restricted in some way, it seemed to suit this young mother perfectly, as she also described her home visitor as "a nice, caring, concerned, individual who likes her job a lot." Another mother described a helping relationship that, again, to some home visitors and some mothers, may have seemed too distant, but to the mother in this dyad, the relationship represented a good balance between her needs and the home visitor's manner:

> *She listens to me; she gives me advice when I need it or when I ask her. She's sort of like a psychoanalyst where you have the therapist where they just listen to you and that's pretty much it. And then they speak when you need their opinion and she speaks when I need her opinion. She helps me set goals, things like that. She looks out for me.*

It is clear that the stylistic approaches of these two home visitors would not work for all mothers. Perhaps these are stories of well-matched home visitor-mother dyads, in which both the mother and the home visitor had a shared ideal vision of the helping relationship, or were simply compatible with one another, as is suggested in the following quotation: "I'm really quiet and she's very talkative so I think that's good." Or, these may be the stories of home visitors who were effectively reacting to signals provided by the mother about what type of helping relationship she desired, and the same home visitor may take a different approach to helping with other mothers. In either case, the outcome, at least in terms of the nature of the relationship, was a good one. ***In these relationships, the mother and home visitor seemed to understand each other's styles and were therefore able to work together effectively***, as is reflected in the words of another mother: "When I talk to her she'll understand what I'm trying to say even if the words don't come out right."

Some mothers described home visitor behaviors that seemed to communicate acceptance of the challenges the mother may have had—challenges that may have affected mothers' ability to engage in and maintain an effective helping relationship. While some home visitors may have become frustrated by such behaviors or interpreted them as the mother's lack of interest in receiving help, these home visitors exhibited patience and understanding, perhaps recognizing that for some mothers, maintaining a good relationship was an achievement in itself. One mother noted, for example, "Yeah, I can depend on her; I forget a lot, and she knows I do and she doesn't hold it against me. She works with me." Similarly, another mother explained, "I'm more of a person that likes my space, so she's really good like that; if I'm having a bad day she'll say, 'We'll reschedule.' 'Cause she knows that I'm not big talking about it." Another mother appreciated that her home visitor understood if the mother had to reschedule a visit because of her work schedule; in lieu of the visit her home visitor would be in touch with her by phone if needed. ***These home visitors seemed to be flexible and committed to establishing a working relationship that allowed their clients to participate in the relationship and work toward achieving their individual goals.***

Many of these mothers expressed feeling comfortable opening up to their home visitors, and their home visitors provided them encouragement that they valued highly:

> *[My home visitor]'s always in a good mood and she's always ready to sit down, get me started and ready, she always gets my emotional up—my self-esteem—she always makes me feel good about myself inside.*
>
> *Even if I told her my goal was to be the president, she would help me get on the right track to figure out how to become the president. Even if she knows it's highly impossible for me to become the president, she would still try to help.*
>
> *What type of role [does she play]? To me it was like guiding me, for example guiding me to do certain things and to value myself because she will also talk to me about how great it will be to go back to school and getting my education and getting a job.*

Together, the stylistic tendencies of Positive Professional home visitors described by these mothers seemed to establish a dynamic in the relationship that enabled many opportunities for help-giving and receiving.

Summary of the Positive Professional Profile

Since the home visitor is the primary interface for the program, if the home visitor and client do not have a successful relationship, then there is no premise on which to help the mother achieve program outcomes.[19] The home visitors within the Positive Professional profile generally had the ability to build the types of relationships with mothers that mothers appreciated, thereby promoting the potential for helping mothers work on their program-related goals. Notably, the mothers in this relationship profile had a range of desires when it came to seeking closeness in their relationships with their home visitors. Some mothers described relationships defined by a formal distance, others described a more casual or informal dynamic, and still others described a higher level of intimacy with their home visitors. Importantly, home visitors in these Positive Professional relationships were responsive to each of these variations in a way that mothers felt was appropriate, and most mothers described a sense of comfort in talking with their home visitors. Home visitors in this profile seemed, overall, to be responsive to mothers' preferences, needs, and challenges, allowing mothers, in turn, to be open to what home visitors were offering. While the mothers in this profile did not stand out among the four relationship profiles in terms of attainment of program outcomes, the ability to form a good relationship with their home visitor may in itself be a notable achievement for these mothers.[20]

Relationship Profile 4: Negative Professional Home Visitors: *Disconnects* as a Relationship Challenge

A closer look at those participants who identified their home visitors as professionals, and whose relationship valence was not good, reveals that major disconnects, or misalignments, were a unifying relationship characteristic. In contrast, participants who identified their home visitors as professionals, and whose relationship valence was good, typically did not report major disconnects.

Because *minor* disconnects are common in the context of most human relationships, they alone would not be expected to cause great strain in home visitor-mother relationship. Indeed, this is reflected in the profile analyses presented above (see Section 4.2.3). *Major* disconnects, however, do appear more challenging, and may well contribute to relationship discord. Due to the higher incidence of major disconnects and negative valence within the professional group, major disconnects can be thought of as potential challenges to home visitor-mother relationships (see Tables 5 and 6).

A disconnect was coded as *minor* if at least one of the following was true (a) the mother and home visitor were able to resolve the disagreement/difference, (b) the mother indicated that she did not regard the difference to be important, (c) the way the mother described the disagreement/difference was without emotional charge (i.e., she explained each party's position neutrally, or she may have downplayed the disagreement or not elaborated on it), or (d) the home visitor was not blamed for the disagreement/difference.

A disconnect was coded as *major* if at least one of the following was true (a) the disagreement/difference between mother and home visitor caused strain or distress

in the relationship in the short or long term, (b) the mother and home visitor did not come to see eye-to-eye on a disagreement or difference, or (c) the mother used a tone to describe the disagreement that suggested the mother blamed the home visitor or considered the home visitor to be the source of the disagreement/difference; the mother "didn't like," expressed dissatisfaction about, or was hurt by, something the home visitor did; or the mother was dismissive of the home visitor's suggestions or ideas.

The reports of major disconnects here reflect the mothers' perspective, and often responsibility for them was attributed to the home visitor: who she was, how she behaved, or what she appeared to value in the relationship. However, all disconnects took place in the context of a relationship and are thus situated within the interaction between the mother and the home visitor, with each member of the pair contributing. Many of these missed opportunities for developing a positive home visitor-mother relationship, then, were likely multidetermined. As has been observed in other research, simple personality mismatch between the home visitor and mother, or individual mother characteristics or circumstances, may have contributed to these disconnects.[21] Nonetheless, since HFM participation is voluntary, and this relationship is the cornerstone of services, the mothers' assessment of what the major impediments were and how they developed is critical to understand.

Analyses focused on mothers who (a) reported a major disconnect with their home visitor, and (b) who identified their home visitor as a professional (n = 21). A thematic analysis was conducted to understand and classify the nature of the major disconnects reported by participants in this sample. Below, the three overarching categories of relationship disconnects, including ***advice disagreements***, ***home visitor characteristics***, and ***home visitor conduct*** are reviewed.

Advice Disagreements in the Negative Professional Profile

The first category of disconnects is related to divergent viewpoints about the advice that home visitors gave to mothers. Some participants reported on advice disagreements based on parenting or romantic relationships. The following excerpts offer several examples of such advice disagreements from participant perspectives:

> *I was saying that [child's name] was being goofy or something and she told me that I shouldn't call him names like that because it'll hurt his self-esteem and that it's bad parenting. I just think that's weird to say because I don't think that's really an insult.*

> *There have been times where me and [FOB] would talk about it after and be like, "Wow, I can't believe that she thinks that way." 'Cause we have different values, we have a different child, everybody's different. . . . I remember asking her, "Okay, what should I do because he doesn't sleep then?" And she, she would, there was just tons and tons to think about, I went on the internet, I had to ask the doctor, all these different ways of how to get him to sleep better. And she was like, "Oh you need to let him cry it out." And I was like, "He's only six months. That's not okay with me."*

> *He's kind of heavy, so the doctor said I had to start him on the baby food early. And the papers that she brought said they should start at about four months on baby food, so she sees me feeding him, and she was like well didn't I give you a paper stating how old they are when you're supposed to feed them and I was like yeah but I talked to his doctor. And she was like well you need to switch his doctor because I have this many kids and we never fed them that young. And I was like okay, well I'm going to feed him like my doctor said.*

Researchers note the importance of home visitors finding a balance between pushing mothers on important decisions and respecting mothers' choices, in order to maintain their relationships.[22] In the above three examples, the ***mothers viewed their home visitors as insisting on one particular parenting practice, and asserting their authority in the relationship when communicating their point of view***. This approach was unproductive in that it seemed to offend the mothers. In the last example, the visitor seemed to undermine not only the mother's capabilities to make the right

judgment about her child, but also the expertise of the child's trusted doctor.

Although the home visiting and mentoring literatures are not generally directed toward a young parent population, several researchers highlight the value of a less hierarchical, "collaborative partnership;"[23] such relationships emphasize the importance of the mother's agency, empowerment, and ability to drive the curriculum.[24] ***When home visitors were not flexible about advice disagreements, this presented a challenge to the home visitor-mother relationship.***

In two of the three instances above, the participants challenged their home visitors by expressing disagreement with the advice being offered. It was not clear in those particular instances whether airing one's disagreement helped to improve or maintain the relationship. We expect, however, that given the many other indicators of mismatches in these professional group dyads, there were other mothers who felt dissatisfied but were not willing to confront their home visitors. This reticence might have arisen out of politeness, shyness, or lack of certainty about the consequences of being critical. As one mother stated, "I used to get so aggravated; I would never say nothing because she was older."

The above examples illustrate mothers and home visitors who experienced conflicting points of view about fundamental parenting practices. While it is unlikely that these dyads would experience congruence on all matters within the purview of HFM's goals, ***the way the home visitor expressed a divergent point of view appeared consequential. It apparently had the potential to inhibit the mother's trust in her home visitor's expertise.***

Home Visitor Characteristics in the Negative Professional Profile

Differences in perspectives often arose from the distinct world views held by home visitors and mothers. For home visitors, those world views may be rooted in their personal identities and background experiences, and also in their modes of interaction. Major disconnects related to home visitor characteristics were those in which a specific quality of the home visitor was identified by the participant as a barrier to connecting. The specific characteristics that contributed to major disconnects generally reflect "status" qualities, not subject to change or susceptible to training.

Some participants identified background characteristics, and some identified personality characteristics of their home visitors, that led to the participant having difficulty relating to the home visitor.

Background characteristics cited as a barrier to establishing connections with home visitors included the home visitor not being a parent, being older than the participant (i.e., being of a different generation), being female, or being a speaker of English as a second language. For instance, one participant considered parenting status to be a proxy for home visitor expertise or competence: "She didn't seem like a parent. She didn't know what she was talking about. So how are you going to tell us something you don't even know?" Another participant viewed the home visitor's age as problematic. Her explanation seems to suggest that she felt judged by the home visitor because of differing perspectives that were rooted in generational norms related to parenting:

> *…Like our generation, older people think different from us; they like...I don't know how to say it, but certain things gotta be a certain way; you feel like once you have a kid, you're not supposed to be goin' out and stuff like that. I think different. ...We'll talk about certain stuff; like she'll ask me what I do over the weekend and I'll tell her, and she'll kind of bring up stuff like oh, in my days we wasn't allowed to do that.*

Personality characteristics to which participants expressed an aversion included the home visitor being too "peppy" for the participant when the participant was pregnant, trying too hard to get the participant to like her, and being boring, annoying, or too reserved. Again, while the personality traits of the home visitors being described by participants in these ways may have been compatible with the traits of other participants, this group of participants viewed the traits as an impediment

to connection. The participant who felt her home visitor was too reserved, for example, explained,

> *She was kind of reserved, like really quiet. But [home visitor 1] would always talk; I think [home visitor 1] helped me out a lot more…So I just think she wasn't as helpful as the first one…It made things kind of awkward. Like when she would come it would be really quiet.*

In the case of the mother above, her first home visitor had a different personality that seemed to suit this mother better. This initial relationship may or may not have influenced this mother's ability to embrace the different personality that her second home visitor had. Either way, the home visitor's reserved nature inhibited effective relationship building in this dyad.

As discussed earlier, individual characteristics of the provider and the mother affected the relationship. Though there are some exceptions,[25] most studies have found that matching based on demographic characteristics, such as race, does not affect relationship quality. [26] When asked about the importance of having a home visitor that was the same race and ethnicity as them, 80% of mothers in our study said this was not important, and 20% said that it was important to varying degrees.

However, other studies have found that deep similarity or shared values, beliefs, and personalities are important.[27] In addition, similar experiences are linked to relationship quality.[28] For example, mothers described the importance of having a home visitor who is also a parent. In our sample, 83% of mothers reported that it was important to have a home visitor who was also a parent.[29] The importance of match may have stemmed from a desire for empathy: Mothers wanted their visitors to understand where they were coming from. The absence of such a match appeared to be a challenge for some home visitor-mother dyads.

Home Visitor Conduct in the Negative Professional Profile

Disconnects arising from mothers' displeasure with their home visitors' conduct included those related to (a) the home visitor's level of preparedness or commitment to meeting the needs of the mother; (b) the home visitor's style or approach; and (c) the home visitor's behaviors related to professional courtesies, such as timeliness or appearance (also known as *structural concerns*). While home visitors cannot change their background or personality characteristics, their conduct in the context of these relationships with their mothers, in theory, is malleable and could be responsive to training.

Preparedness to Meet the Mother's Needs

Some mothers in this sample felt that their home visitors seemed either ill-equipped to meet their needs, or were not committed to helping them do so. For example, one mother explained what she perceived as a shortcoming of her home visitor in a relationship that was described as positive overall and helpful in other ways:

> *Sometimes I feel like she doesn't understand certain things about me, for example, like depression? That's the main topic that makes me feel less connected to her…I feel like she doesn't understand it when I talk to her about it.*

The above participant also believed that her home visitor would not be able to connect her to resources that could help her manage her depression.

Several mothers noted less specific concerns about the value of the type of help provided by their home visitors. In these cases their home visitors would come and bring handouts that the mothers felt were not more advanced or informative than what they already knew or could read on the internet.

When a home visitor was perceived by the mother to lack interest in the mother's individual circumstances this appeared to be a powerful challenge to the relationship. Several mothers described home visitor behaviors that suggested a low level of commitment to the home visitor-mother relationship and to the mother as an individual. For example, one mother reported,

> *She actually brought me a present, and it was boy's stuff. I really didn't like that because that made me feel like she was not paying really good attention to me. I know it is really hard for her to remember, because she probably had other people to see…She was like, "I thought you were having a boy. I am sorry. I will bring you another bag." It doesn't mean that I needed the bag or anything, but she forgot about the bag…So I had to stay with the boy's stuff.*

Similarly, another mother had requested assistance returning to postsecondary school, and the home visitor brought her information about a GED instead. A third mother had specifically requested help with Section 8 housing, but the home visitor would always forget to bring the information.

These examples demonstrate an absence of obvious or easily detectable caring. Caring is frequently measured in assessments of relationship quality, as it is thought to be part of the process of developing healthy attachments.[30] It is also noted by mothers as an aspect of their relationships with home visitors that they much appreciate.[31] Similarly, perceived home visitor engagement, which comprises involvement, commitment, and attunement to the relationship, is seen to strengthen the bond in the relationship.[32] ***The home visitors' conduct in the above examples did not demonstrate caring or engaged behavior, nor did it reflect attention to the unique qualities of each mother. Home visitor conduct that suggested a lack of preparedness, which could have been interpreted by the mother as placing a low value on their relationship or not investing the necessary amount of time in the relationship, was one factor that could have made the relationship vulnerable to fracture.***

Home Visitor Style

Other home visitors were perceived by mothers to have a style of relating that was incompatible with their preferences or needs, or that made them uncomfortable. Some participants, for example, took issue with the home visitor's program delivery approach, feeling it was too overbearing or judgmental. One mother explained, "I can remember [it] feeling really invasive when she was coming and telling us how we should do stuff." A couple of participants felt their home visitors were too aggressive or insistent about program requirements or the information they were imparting. One explained,

> *When she started talking about Healthy Families, [she] needed to jam information down my throat and all this other stuff. I really, I can't decide if it was her saying she's older and she was better because she knows what she's doing; she's part of Healthy Families so she's more knowledgeable than I am. And I didn't want that feeling.*

These participants believed that their home visitors were assuming that they (the mothers) would make a mistake, or that the home visitors did not value their knowledge and abilities. The above participant explained, "[it] sounded like they were looking for a reason to be there and to tell you that, 'You know, you're an underage parent; you don't know what you're doing.' And, I'm 20, I'm almost 21; I think I was old enough to have a child."

Another participant who felt this way talked about her home visitor as invalidating her parenting skills:

> *I always felt that instead of her actually listening to me and acknowledging what I do as a parent, she would just tell me, "You need to do this" without finding out if I actually do it. Even when I would tell her, "Yes, I do that with him." She'd be like "Well, you need to do this with him," and I'd be like "I just told you I do."*

Some participants expressed sensitivity about home visitors being judgmental or seeming to always be on the lookout for inappropriate parenting behaviors. Two mothers stated that their home visitor would frequently remind them of their [the home visitor's] obligation to file a maltreatment report if necessary; one explicitly mentioned that behavior as responsible for her leaving the program. The other mother noted,

> *She'd make you feel uncomfortable and then come into your house. Nitpicks everything. She was watching everything. Told me she could call DSS on me, which I understand. Anyone can put a phone call in. She just made me feel really uncomfortable…Hated the fact that I had dogs at the time.*

Said she could have called on me for that. She just made me feel uncomfortable.

In addition to appreciating the material resources and expert information provided by home visitors, mothers also value positive feedback that makes them feel validated as good parents.[33] ***When the home visitors described above repeatedly behaved in a judgmental or authoritarian manner, these participants were less receptive to forming a relationship with the home visitor.***

Structural Concerns

Mothers' concerns about their home visitors' professional behaviors has been referred to as a "structural concern" in a mentoring relationship.[34] Research has noted that behaviors on the part of either the mentor or mentee, such as poor attendance, can interfere with the development of "meaningful connection" in the dyad. In the present study, there were seven examples of such structural problems, cited by five participants. In these examples, ***the participant was irritated or upset by what she experienced as off-putting behavior on the part of the home visitor in her Negative Professional profile***.

One of these problematic behaviors was tardiness for visits. As explained by one participant, "It's just supposed to be a professional lady coming to my house and teaching me things I don't know. But she's coming and she's coming late, you know? I don't know, it's just image."

A related behavior perceived to be offensive concerned visit scheduling. One participant noted that her home visitor would not only arrive late for visits, but she was also not reliable in her scheduling approach and seemed inconsiderate of the participant's schedule. This same participant reported that her home visitor took a personal phone call during a home visit. The combination of these behaviors was perceived by the participant as ill-mannered and inappropriate:

> *I guess the most recent thing that—that was it for me—was she was here for a visit and she ended up getting a personal call. She stayed on the phone for like 15 minutes, talking about her upcoming vacation and this person's wedding or whatever. I was just appalled....It's rude; it's so disrespectful. I'm inviting you into my home, allowing you to be around my child, and you're going to disrespect me like that? This is your job. You should take it serious.*

Other examples of behaviors that this particular group of mothers deemed undesirable included a home visitor who failed to notify one mother that she would be leaving HFM, which the mother said made her feel "sad," and one home visitor who shared personal information about her "home stuff" that the mother believed "they're not really supposed to tell."

One tenet of family-centered practice is to treat families with respect. Several studies have noted that mothers feel strongly about the need for home visitors to be respectful,[35] a quality that, from the point of view of the mothers, was not reflected when home visitors violated the structural norms of a professional relationship, as in the examples above. Beyond being perceived as undesirable qualities of a professional, these behaviors also seemed to affect participants' perceptions of how qualified a home visitor was to provide the intended service.

Summary of the Negative Professional Profile

This analysis of the Negative Professional profile helps explain the findings presented in Table 6, which showed that the Negative, Primarily Professional relationship profile represented the most negative depiction of the home visitor-mother relationship. Major disconnects seemed to be a significant feature of these relationships, which may account for the negative valence of this relationship profile. These disconnects were concentrated in several categories:

Advice disagreements: Mothers who noted disconnects in this category disagreed with both the advice provided by the home visitor in areas such as parenting and romantic relationships, and the way in which that advice was delivered. While mothers and their home visitors will certainly experience disagreement, the approach the home visitor takes when expressing a divergent point of

view can either strengthen the helping relationship, or inhibit the mother's trust in her home visitor's expertise.

Home visitor characteristics: Background or personality characteristics of home visitors that participants had difficulty relating to are often not subject to change through professional development. However, similarity with their home visitor seemed to be important to certain participants, and to the degree that each mother is intended by the program to receive services targeted at her particular needs, home visitors should consider modifying certain behaviors to which the mother seems unresponsive. Programs could also consider interventions to improve relationship dynamics, such as matching home visitors and mothers on the basis of shared background characteristics, if a mother expresses a strong preference for this.

Home visitor conduct: Disconnects arising from mothers' displeasure with their home visitors' conduct included those related to (a) the home visitor's level of preparedness or commitment to meeting the needs of the mother; (b) the home visitor's style or approach; and (c) the home visitor's behaviors related to professional courtesies such as timeliness or appearance (also known as structural concerns). In these examples, mothers expressed the feeling that their home visitors were not willing or not able to effectively meet their needs; demonstrating a disregard for their parenting skills or behaving in a way that was distrustful or overly vigilant; or behaving in discourteous ways that were interpreted by mothers to be disrespectful or otherwise off-putting. When mothers felt as though they were being distrusted or disrespected by their home visitors, they seemed to respond, usually indirectly, through diminished investment in the relationship.

Each type of major disconnect described above seemed to breed feelings of doubt, distrust, or disinterest on the part of the mother. Major disconnects may be particularly challenging in helping/service relationships, such as the HFM home visiting context where the home visitor is positioned in a role that suggests authority and expertise, and the participant is typically positioned as the receiver of the home visitor's knowledge, assistance, advice, and suggestions, as well as the subject of the home visitor's observations.

Summary of Four Relationship Profile Analyses: Positive Friend, Positive Family Member, Positive Professional, and Negative Professional

Inherent in the paraprofessional home visiting model are contradictions about the role of the home visitor. Is she to be a warm, supportive presence, or a monitor? Is she an authority figure or a friend? Is it possible to be both? These questions warrant further attention, since to state the obvious, if the relationship is derailed and participation ends, there is little possibility to achieve the desired effects.

We examined these apparent contradictions through the perspective of adolescent mothers, who experienced both the challenges to and the benefits of their relationships with home visitors who they described as professionals, friends, or family members.

First, when mothers characterized their home visitors as being like a friend, the relationship generally embodied two sets of qualities that may, on the surface, seem contradictory, but actually appear to be complementary in the context of these relationships. Specifically, these qualities included closeness, comfort, familiarity, informality, and personal compatibility, on the one hand, and authority and expertise, on the other. Characterized by a similar balance of personal and formal elements, mothers who characterized their home visitors as *Positive Professionals* experienced a relationship in which there was a certain amount of emotional distance, but in which mothers still felt comfortable talking openly with their home visitors about their needs, thanks to the stylistic approaches and responsiveness of home visitors. When the home visitor was characterized as being like a *Positive Family Member*, the relationship exemplified both an emotional connection (e.g., availability, support, caring, closeness), and comfort and ease (e.g., familiarity, informality) in relating, as well as an appreciation of home visitors' preparedness to provide help.

Together, these findings suggest that relationships in each of the positive profiles—Friend, Family Member, and Professional—seem to strike a balance between ***emotional intimacy and what is generally considered professional distance, but each in a somewhat unique way***. In the Friend and Family Member profiles, there was a sense of caring and closeness, as well as a system established for giving and receiving help, and these things seemed to go hand-in-hand. The emotional element came about in the way the members of the pair related to one another, as well as the way help was provided and received. These relationships challenged the idea of professional distance that is traditionally advocated in professional relationships, but seemed to achieve good results, at least in terms of how the relationship was experienced by the mothers in these two profile groups. Further, it was evident from the way mothers described these relationships that having the interpersonal connection that challenged this distance did not threaten the potential for an efficacious helping relationship; that is, mothers in these profiles still described their home visitors as helpful in ways intended by the program.

In the Positive Professional profile, fewer mothers described the closeness with their home visitors compared with mothers in the Friend and Family Member profiles. While some did experience that intimacy with their home visitors, others described a more distant and formal relationship, and still others described something in between those margins. Each mother in this relationship profile seemed to feel that the particular degree of distance or closeness she experienced with her home visitor suited her well, and all experienced satisfaction with the interpersonal nature of their relationships. Perceptions of intimacy are likely relative, with individuals having different thresholds for a comfortable closeness, and this seemed to be especially evident in the Positive Professional profile. While there was a continuum of intimacy in the home visitor-mother relationships seen in this profile, many of these relationships could be characterized as having a personal element. And within all of these relationships there was also what could be considered essential ingredients for an effective helping relationship: an acknowledgment of the home visitor's preparedness, a comfort in talking with the home visitor, and an appreciation of the home visitor's style of relating and providing help.

In contrast, there was a mixture of positive and negative experiences among mothers in the Negative Professional profile, with the balance in the negative direction. When mothers reported major disconnects in these professional relationships, these relational misalignments were sometimes intensified because other relationship-focused qualities or characteristics of the home visitor were lacking (e.g., the home visitor's skill at relating to the mother, her expertise and her ability to communicate it to the mother). These qualities may be particularly important, as they can balance out the major disconnects experienced in these dyads in order to facilitate an effective helping relationship. Indeed, these more positive relationship-focused qualities appeared to be present in greater abundance in the Positive Family Member, Positive Friend, and Positive Professional profiles. As Table 6 shows, the mothers in the Negative Professional profile reported more major disconnects with their home visitors, compared with mothers in the other profiles. Similar proportions of participants in each of the four profiles reported experiencing minor disconnects with their home visitors. It is possible that in the Positive Family Member, Friend, and Professional profiles, the preponderance of positive relationship qualities provided a counterbalance to any potential major disconnects, thereby leading them to be viewed as minor disconnects, or preventing them from being viewed by the mothers as disconnects at all.

The great majority of participants viewed their relationships positively, including those who characterized their home visitors' posture as professional. The range of mothers' positive experiences of their relationships with their home visitors suggests there is no one "right" home visitor-mother relationship type, but rather various types that can each be valuable in their own way, with certain dyads, under certain conditions. Since mothers are intended to be the primary beneficiaries of this

relationship, home visitors' flexibility and responsiveness to the unique needs and preferences of each mother is likely to benefit all home visitor-mother relationships. In brief, although a balance of personal and professional relationship elements seems to result in helping relationships that have the potential to benefit mothers, the particular balance of each of these elements that works best needs to be determined on a case-by-case basis.

Later in this report, we present findings from follow-up analyses that examined the extent to which the home visitor-mother relationship is related to program operations (e.g., number of days enrolled, number of home visits received, how faithfully a participant uses the program according to HFM benchmarks; see Chapter 5), maternal characteristics (see Chapter 6), and participant outcomes (see Chapter 10).

4.2.5 The Development of Home Visitor–Mother Relationships

In this section, we present findings from qualitative analyses that explored the ways in which home visitor-mother relationships changed over time. Data were drawn from the T3 interviews. The codes used in this study, which highlight various aspects of the home visitor-mother relationship, were generated from the full sample of participants. The analytic sample was limited to the 64 participants who were still enrolled in the program at the time of the T3 interviews. This decision was made because the protocol for in-person interviews required that participants were asked questions about changes in their relationship with their home visitor only if they were still receiving home visiting services at the time. Note that no minimum length of engagement with a particular home visitor was required for participants to report the meaningful changes in their relationships described herein. The findings presented below focus on mothers who were still enrolled in the program at the T3 in-person interview and reported on change in their relationship with their home visitor (n = 44). Not all of these mothers had the same home visitor between T2 and T3.

Regardless of the length of their relationships with their most recent home visitors the fact that mothers were still enrolled in the program at T3 suggests that they were more experienced at being in home visiting relationships than were mothers who dropped out of the program earlier. Although the home visitor-mother relationships in this sample were not explicitly identified as the primary reason for continuation, we assume that their continued enrollment rested, in part, on a positive experience of the program, of which the relationship seems critical. Indeed, all of the changes observed in this analysis were positive, and suggested that relationships matured to fit the mother's own development, as well as her shifting needs and circumstances. In-depth, in-person interviews completed approximately two years after program enrollment are at the core of these analyses, allowing for the investigation of the changes that made it possible for the relationship to be sustained.

Results revealed five distinct dimensions or themes that defined the nature of the development that occurred; these included *comfort, the content discussed, closeness, spontaneity*, and *trust* (see Table 7 for frequency of mention). These constructs are described in more detail below, with illustrative quotes from participants.

Table 7. **The Type of Changes Occurring in the Home Visitor–Mother Relationship**

Type of Change	Number of Mothers
Comfort	27
Content	16
Closeness	14
Spontaneity	7
Trust	7

Note. Some mothers described more than one type of change.

Relationship Development: Comfort

The dimension of change most frequently cited by participants involved a sense of growing comfort with the home visitor. ***Comfort refers to a state in which the mother felt at ease with the home visitor***. Many participants indicated that being comfortable around the home visitor was a natural consequence of increasing familiarity over time. The following are several examples of when mothers shared this particular experience:

Interviewer: *How do you think this relationship has changed since you first started meeting with her four months ago?*
Participant: *I think it's easy to talk to her and stuff.*
Interviewer: *Than it was at the beginning?*
Participant: *Yeah. 'Cause I know her better.*
Interviewer: *And how do you think the relationship has changed over time since you first started meeting?*
Participant: *[In the beginning] I would never open up to her. I wouldn't. I would like barely talk to her 'cause I was just uncomfortable, but I'm not uncomfortable anymore.*

As the above examples suggest, familiarity contributed to a general sense of comfort in relating to the home visitor. In addition, participants mentioned a number of other factors that seemed to help them feel at ease in their relationship. For instance, ***several participants emphasized the importance of the home visitor's personality characteristics***:

> *It was more like, yeah, in the beginning, I didn't want to tell her nothing and then she was mad nice, so I was just like okay, let me just talk to her about all my problems and I was just telling her stuff. But in the beginning, I wasn't really telling her anything.*

Some participants noted that in the early stages of the relationship they anticipated not getting along with the home visitor due to some of the home visitor's characteristics. However, as they got to know their home visitors they changed their perspectives. For example, one participant expected to have difficulty relating to her home visitor because of the age difference between the two, and noted, "I got to know her 'til now and she wasn't the way I thought she was going to be. . . . Like she's nice and she talks like I talk. She's not a normal person her age."

Other participants highlighted the importance of professional attributes of the home visitor. This included facilitating a reciprocal relationship by modeling openness and having a non-judgmental attitude:

Interviewer: *When did you start feeling comfortable?*
Participant: *I don't know. I think it was when. . . . I really don't know when the exact date was, but just when she started talking to me more about her children and her life and when it was not only focusing on me.*

Participant: *I'm more comfortable with her. I don't need to worry that I'm going to say the wrong thing or do the wrong thing in front of her [because] she doesn't judge me, so I realize that now. Like before when she first came into the house, I was like, "Oh no, is she going to judge me? What's she going to say about my bad parenting?" But now I don't need to worry about that, so it's easier.*

Regardless of the underlying cause, ***comfort and familiarity were usually accompanied by increasing openness on the part of participants***. The following examples point to the willingness of participants to discuss personal issues with their home visitors as time went on:

Participant: *We're very open with each other.*
Interviewer: *Okay. Was it like that from the beginning?*
Participant: *No.*
Interviewer: *Okay. What was it like at the beginning?*
Participant: *It was hard because I didn't want to open up again, so I would keep things to myself sometimes and like, you know, sometimes I used to be like oh, she's coming and I'll have to talk to her.*
Interviewer: *Mm, so you weren't looking forward to it before?*
Participant: *No, I wasn't really looking forward to it, but the dates kept coming and the visits kept coming and I kept opening up a little more and a little more until I definitely opened up again completely and then I tell them my situation and ever since that, she's been very helpful.*
Participant: *Before I didn't talk to her about much of anything...[Now] I think I talk to her more than I talk to my own mother.*

To summarize, our analysis indicated that the participants experienced a growing sense of comfort around their home visitors over time. Familiarity, as well as the personal and professional qualities of the home visitor, contributed to feelings of ease in the home visitor's presence. As the comfort level in the helping

relationship increased, participants tended to make disclosures about themselves more frequently than they had initially.

Relationship Development: Content Discussed

As part of the HFM curriculum, home visitors provide a wealth of information to participants about topics related to health and development. Not surprisingly, content was the second most frequently mentioned element of the relationship that changed over the course of program participation. ***Content here includes all topics discussed by the mother and home visitor during the home visit, including but not limited to those outlined in the HFM curriculum.***

As the following participant quote suggests, ***one dimension of change in the content of home visits involved the expected shift in curricular focus, often determined by the developmental stage of the child at the time:***

> *Well now it's about how I can get her to stop biting at school and how I can make the transition from diaper to potty, like go smoothly and stuff like that. But before it was just about my health because I was pregnant and, in the beginning when she was born, about my health and her health and about breastfeeding and pretty much kind of the same now, but now it's just about her and development and how she plays with my brother and how she plays by herself.*

Sometimes participants reported that the focus of conversations during home visits shifted from the mothers themselves (i.e., transitioning to parenthood and prenatal care) to their babies:

> *Yeah, at the beginning it was more about me. You know, at first I'm pregnant: are you eating right, you know, are you drinking a lot of milk, you going to your doctor's appointment, taking prenatal pills? Now it's more like, it's more concentrated on the baby. She still worries about me, but it's more about the baby than it is about me, but I don't mind at all 'cause that's what she came here for, you know?*

For other mothers, perhaps partly dependent on whether home visits began during pregnancy or after the child was born, the focus moved from being almost wholly directed at the child, to more of a shared focus on mother and child. ***So while the child's well-being remained an important theme over time, several of these participants indicated that the content of the home visit became increasingly focused on their own daily lives:***

> *It was like everything was about him at first. About what was going on with the baby and just, I was living at home with my mother and everything has just changed since. . . . It's still about him, but it's about everything now. It's like we talk more about a lot of things.*

As time passed, the exchanges between home visitors and mothers during home visit became not only more broadly focused, but touched on more personal issues for the mothers as well:

> *When I first met [my home visitor] I would just talk about things with the baby and stuff. Now I'll talk about more personal things, like if I'm upset or anything like that.*

Participant: *At first we strictly only talked about my daughter, and now we talk about everyday stuff, and also my daughter of course.*
Interviewer: *What about like for your family or with the father of the baby? Do you talk about more personal stuff like that?*
Participant: *Yeah, she has asked me and I definitely tell her, I don't keep it a secret from her.*

In summary, several changes were noted over time in the content of home visits and the nature of exchanges between home visitors and participants. As would be expected, curricular changes were noted to reflect the developmental tasks and needs of older infants and toddlers. Whereas the needs of babies and mothers remained the primary focus of conversations, home visitor-mother dyads also started to discuss more private matters as their relationships evolved.

Relationship Development: Closeness

The third most frequently reported type of relational

change involved the sense of closeness. ***Closeness refers to growing bonds of intimacy between home visitors and participants.*** Some mothers spoke of this in general terms; for example, one participant simply noted, "We started getting [to be] closer and closer friends." This sentiment was shared by others. For instance one participant indicated, "Every time [the home visitor] comes, it just keeps getting closer and closer." Another participant explained, "We've grown a lot more [close]. I love her to death; she's the best."

Others suggested that the relationship had become closer in the sense that the home visitors increasingly demonstrated their investment in the participants' well-being—an investment that went farther than what mothers imagined this relationship would elicit. Sometimes this evolved from a circumstance or event that made the home visitor's commitment clear, as occurred in the two examples below:

Participant: *[It has changed] from a program or a program/social worker to like more of a friend.*
Interviewer: *So more like a personal connection?*
Participant: *Yeah, yeah and support column. And then she found out she had cancer too, so she could always switch or stop, but she never did. She still stuck around, so I appreciate that.*

A second mother described her home visitor's behavior in the aftermath of a drug overdose:

Participant: *I was really depressed, and she knew about it and everything. She was the one always talking to me, taking care of me, seeing if I needed her help or anything. 24/7...*
Interviewer: *That's when you knew that she was something special?*
Participant: *Yeah.*

Some mothers described this greater intimacy through evoking images of other intimate relationships with friends and family members:

> *I consider her, I consider her a friend. . . . If I need anything, she's there. If I have questions, she's there. So more over the year, since I met her, it's become from, you know, social worker and a participant to kinda like a friendship.*

Participant: I've always said that she's been basically like a mother to me, 'cause whenever I need, I have a question about something or I just want to talk about something, I can always call her or talk to her about anything. So—and she's basically taught me how to be a mother when I didn't have my mother around—so I'd say she's like a mother figure to me.

> *I would say that we've gotten closer definitely, just because she's partly kind of...it's weird because it's not really supposed to do that but it's kind of like she's part of the family. It's like, "Oh [home visitor] is coming by, oh hey I'll make more food or whatever." I don't know, she's like part of the family, it's cool.*

In brief, the development of greater closeness or intimacy was the third major relationship characteristic that mothers identified as having changed over time. Some of this movement appears to have occurred "naturally," as both mothers and home visitors came to know each other better and had a deeper well of shared experiences that bolstered the relationship. For others, a focusing event, often a crisis, created the context for this increased intimacy. Some participants came to view their home visitors as family members or friends, rather than professionals doing their job.

Relationship Development: Spontaneity

The degree of *spontaneity* in this relationship increased as well. Mothers detailed this change in several ways, including ***the expansion of topics into other realms of young mothers' lives beyond those typically addressed by the program***. Examples include the following:

Interviewer: *What about in terms of what you guys actually end up talking about? Do you feel that has changed?*
Participant: *Sometimes because now it is more personal whereas before it was more questions and asking about parenting. Now it is about other things like living situations and stories about what we are doing [on weekends] and stuff like that.*

Participant: *Now, we could come into a home visit and not even talk about the information, just go right into, oh, how are you doing, what have you been doing, oh, I've been going to school, talking about friends and out friends' relationships and certain stuff like that. So that's great.*

In addition, the mothers ***noted that interactions seemed less scripted, less "by the book."*** In almost all cases, spontaneity meant naturally flowing interactions in which the home visitor-mother dyad felt less constrained by program structure and regulations. And indeed, as ***the emphasis on formal procedures decreased over time, the helping relationship tended to feel more natural for the participants.***

Participant: *At first, it was a lot of writing. Now, she would even forget to write anything down!*

Interviewer: *And you said when you first started meeting you were a little bit shy and how was she towards you?*
Participant: *I think she was a little shy too in a way. I think she was more about the books and trying to get me to talk more, but she was a little more shy herself. I think eventually when we started talking to each other more often, she came out more loose and she talked a lot more.*
Interviewer: *And how do you think this relationship has changed since you first started meeting with the home visitor that you have?*
Participant: *Oh, a lot. Like I always felt comfortable, but at the beginning she used to come, ask questions, write it down, and then I used to sign and she used to leave. But then now it's like she comes, you know, she talks to my mom or something and then we stay talking about everything, like one thing jumps to the other, so it changed a lot.*
Interviewer: *And what about the content of what you do in the visit? You said before it was a lot of filling out forms and now what kind of things do you talk about?*
Participant: *She tells me how's it going with the baby, if she has any appointments, how did they went, how's it going in school, stuff like that. What else? About my personal life too, like how I'm coping with everything, how's it going with my job.*
Interviewer: *And before when you first started meeting with her, did you talk about that much or what kind of things did you talk about then?*

Participant: *Before when we first met, it was more for the baby and stuff, like what to do when she's doing this. She used to give me paper, like what's supposed to be happening month by month, stuff like that. It used to be mostly from paper that she used to ask me questions.*
Interviewer: *Okay and now it's not from paper?*
Participant: Right. Now she's like oh and like we talk like normal people.

To summarize, the degree of spontaneity was the fourth aspect that was reported to change as the helping relationship moved forward. ***With the passage of time participants and home visitors engaged in unscripted conversations that were not limited to topics of child development and parenting***. Also, the emphasis on procedural dealings during visits decreased, which paved the way for what some mothers experienced as a more genuine relationship.

Relationship Development: Trust

Finally, mothers identified changes in the sense of trust they saw reflected in their relationship with their home visitors. Whenever participants expanded their statements and became more descriptive about what they meant by *trust* their responses referred to **the confidence in the professional expertise of their home visitor:**

Interviewer: *Do you feel like your relationship with her has changed since you first met?*
Participant: *Yes, I trust her more. . . . I feel comfortable asking her anything, asking for any favor. If she can, she will help me.*

Participant: *I can trust her advice and I know whenever I have a question about anything, I always ask her, she's always the first person I think of to ask.*
Interviewer: *About [child name], or in general?*
Participant: *About—yeah, pretty—mostly about [child name], but about anything. School and working and assistance with anything.*

Interviewer: *And how do you think the relationship has changed since you first started meeting?*
Participant: *At first, I wasn't so open to her. Like I wouldn't tell just everything, but as time went on, she used to give me really good advice and I was like okay, I can trust her, I can tell her this. I can tell her, "Oh this happened. What do you think I should do?" The whole having a baby again, like oh, the whole birth control thing. She was so open-minded about all the things and she helped me pick the right one.*

Summary of Relationship Development

The mothers in this sample were committed and presumably satisfied users of HFM, staying enrolled for a considerable length of time. Although their relationships with their home visitors, including how these relationships changed over their tenures in the program, cannot be tagged as *the* reason they stayed, this analysis suggests the value of understanding this critical program component in a developmental context. These mothers are adolescents on their own developmental course, both becoming adults and developing into more experienced parents. Their children are developing rapidly as well. The home visitor-mother relationship, then, must be viewed as a dynamic entity as well, responding to and initiating the mothers' own development as well as that of their children. There may well be lessons for extending program participation among other mothers here to consider.

4.2.6 Reasons for Continuation

During the in-depth, in-person interviews, those mothers who were still enrolled in HFM at T2 and T3 were asked about their motivations for continuing to participate in the program. If mothers were still enrolled in the program at T3, we examined their reasons for continuation provided at *both* T2 and T3. At T2, we have data from 28 mothers who were enrolled in HFM at T3, and at T3, we have data from 40 mothers who were enrolled in HFM at T3.[P]

Analysis of these data revealed six primary reasons for continuing with HFM. These included the general statement that HFM was a "good" program, as well as several reasons related to quality and usefulness of the help they had already received or imagined they might eventually receive. Mothers also noted that they liked their home visitor, or that the program did something to encourage their enrollment.

Table 8 displays the number of mothers who endorsed each reason for continuation. Mothers could provide more than one reason for having remained enrolled in the program for the period they did.

The most commonly cited reason for remaining engaged in the program was, simply, having received useful help. Mothers who gave this reason either provided concrete examples of help received in the areas of parenting, child development, or maternal well-being; described

[P] This represents the full sample of participants who were enrolled at T3 and participated in the in-depth, in-person interview (n = 68). Note that mothers who had aged out of the program, so had not left the program by choice, were also included in this analysis.

Table 8. **Reasons for Continuation at T2 and T3, for Mothers who were Active at T3**

	Number of Mothers (%) T2 (n = 28)	Number of Mothers (%) T3 (n = 40)
Good Program	10 (36%)	13 (33%)
Program Encouraged Enrollment	1 (4%)	3 (8%)
Liked Home Visitor	9 (32%)	11 (28%)
Needed Continued Help	3 (11%)	2 (5%)
Program Potential to Help in Future	7 (25%)	9 (23%)
Received Useful Help	10 (36%)	17 (45%)

Note. The table includes any mothers who provided at least one reason for continuation. Proportions total more than 100 percent because mothers could provide more than one reason.

the program as being helpful in general; or cited a more indirect type of emotional help received—that is, the program gave them something productive to do or something to look forward to when that feeling was otherwise lacking for the mother.

The second most common reason mothers continued their enrollment was their belief that HFM was a good program. These responses were often nonspecific, with mothers simply noting that they liked the program, found it helpful, or that there was nothing about the program that they found unappealing. In these examples mothers often did not articulate a specific aspect of the program that made them want to continue participating.

Many mothers also continued participation in HFM because they liked their home visitors. These mothers indicated feeling comfortable with, or expressed a general fondness for, their home visitors. Getting along with their home visitors and feeling that their home visitors wanted to and could help them was a motivator for a substantial proportion of mothers.

The next most common motivator for continued enrollment was program potential, or mothers' feeling that the program could at some point in the future be a source of support for them, even if they had not yet experienced that potential. Some mothers who provided this reason seemed to stay enrolled because they wanted to ensure that the program would be available to them if they were to need it, or because of a general belief that it was a good idea to be enrolled in a program like HFM or to have a home visitor as a resource if one is a young mother.

The least commonly reported motivations for continued enrollment were the mother having a specific need for help (e.g., having limited knowledge as a new parent), and the program's intervention at the point that the mother might have dropped out (e.g., the home visitor encouraging the mother to continue her participation when the mother expressed fading interest).

An examination of motivations for continued enrollment for the 20 mothers who were active at T3 and provided reasons for continuation at both T2 and T3 revealed that mothers' reasons for staying appear not to shift across the two time points. Again, among this group of mothers, the most common reason for continued participation across both time points was having received useful help. The next most commonly given reason was the program's potential, followed by having liked the home visitor.

There were 15 mothers who discontinued program enrollment between T2 and T3, and the most frequently cited reasons that these mothers continued their participation at T2 were having received help from their home visitor, or believing HFM to be a good program.

To conclude, it appears that regardless of how long these mothers were enrolled in HFM, ***the most commonly cited reason for remaining engaged in the program was having had a good experience with it—that is, having received help that was useful to the mothers***. This suggests, perhaps, that in order to extend engagement with the program, mothers would need to feel "helped" in an area of importance to them early on in their involvement with the program.

4.2.7 Reasons for Discontinuation

As was true of inquiries about participants' reasons for continuing enrollment in HFM, during the in-depth, in-person interviews participants who dropped out of HFM were asked the reasons for making that decision. Data were collected at two time points: T2 and T3. At T2, we have data from 63 participants, and at T3, 38 participants.

These reasons were grouped according to the party who was reported by the mother as primarily responsible for precipitating the termination of services (i.e., the participant, program, home visitor, or, home visitor-and-participant pair). As seen in Table 9, ***when participants were the primary party responsible for termination of services, the most frequently cited reasons related to participants' life circumstances, such as schedule, moving, and personal issues (e.g., health, family***

dynamics). These patterns were similar at T2 and T3, though personal issues appear to have intruded more often at T3 than T2. Participants' schedules were the most frequently given reason; it was common for the participants to leave the program due to the difficulty of juggling school, work, and child care all at once. Residential instability or moving was another frequently cited reason for terminating services.

It is noteworthy that for 10 of the cases shown in Table 9 (1 case at T2, 9 cases at T3) in which participants cited that their schedule was what precipitated their disengagement from the program, participants were busy with activities in alignment with program goals, notably education and employment. Specifically, these mothers indicated that the activities and hours associated with school and work kept them too busy to maintain a regular appointment schedule with HFM, and thus precluded their continued involvement. These cases could be classified as *positive* reasons for discontinuation, in that the circumstances prompting program disengagement have the potential to benefit the mother. However, in a few cases, positive reasons were combined with other complications for the participant, such as involvement with DCF, or experiencing a change in their home visitors, which the mother saw as further disincentive to continue participating.

Second, ***mothers also attributed reasons for discontinuing services to the program (HFM). Mothers' perception that the program was irrelevant to—or unnecessary for—them was the most common factor in this category, and referred to various aspects that made it difficult for the participants to connect with the program or the home visitor***. Participants' responses indicated that they tended to drop out of the program when they already had a support system available, were convinced that the program was not addressing their needs, or they were not compatible with their home visitors. Although very low in frequency, program regulations (e.g., "aging out," the difficulty of re-enrolling) were cited as other program-related reasons for discontinuation. At T3, program-related explanations for discontinuing were cited about half as many times as at T2, suggesting that participants tended to drop the services at earlier phases of their program involvement if they were discontent with a particular program aspect.

The third category of mothers' reasons for discontinuing described those instances where mothers attributed discontinuation to their home visitors. Home visitor turnover was one of the main deterrents to further involvement in this category. These participants usually mentioned the difficulty of connecting with a new person and opening up again. Concerns about home visitors'

Table 9. **Reasons for Discontinuation by Primary Party Responsible**

	Number of Mothers (%) T2 (n = 63)	Number of Mothers (%) T3 (n = 38)
Participant		
Schedule	17 (27%)	11 (29%)
Move	15 (24%)	11 (29%)
Personal Issues	1 (2%)	5 (13%)
HFM		
Irrelevance	21 (33%)	8 (21%)
Regulations and Funding	2 (3%)	4 (11%)
Home Visitor		
Turnover	7 (11%)	8 (21%)
Behavior	5 (8%)	3 (8%)
Home Visitor – Participant		
Lost Contact	4 (6%)	5 (13%)

Note. The table includes any mothers who provided at least one reason for discontinuation. Proportions total more than 100 percent because mothers could provide more than one reason.

professional conduct and expertise were other home visitor-related explanations for leaving the program. As shown in Table 9, the number of respondents identifying home visitor-related reasons for discontinuation was comparable at T2 and T3.

In the last category, there were reasons suggesting the joint responsibility of home visitors and participants in the termination of services. The respondents in this category indicated that participants and home visitors lost contact with one another. Losing contact usually happened after address or phone changes. In some cases, participants lost contact with their home visitor as their case was closed due to not receiving home visits for an extended period of time. Again, this was similar across time points.

To summarize, participants attributed reasons for discontinuing services to all relevant parties—themselves, the program, the home visitor, or to both the home visitor and participant. When attributing the reasons for discontinuation to their own doing, participants noted reasons such as schedule, moving, and personal issues (e.g., health). When attributing the cause to HFM, participants described the program as irrelevant, and noted difficultly connecting with the program or home visitor. When participants attributed the cause to home visitors, they often cited home visitor turnover and home visitor behaviors related to conduct and expertise. Finally, some participants noted the joint responsibility between themselves and the home visitor; these responses tended to focus on losing contact with one another.

4.3 Fidelity

In this section we present descriptive information on *program-level* fidelity (i.e., the degree to which programs operate as intended by the HFM model) and *individual-level fidelity* (i.e., the extent to which MHFE-2 participants utilize services as the HFM model intends).

Fidelity scores are based on HFM performance indicators of excellence, which are adapted by HFM from HFA's *critical program elements* (see Table 10, which reviews those critical elements that were used to create the fidelity measures). Data were drawn from the PDS, the data system used by HFM home visitors to record information about all aspects of participants' service utilization. The indicators used to develop individual-level fidelity scores were similar to those used for program fidelity, with a few exceptions. Indicators 5 (*acceptance*) and 9 (*supervision*) were excluded because they were not applicable to individual mothers, and one indicator was added (HFM participants receive weekly home visits for at least six months following the birth of their baby, or enrollment if enrolled postpartum [Indicator 10]). Below we describe in more detail how each (individual- and program-level) fidelity score was derived.

In addition to an overall measure of individual-level fidelity, two individual-level fidelity subscales were created; one subscale includes program indicators related to *initial exposure* to the program (e.g., HFM program makes first contact with the participant within 10 days from the referral), and the other subscale includes those indicators related to *overall exposure* to the program (e.g., participant receives 75% of her visits according to her service level).

These fidelity measures provide insight into Tier Three research questions related to HFM program processes, and the ways in which HFM clients experience the program. They also are integral to Tier Four analyses, which explore whether HFM program effects vary as a function of program- or individual-level fidelity (see Chapter 11). These analyses will provide insight into whether the program is more effective at achieving its goals when (a) programs operate as the HFM model intends, and/or (b) individuals within the program utilize services as the HFM model intends.

4.3.1 Program-Level Fidelity

Program-level fidelity assesses the degree to which programs operate as intended by the HFM model, in relation to HFM indicators. These scores were derived from 26 programs, including data from the 18 MHFE-2

Table 10. **Program Performance Indicators Used to Calculate Individual- and Program-Level Fidelity Scores**

Program Indicator (target goal)	Program-Level Fidelity	Individual-Level Fidelity
1. HFM programs receive referrals for parents during their prenatal period (60% of referrals)	✓	✓
2. HFM programs make first contact with new participants either prenatally or within 2 weeks of birth (80% of clients)	✓	✓
3. HFM programs make first contact with new participants within 10 days from the referral (100% of clients)	✓	✓
4. HFM programs complete a first home visit with new participants within 20 days from referral (100% of clients)	✓	✓
5. Eligible parents referred to the HFM programs accept services (90% of clients)	✓	--
6. HFM program participants receive at least 18 visits per year enrolled (12 visits in FY08 & FY09; 100% of clients)	✓	✓
7. HFM participants receive at least 75% of their visits according to their service level (75% of clients)	✓	✓
8. HFM participants receive at least 18 months of service (100% of clients)	✓	✓
9. Home visitors receive weekly supervision lasting 1.5 hours (85% of home visitors)	✓	--
10. HFM participants receive weekly home visits for at least six months following the birth of their baby / enrollment if enrolled postpartum (100% of clients)	--	✓
11. HFM programs provide home visits to participants with each participant receiving at least one home visit (100% of clients)	✓	✓

program evaluation sites as well as the 8 non-evaluation program sites.

Data for each of the indicators were available by fiscal year (FY08–FY12) for all participants in that program (including mothers who were not part of the HFM evaluation). As seen in Table 11, the average fidelity score and range of fidelity scores across the state is shown for each indicator, by fiscal year. To illustrate, programs were close to reaching the first program indicator goal (60% of referrals), as reflected by the average fidelity score (e.g., 55.4% in FY08). Some indicator goals appear to be more easily met than others. For example, the fifth program indicator consistently ranges from about 70% to 100% across the four FYs. Alternatively, for the eighth program indicator, the range is substantially lower (4% to 55%).

Next, information across the indicators and fiscal years was combined to create an overall program-level fidelity score. To do so, the annual program-level fidelity scores were calculated first for each of the 26 program sites (18 MHFE-2 evaluation sites and 8 non-evaluation sites) for each of the four fiscal years (2008 through 2012). Specifically, scores were calculated for each indicator (within fiscal year) by dividing the program's performance indicator score by the benchmark goal. This resulted in scores that ranged from 0 to 1; even if a program exceeded the benchmark, the score was capped at 1. Then, the program indicators were averaged, separately for each fiscal year. Lastly, the four fiscal year scores were averaged to create a single measure of program-level fidelity. This measure of program-level fidelity was then assigned to each MHFE-2 participant, based on the program in which she was enrolled the longest. In assigning MHFE-2 mothers a program-level fidelity score, we can better contextualize the experiences of mothers in this evaluation.

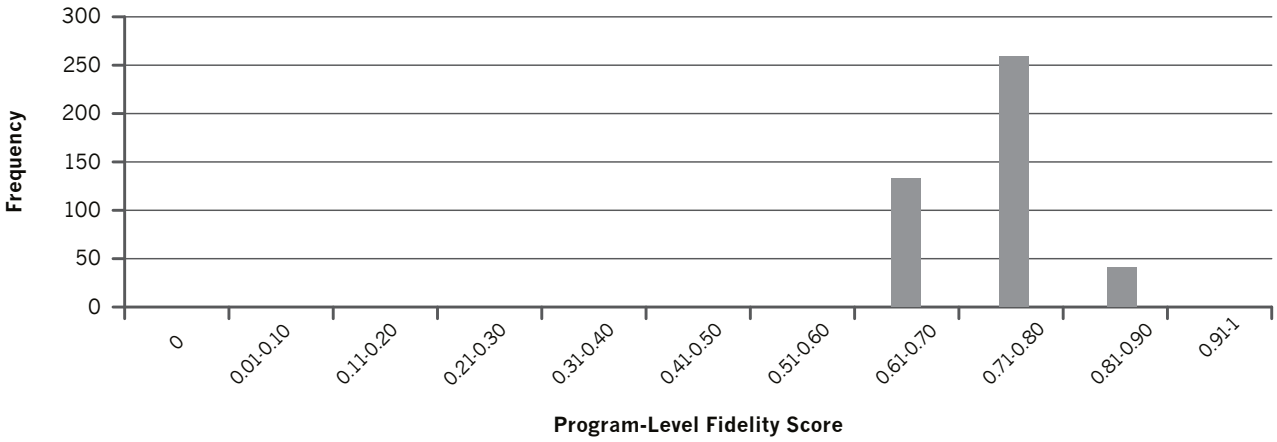
Table 11. **Descriptive Information on HFM Statewide-Level Fidelity Scores (*n* = 26 programs)**

Program Indicator (target goal)	FY08	FY09	FY10	FY11
1. HFM programs receive referrals for parents during their prenatal period (60% of referrals)	55.4% (24%–81%)	57.8% (31%–82%)	58.6% (29%–93%)	52.9% (35%–81%)
2. HFM programs make first contact with new participants either prenatally or within two weeks of birth (80% of clients)	78.8% (58%–96%)	78.3% (58%–95%)	68.6% (44%–96%)	61.4% (33%–83%)
3. HFM programs make first contact with new participants within 10 days from the referral (100% of clients)	55.9% (11%–100%)	67.9% (48%–94%)	71.1% (42%–87%)	75.7% (44%–90%)
4. HFM programs complete a first home visit with new participants within 20 days from referral (100% of clients)	25.5% (0%–76%)	45.8% (14%–76%)	54.6% (17%–85%)	58.0% (26%–88%)
5. Eligible parents referred to the HFM programs accept services (90% of clients)	89.4% (70%–99%)	85.4% (71%–98%)	88.1% (74%–100%)	88.0% (70%–100%)
6. HFM program participants receive at least 18 visits per year enrolled (12 visits in FY08 & FY09; 100% of clients)	53.7% (33%–71%)	61.7% (30%–81%)	40.6% (14%–60%)	33.4% (0%–55%)
7. HFM participants receive at least 75% of their visits according to their service level (75% of clients)	44.7% (16%–71%)	68.1% (42%–85%)	74.2% (54%–93%)	67.0% (42%–94%)
8. HFM participants receive at least 18 months of service (100% of clients)	26.9% (6%–54%)	26.6% (11%–55%)	31.5% (26%–47%)	29.9% (4%–55%)
9. Home visitors receive weekly supervision lasting 1.5 hours (85% of home visitors)	83.2% (70%–95%)	85.1% (73%–100%)	87.0% (70%–100%)	89.0% (60%–100%)
10. HFM programs provide home visits to participants with each participant receiving at least one home visit (100% of clients)	89.0% (76%–97%)	88.0% (75%–95%)	87.7% (76%–98%)	86.2% (50%–100%)

Note. For each fiscal year we report the mean and range of data of the fidelity scores. The sample includes the clientele-at-large at each HFM site during the respective fiscal year. Site report missingness ranged from 0% to 15%, with the majority of indicators missing less than 4%.

As seen in Figure 9, ***program-level fidelity scores were quite high***; on average, mothers were enrolled in programs with a fidelity score of 0.74. Furthermore, ***the range of program-level fidelity scores was quite narrow***, ranging from 0.71 to 0.80.

Figure 9. **Distribution of Program-Level Fidelity Scores**



In summary, these data suggest that MHFE-2 mothers enrolled in relatively high-fidelity programs overall. This attests to the great deal of attention and effort programs devote to maintaining quality and meeting the benchmarks. We continued to explore this line of inquiry in future analyses (see Chapter 11) by using this measure of program-level fidelity to examine the link between program-level fidelity and maternal and child outcomes.

4.3.2 Individual-Level Fidelity

Individual-level fidelity scores reflect each MHFE-2 participant's utilization of services, in relation to the HFM indicators. To create the individual-fidelity score, a dichotomous variable was created first to indicate whether the mother met each program indicator (e.g., for Indicator 1: 1 = yes, mother was referred prenatally; 0 = no, mother was referred postpartum). Then, a total score was created by dividing the number of indicators that were met by the total number of indicators. Thus, possible scores range from 0 (indicating the mother did not meet any program indicators) to 1 (indicating the mother met all program indicators).

Two individual-level fidelity subscales were also created; one subscale includes program indicators related to *initial exposure* to the program (e.g., HFM program makes first contact with the participant within ten days from the referral), and the other subscale includes those indicators related to *overall exposure* to the program (e.g., participant receives 75% of her visits according to her service level). These marks were calculated similarly to the *total* individual-fidelity score (by dividing the number of endorsed program indicators by the total number of program indicators). Again, the scores could range from 0 to 1.

Of the 433 mothers assigned to HVS, 85% had data on all program indicators, 12% were missing data on just one program indicator, and 3% were missing two to three program indicators. The scores were calculated for mothers regardless of their missing data.

As shown in Table 12 and Figure 10, ***mothers in the MHFE-2 sample met about half of the indicators on average (M = 0.54)***. Perhaps not surprisingly, the subscales show that mothers were more compliant with the HFM model for indicators related to initial exposure (M = 0.6) than with indicators of overall exposure (M = 0.5). In other words, ***the program appears to be somewhat more effective at engaging mothers at the onset, but it becomes more difficult to engage mothers over time.***

Figure 10. **Distribution of Individual-Level Fidelity Scores**

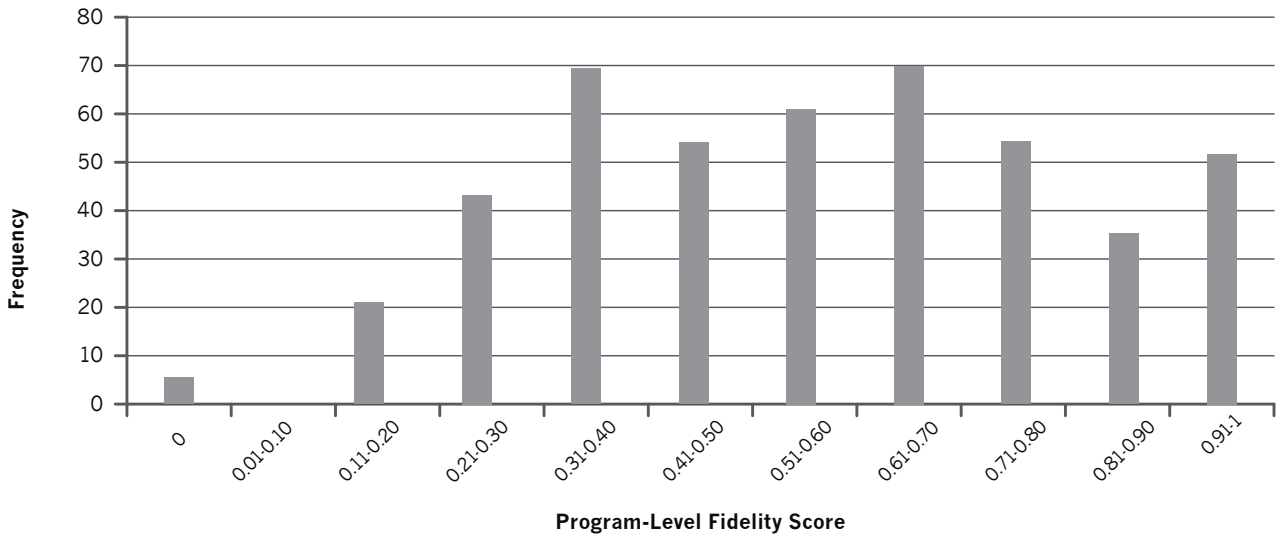


Table 12. **Descriptive Information on Individual-Level Fidelity Scores**

Individual-Level Fidelity Score	Mean	SD
All indicators	0.54	0.24
Indicators Related to Initial Exposure	0.59	0.31
Indicators Related to Overall Exposure	0.51	0.31

To summarize, individual-level fidelity scores reflect each MHFE-2 participant's utilization of services, in relation to the HFM indicators. Results showed that, on average, mothers in the MHFE-2 sample met about half of the indicators. Further, mothers were more compliant with indicators that reflected initial exposure (compared to overall exposure), indicating that the program appears to be somewhat more effective at engaging mothers at the onset, but it becomes more difficult to maintain mothers' continued participation over time.

4.4 Chapter Summary

This chapter used a mixed-methods approach to provide insight into program operations through three lenses: utilization, the home visitor-mother relationship, and fidelity. Each of these analyses was an ambitious undertaking, each providing a novel approach to measuring program operations within the home visiting field. Together they underscore the complex nature of providing services: Mothers utilized HFM in diverse ways—using services at various levels of intensity in terms of home visits, secondary activities, groups, and IFSP goals; developing unique relationships with their home visitors; and, generally, enrolling in programs that demonstrated high fidelity to the HFM model. Yet on the individual level there was a range of how faithfully mothers in MHFE-2 utilized the program according to the model standards.

These findings begged for additional analysis, leaving questions such as, *how is the home visitor–mother relationship related to the number of home visits received? How does the number of secondary activities relate to program-level fidelity? Which maternal characteristics are related to receiving few home visits, compared to many home visits?* ? Questions such as these prompted us to extend evaluation activities directed at Tiers Two and Three, the results of which are reported in the two chapters that follow. Specifically, in Chapter 5 we discuss how various aspects of program operations are related to one another. Then, in Chapter 6 we review findings from analyses that explored how maternal characteristics are related to program operations. Together, these chapters weave together a more comprehensive depiction of the ways in which HFM serves a diverse population of mothers and families.

CHAPTER FIVE

Tiers Two & Three: The Links Among Aspects of Program Operations

As described in Chapter 4, service utilization is examined in a variety of ways, including mothers' duration in the program; the number of home visits, groups, and secondary activities mothers received; and the number and type of IFSP goals set and met. Additionally, we investigated the relationships between participants and their home visitors. We created two sets of program-related profiles: a) utilization profiles, which grouped participants by number of visits, groups, and secondary activities and b) home visitor-mother relationship profiles, which clustered mothers according to perceived home visitor role, and valence of the home visitor-mother relationship. Finally, two measures of fidelity (the extent to which individuals utilize the program as intended by the program model) are included at both the individual and program levels.

In this chapter, the relations among these measures are explored. These analyses were undertaken with the aim of gaining a comprehensive understanding of how the program operates and the ways in which mothers experience the program. Results from these analyses also serve to contextualize findings in Chapters 10 and 11, where we examine the extent to which these indicators of program operations are associated with maternal and child outcomes.

It is important to note that the analyses presented in this chapter, as well as Chapters 6, 10, and 11, represent a departure from the RCT design. To reiterate, the RCT, in which participants are randomly assigned to either a treatment or control condition allows, with some degree of confidence, the attribution of participant outcomes to the program rather than some other unobserved phenomena. In other words, it is possible to make causal observations (i.e., it was the program, and not something

else, that led to the observed change in participants). Analyses that are conducted only on the treatment group of mothers (i.e., HVS), however, do not allow for such interpretations. They are correlational, not causal; that is, just because there is a significant association between two variables does not mean that the one variable caused the other. As such, these findings should be interpreted as descriptive rather than causal.

This chapter includes three sections. The first describes correlations among the utilization indicators and program- and individual-level fidelity measures. The second and third sections contextualize the two profile measures that were created to summarize mothers' experiences in the program: The second section describes the utilization profiles in relation to the full list of utilization and fidelity measures, and the third section describes these measures in relation to the home visitor-mother relationship profiles.

5.1 Associations Among Indicators of Program Utilization and Program Fidelity

Table 13 shows the results of bivariate analyses among the utilization and fidelity variables.

Not surprisingly, ***many program utilization and individual-level fidelity measures were moderately to highly correlated with one another***. For example, mothers with higher individual-level fidelity scores were enrolled longer in the program, received more home visits, attended more groups and had more secondary activities; they also had more IFSP goal-setting sessions, and set and met more IFSP goals. Program duration was also positively related to individual-level fidelity scores, utilization activities (including home visits, groups, secondary activities, and IFSP goal-setting sessions) as well as the number of IFSP goals set and met by the mothers. In other words, ***mothers who enrolled in the program for longer periods of time not only used more of the program overall, but also were more likely to use the program as intended by the HFM model***.

Interestingly, ***program-level fidelity was not related to most indicators of mothers' utilization***. Just a few exceptions appeared; first, program-level fidelity was positively associated with the number of home visits that mothers received. Program-level fidelity was also related to IFSP measures, including the number of IFSP goal-setting sessions held, the total number of IFSP goals met, and the proportion of IFSP goals met to set. ***Program-level fidelity positively correlated with individual-level fidelity, albeit weakly***. This suggests that mothers are more likely to use the program as the HFM model intends when they are in a higher fidelity program, although perhaps the two are not as highly correlated as one might have expected. This might also suggest that in addition to program-level characteristics, individual-level characteristics (e.g., employment status, mental health) play a critical role in determining how mothers utilize HFM. We pursue this line of inquiry in Chapter 6.

Interesting patterns also appeared with IFSP goals and other utilization measures. ***The proportion of IFSP goals that mothers met was related to longer duration and number of home visits***, but not to the number of groups or secondary activities that mothers received. Further, the

Table 13. **Correlations among Program Utilization and Fidelity Indicators**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Individual Fidelity	1.00														
2. Program Fidelity	.15	1.00													
3. Duration (in Days)	.68		1.00												
4. Home Visits	.73	.15	.93	1.00											
5. Groups	.33		.47	.49	1.00										
6. Secondary Activities	.49		.69	.65	.39	1.00									
7. IFSP Goal Sessions	.61	.17	.92	.88	.40	.56	1.00								
8. IFSP Goals Set	.54		.82	.81	.40	.52	.86	1.00							
9. IFSP Goals Met	.37	.18	.62	.61	.22	.18	.68	.72	1.00						
10. Proportion of IFSP Goals Met to Set	.18	.25	.27	.28			.29	.21	.72	1.00					
11. IFSP in Goal Area 1	.36		.42	.45	.22	.19	.43	.53	.40		1.00				
13. IFSP in Goal Area 2	.40		.68	.67	.28	.36	.73	.80	.68	.37	.23	1.00			
12. IFSP in Goal Area 3	.46		.69	.65	.37	.53	.72	.84	.36		.30	0.45	1.00		
14. IFSP in Goal Area 4	.16		.23	.21	.13		.26	.38	.30		.22	.22	.29	1.00	
15. IFSP in Goal Area 5	.20		.25	.30	.14	.23	.27	.36	.40	.24	.28	.14	.17	.13	1.00

Note. Only significant correlations are reported ($p < .05$). Correlations equal to 0 indicate no association; correlations closer to 1 indicate stronger, positive associations (i.e., as one measure increases, so does the other); correlations closer to -1 indicate stronger, negative associations (i.e., as one measure increases, the other decreases). IFSP goals correspond to the HFM goal areas, and are defined as follows: 1 = Supporting parenting and nurturing home environment; 2 = Health, growth and development of child; 3 = Educational attainment, job, and life skills; 4 = Prevention of repeat pregnancy; 5 = Parent health and wellness. IFSP = Individual Family Service Plans.

goal area was related to the proportion of goals that were met; there was a positive correlation between proportion met and two types of goals, including those set in the area of health, growth, and development of child (Goal Area 2), and parent health and wellness (Goal Area 5). The proportion of IFSP goals that mothers met was *not* related to the number of IFSP goals set in the other three areas (i.e., positive parenting; educational attainment, job, and life skills; or prevention of repeat pregnancy).

5.2 Program Utilization and Fidelity According to Four Utilization Profiles

Four utilization profiles emerged from the data, based on information related to home visits, secondary activities, and groups (see Section 4.1.5 for more information). These profiles were intended to reflect *substantive* utilization, given that they included only completed home visits and groups, and only those secondary activities that involved verbal connection between HFM staff or home visitor and mother. In this section, we further characterize these four utilization profiles by describing them in relation to the same utilization and fidelity measures discussed in the previous section. These results are summarized below, as well as in Table 14.

Program Operations in the High Overall User, High Secondary Activities Profile

This profile was the smallest one; just 5% of participants could be characterized in this way. Participants in this profile averaged 65 home visits, 6 groups, and 984 days in the program. As previously noted, these figures were similar to those mothers in the profile High Overall User, Low Secondary Activities, but higher than mothers in the Moderate User and Low User profile. On average, mothers in this profile had 236 secondary activities, many of which reflected substantive utilization (M = 69).[Q] This figure was the highest of all three profiles. Not surprisingly, participants in this profile had some of the highest individual-level fidelity scores (M = 0.81). On average, mothers in this profile were enrolled in programs with fidelity scores of 0.73. These mothers had, on average, five IFSP goal-setting sessions. Mothers in this profile set, on average, 13 goals for themselves (one parenting goal; five child health and development goals; six goals in the area of education, job, or life skills; zero goals pertaining to the prevention of repeat birth; and one maternal well-being goal). These participants met, on average, five of their goals. ***In sum, this was the smallest profile, and it consisted of mothers who were most actively involved in HFM according to a variety of utilization and fidelity measures.***

Program Operations in the High Overall User, Low Secondary Activities Profile

About one quarter of mothers was characterized by this profile. Participants in this profile averaged 59 home visits, 5 groups, and 949 days in the program. On average, mothers in this profile had a total of 97 secondary activities, although few of the secondary activities (M = 13) reflected actual utilization. Participants in this utilization profile had relatively high individual-level fidelity scores (M = 0.77). On average, mothers in this profile had an average program-level fidelity score of 0.75. Mothers in this profile were more active in setting and meeting IFSP goals compared to mothers in the Low User and Moderate User profiles. These mothers had, on average, five IFSP goal-setting sessions. They set, on average, 11 goals for themselves (one parenting goal; four child health and development goals; five goals in the area of education, job, or life skills; and zero goals pertaining to the prevention of repeat birth and maternal well-being). These participants met, on average, five goals. ***To summarize, mothers in this profile appeared to differ from mothers in the other High User profile only in terms of how frequently they had substantive secondary activities.***

Program Operations in the Moderate User Profile

About 30% of mothers were characterized as Moderate Users. Participants in this profile averaged 18 home visits, 1 group, and 369 days in the program. Mothers

[Q] These averages are higher than those presented earlier, because only select secondary activities were considered in the creation of the utilization profiles. See Section 4.1.5 for more information about decisions regarding which secondary activities to include.

in this profile had a moderate number of secondary activities (M = 57), of which about eight were considered substantive. On average, participants in this profile had an individual-level fidelity score of 0.57 and a program-level fidelity score of 0.73. On average, these mothers had only two goal-setting IFSP sessions, and set four goals for themselves (one parenting goal; one child health and development goal; two goals in the area of education, job, or life skills; and zero goals pertaining to the prevention of repeat birth and maternal well-being). These mothers met two goals, on average. ***In brief, a significant portion of the sample could be characterized as Moderate Users; they scored modestly on most measures of utilization and individual-level fidelity. Although their program-fidelity scores were statistically lower than those in the High Overall User, Low Secondary Activities profile, the difference (.02) is probably not particularly meaningful.***

Program Operations in the Low User Profile

The Low User profile was the largest profile, and included 40% of mothers. Participants in this profile averaged just 3 home visits, 0 groups, and 135 days in the program. On average, mothers in this profile had a total of 22 secondary activities (even fewer reflected substantive contacts; M = 2). Not surprisingly, participants in this profile had the lowest individual-level fidelity scores (M = 0.36), despite being enrolled in programs with essentially the same average fidelity scores (M = 0.73) seen in the other profiles. These mothers had the lowest number of IFSP goal-setting sessions (just one, on average). On average, they set three goals for themselves (on average, this included zero parenting goals; one child health and development goals; one goal in the area of education, job, or life skills; and zero goals pertaining to the prevention of repeat birth and maternal well-being). Again not surprisingly, given how few services they received, mothers in this profile did not, on average, meet any of their goals. ***To summarize, one of the largest utilization profiles included Low Users. Despite enrolling in programs with similar fidelity scores as the other profiles, mothers in this profile scored the lowest on nearly all utilization indices, as well as individual-level fidelity.***

Summary

To summarize, the four utilization profiles, for the most part, differed in exactly the ways one might expect, with the higher utilization profiles using more services and showing higher individual-level fidelity, and the lower use profiles using fewer services, and showing lower fidelity to the model. The only finding that was rather surprising was the similarity in program-level fidelity across all four groups, suggesting that individual-level characteristics (e.g., employment status, mental health) likely make great contributions to how mothers utilize HFM. This possibility is pursued in the chapter that follows (Chapter 6), by examining the association between a range of maternal characteristics and program operations.

5.3 Program Utilization and Fidelity According to Four Home Visitor–Mother Relationship Profiles

This section presents the associations among the same set of utilization measures described above, and the home visitor-mother relationship profiles (Negative Professional, Positive Professional, Positive Friend, and Positive Family Member; see Section 4.2 for more detailed descriptions of these profiles). As discussed in Chapter 4, we suspected that the variations in the nature of home visitor-mother relationships might influence participants' intensity and quality of engagement. These results are summarized below, as well as in Tables 15 and 16.

Program Operations in the Negative, Primarily Professional Profile

On average, mothers in the Negative, Primarily Professional relationship profile stayed in the program for 343 days, received 16 home visits, attended 1 group, and had 56 secondary activities. Tests of statistical significance showed that they stayed enrolled in the program for fewer days than mothers in the Positive Friend and Positive Family relationship profiles (but not compared to the Positive Professional relationship profile). Mothers in the Negative, Primarily Professional relationship profile also received fewer home visits

Table 14. **Utilization and Fidelity Characteristics of Mothers in Each Program Utilization Profile**

	Program Utilization Profile				
	(1) High Overall Users, High Secondary Activities	(2) High Overall Users, Low Secondary Activities	(3) Moderate Users	(4) Low Users	Statistically Significant Comparisons
Utilization					
Home Visits	64.70	58.51	18.17	2.55	1 vs. 3 1 vs. 4 2 vs. 3 2 vs. 4 3 vs. 4
Groups	6.39	4.87	1.14	0.07	1 vs. 3 1 vs. 4 2 vs. 3 2 vs. 4 3 vs. 4
Secondary Activities	236.13	97.21	56.89	21.96	1 vs. 3 1 vs. 4 2 vs. 1 2 vs. 3 2 vs. 4 3 vs. 4
Duration (in days)	983.70	948.54	369.42	134.99	1 vs. 3 1 vs. 4 2 vs. 3 2 vs. 4 3 vs. 4
IFSP Goal Sessions	5.13	4.83	1.60	1.02	1 vs. 3 1 vs. 4 2 vs. 3 2 vs. 4 3 vs. 4
IFSP Goals Set	12.57	11.12	3.80	2.52	1 vs. 3 1 vs. 4 2 vs. 3 2 vs. 4
IFSP Goals Met	5.10	5.35	1.80	0.44	1 vs. 3 1 vs. 4 2 vs. 3 2 vs. 4
Proportion of IFSP Goals Met To Set	0.39	0.44	0.36	0.19	2 vs. 4
IFSP in Goal Area 1	1.30	1.46	0.57	0.37	1 vs. 3 2 vs. 3 2 vs. 4 4 vs. 1
IFSP in Goal Area 2	4.52	4.49	1.39	0.98	1 vs. 3 1 vs. 4 2 vs. 3 2 vs. 4
IFSP in Goal Area 3	5.61	4.65	1.63	0.96	1 vs. 3 1 vs. 4 2 vs. 3 2 vs. 4
IFSP in Goal Area 4	0.13	0.11	0.04	0.00	
IFSP in Goal Area 5	1.00	0.42	0.17	0.22	1 vs. 3 1 vs. 4 2 vs. 1
Fidelity					
Individual-Level	0.81	0.77	0.57	0.36	1 vs. 3 1 vs. 4 2 vs. 3 2 vs. 4 3 vs. 4
Program-Level	0.73	0.75	0.73	0.73	2 vs. 3

Note. Statistically significant comparisons are presented when $p < .05$; IFSP goals correspond to the HFM goal areas, and are defined as follows: 1 = Supporting parenting and nurturing home environment; 2 = Health, growth and development of child; 3 = Educational attainment, job, and life skills; 4 = Prevention of repeat pregnancy; 5 = Parent health and wellness. IFSP = Individual Family Service Plans.

than those in the other three profiles and had fewer secondary activities than mothers in the Positive Friend relationship profile.

Mothers in the Negative, Primarily Professional relationship profile had, on average, two IFSP goal-setting sessions and set four goals. These figures were slightly lower than those for mothers in the Positive Friend relationship profile. On average, mothers in the Negative Professional relationship profile set goals in the following goal areas: one goal in the area of parenting; one goal in the area of child health and development; two goals in the area of education, job, or life skills; and zero goals pertaining to the prevention of repeat birth and maternal well-being. These participants met three goals, on average, which appeared slightly lower than the remaining three profiles but was not statistically different.

Next, we explored how this relationship profile was related to the four utilization profiles (see Section 4.1.5 for more detailed descriptions of these profiles). Mothers in the Negative, Primarily Professional relationship profile were primarily in the Moderate User (47%) and Low User (36%) groups. These percentages were higher than other relationship profiles; only 16% of participants in this relationship profile could be characterized by the High User, Low Secondary Activities utilization profile, and no mothers in this relationship profile were characterized by the High User, High Secondary Activities utilization profile.

On average, participants in the Negative, Primarily Professional relationship profile had an individual-level fidelity score of 0.55 and a program-level fidelity score of 0.74. While the individual-level fidelity score appears slightly lower than the three remaining profiles, tests of statistical significance indicated that both individual- and program-level fidelity scores were similar across the four profiles.

To summarize, the Negative, Primarily Professional relationship profile stood out as having relatively low rates of utilization, compared to the other three relationship profiles. This was evident in their low duration and number of home visits, and their higher concentration in the Low User and Moderate User utilization profiles.

Program Operations in the Positive Professional Profile

Participants in the Positive Professional relationship profile averaged 600 days in the program and received 35 home visits, 2 groups, and 69 secondary activities. These mothers had three IFSP goal-setting sessions and set, on average, eight goals for themselves (one parenting goal; three child health and development goals; three goals in the area of education, job, or life skills; and zero goals pertaining to the prevention of repeat birth and maternal well-being). These mothers met four goals, on average.

Mothers in this relationship profile were primarily in the High User, Low Secondary Activities (41%) and Moderate User (33%) utilization profiles. Twenty percent of participants in this relationship profile exhibited a utilization profile characterized as Low Users; among the three positive relationship profiles this represented the highest concentration of Low Users. Very few mothers (6%) in this relationship profile were part of the High User, High Secondary Activities utilization profile.

On average, participants in this profile had an individual-level fidelity score of 0.64 and a program-level fidelity score of 0.74; both scores, as mentioned above, are consistent with the other three profiles.

In sum, mothers in this relationship profile were more engaged in a variety of HFM activities (e.g., number of days enrolled, home visits, IFSP goal setting activities) than were mothers in the Negative Professional relationship profile.

Program Operations in the Positive Friend Profile

On average, participants in the Positive Friend relationship profile stayed in the program 749 days and received 44 home visits, 3 groups, and 119 secondary activities. Interestingly, ***mothers in this profile had***

significantly more secondary activities than the other three relationship profiles, indicating perhaps that adolescents' preferences for making contact might include a particular mix of approaches.

Mothers in the Positive Friend relationship profile had, on average, 4 IFSP goal-setting sessions and set 10 goals. These figures were slightly higher than those for mothers in the Negative, Primarily Professional relationship profile. On average, mothers in the Positive Friend relationship profile set goals in the following areas: one parenting goal; four child health and development goals; four goals in the area of education, job, or life skills; and zero goals pertaining to the prevention of repeat birth and maternal well-being. These participants met, on average, five of their goals.

Similar to mothers in the other two positive relationship profiles, mothers in the Positive Friend profile primarily fell into the High User, Low Secondary Activities (46%) and Moderate User (30%) utilization profiles. Only 14% of participants in the Positive Friend profile were part of the High User, High Secondary Activities utilization profile; however, this was the highest percentage of this type of user across the four relationship profiles (recall that just 5% of the total sample falls into the High User, High Secondary Activities utilization profile). Finally, very few mothers in the Positive Friend relationship profile could be described as Low User; just 9% of mothers in this relationship profile were part of the Low User utilization profile—one of the lowest percentages across the four relationship profiles.

On average, participants in this profile had an individual-level fidelity score of 0.69 and a program-level fidelity score of 0.73. Again, these values were consistent with the other three profiles.

In brief, the Positive Friend relationship profile was similar to the other two positive profiles in terms of utilization and fidelity, with a few notable exceptions: These mothers had the most secondary activities; they constituted the highest proportion of the High Overall User, High Secondary Activities profile; and they (along with the Positive Family Member relationship profile), were the least represented relationship profile in the Low User utilization profile.

Program Operations in the Positive Family Member Profile

Mothers in the Positive Family Member relationship profile stayed in the program for 695 days, and received 41 visits, 3 groups, and 70 secondary activities, on average.

Participants in this profile had, on average, four goal-setting IFSP sessions and set, on average, nine goals for themselves (one parenting goal; four child health and development goals; four goals in the area of education, job, or life skills; and zero goals pertaining to the prevention of repeat birth and maternal well-being). These mothers met five goals, on average.

Similar to the Positive Professional and Positive Friend profiles, mothers in the Positive Family Member profile were primarily in High User, Low Secondary Activities (42%) and Moderate User (42%) utilization profiles. Just 9% of mothers in this relationship profile were part of the Low User utilization profile—almost as low as the proportion of Positive Friend mothers in this profile. Finally, 6% of mothers in this relationship profile could be characterized by the High User, High Secondary Activities (6%) utilization profile.

Similar to the scores in the other three relationship profiles, participants in the Positive Family Member relationship profile had an individual-level fidelity score of 0.67 and a program-level fidelity score of 0.75, on average.

In brief, the Positive Family Member relationship profile was similar to the other two positive profiles in terms of utilization and fidelity, and most closely aligned with the Positive Friend relationship profile in regards to its low representation in the Low User utilization profile.
To summarize, the Negative, Primarily Professional relationship profile stood out as having relatively

Table 15. **Utilization and Fidelity Characteristics of Mothers in Different Relationship Valence and Home Visitor Role Profiles**

	Home Visitor–Mother Relationship Profile				
	(1) Negative, Primarily Professional	(2) Positive Professional	(3) Positive Friend	(4) Positive Family Member	Statistically Significant Comparisons
Utilization					
Duration (in days)	343.32	599.94	748.75	694.52	1 vs. 3 1 vs. 4
Home Visits	15.53	34.96	43.89	40.73	1 vs. 2 1 vs. 3 1 vs. 4
Groups	1.26	2.29	3.16	2.76	
Secondary Activities	56.21	69.18	118.84	69.70	1 vs. 3 2 vs. 3 3 vs. 4
IFSP Goal Sessions	2.00	3.20	4.02	3.73	1 vs. 3
IFSP Goals Set	4.07	7.53	9.68	8.63	1 vs. 3
IFSP Goals Met	2.75	3.68	5.28	5.09	
Proportion of IFSP Goals Met to Set	0.34	0.39	0.42	0.44	
IFSP Goals in Goal Area 1	0.64	0.75	1.26	1.03	
IFSP Goals in Goal Area 2	1.14	3.20	3.70	3.50	1 vs. 3
IFSP Goals in Goal Area 3	2.07	3.23	4.22	3.50	
IFSP goals in Goal Area 4	0.00	0.08	0.12	0.10	
IFSP Goals in Goal Area 5	0.21	0.28	0.38	0.50	
Fidelity					
Individual-Level	0.55	0.64	0.69	0.67	
Program-Level	0.74	0.74	0.73	0.75	

Note. Statistically significant comparisons are presented when $p < .05$; IFSP goals correspond to the HFM goal areas, and are defined as follows: 1 = Supporting parenting and nurturing home environment; 2 = Health, growth and development of child; 3 = Educational attainment, job, and life skills; 4 = Prevention of repeat pregnancy; 5 = Parent health and wellness. IFSP = Individual Family Service Plans.

Table 16. **Distribution of Utilization Profiles by Home Visitor–Mother Relationship Profile**

Utilization Profile	Home Visitor–Mother Relationship Profile			
	Negative, Primarily Professional	Positive Professional	Positive Friend	Positive Family Member
High Overall User, High Secondary Activities	0.0%	6.1%	14.3%	6.1%
High Overall User, Low Secondary Activities	15.8%	40.8%	46.4%	42.4%
Moderate User	47.4%	32.7%	30.4%	42.4%
Low User	36.8%	20.4%	8.9%	9.1%

Note. Groups were compared using a chi-square test, which determined whether the proportional differences were statistically significant ($p < .05$).

low rates of utilization, compared to the other three relationship profiles. This was evident in the low duration and number of home visits for members of this group, and their higher concentration in the Low User and Moderate User utilization profiles. In contrast, the three positive relationship profiles were very similar to each other in terms of utilization and fidelity, with a few notable exceptions. First, mothers in the Positive Friend relationship profile had the most secondary activities. This was evident in the total number of secondary activities, as well as the proportion of mothers in this relationship profile who were also part of the High Overall User, High Secondary Activities utilization profile. Second, mothers in the Positive Friend and Positive Family Member relationship profiles were less likely to be represented in the Low User utilization profile, compared to the other relationship profiles.

5.4 Chapter Summary

Analyses in this chapter were undertaken in an effort to further understand the dynamic ways in which mothers utilize HFM services. First, we examined the correlations among the utilization indicators and program- and individual-level fidelity measures. Not surprisingly, many program utilization and individual-level fidelity measures were moderately to highly correlated with one another. Interestingly, program-level fidelity was *not* related to most indicators of mothers' utilization, suggesting that individual-level characteristics (e.g., employment status, mental health) might play a more critical role in determining how mothers utilize HFM. We pursue this possibility in Chapter 6.

Second, the four utilization profiles (developed using the number of home visits, substantive secondary activities, and groups; see Section 4.1.5) are described according to the full list of utilization and fidelity measures. Results showed that the four utilization profiles differed in expected ways, with the higher utilization profiles using more services and showing higher individual-level fidelity, compared to the lower use profiles. Interestingly, the four profiles were similar in terms of program-level fidelity. This was consistent with findings that program-level fidelity was weakly correlated with only a few utilization measures, and again suggests that individual-level characteristics might play an important role in shaping how mothers utilize HFM (a line of inquiry pursued in Chapter 6).

Lastly, we considered the four home visitor-mother relationship profiles in light of the full list of utilization and fidelity measures (see Section 4.2.3 for a refresher on these profiles). Two general patterns were noticeable. First, the Negative Primarily Professional relationship profile had relatively low rates of utilization, compared to the other three positive relationship profiles. Second, the three positive relationship profiles were similar, with two exceptions: Mothers in the Positive Friend relationship profile had the most secondary activities, and mothers in the Positive Friend and Positive Family Member relationship profiles were less likely to be represented in the Low User utilization profile.

In the chapter that follows, we wrap up evaluation activities that were conducted as part of Tiers Two and Three by presenting findings from an examination of how various aspects of program operations are related to maternal characteristics.

CHAPTER SIX

Tiers Two & Three: The Links Between Maternal Characteristics and Program Operations

In this chapter findings are presented from analyses that explored whether maternal characteristics are associated with various indicators of program utilization, fidelity, and home visitor – mother relationship. In other words, the aim of these analyses was to examine whether certain types of mothers (e.g., older mothers, mothers living in particular types of communities) were more or less likely to use HFM in particular ways. As mentioned at the beginning of the previous chapter, these analyses, conducted only on the HVS mothers, are descriptive; they identify associations and patterns among variables, but do not imply any type of causality.

Organized in a similar manner to the previous chapter, this section begins with associations among maternal characteristics and discrete indicators of program utilization (including duration; number of home visits, groups, and secondary activities; number and type of IFSP goals set and met) and fidelity (including both individual- and program-level fidelity scores).

This is followed by results of analyses examining the associations among maternal characteristics and the four utilization profiles (i.e., High User, High Secondary Activities; High User, Low Secondary Activities; Moderate User, and Low User), and then the same set of analyses conducted with the four home visitor-mother relationship profiles (Negative, Primarily Professional, Positive Professional, Positive Friend, and Positive Family Member).

6.1 The Link between Maternal Characteristics and Program Operations

Results of analyses investigating how maternal characteristics correlate with program operations are summarized below and in Table 17. Findings are organized according to the following topic areas: demographic characteristics, maternal employment and education, financial resources, living arrangements, and child care arrangements.

A number of demographic characteristics were associated with program indicators. Mothers' age at their child's birth was associated with two aspects of utilization: Mothers who were older at childbirth attended fewer groups and set fewer IFSP goals in the area of child development and health (Goal Area 2). Mothers' race/ethnicity was also related to several aspects of

utilization. Compared to non-Hispanic White mothers, non-Hispanic Black mothers had more secondary activities and scored higher on individual-level fidelity. Hispanic mothers also had more secondary activities than non-Hispanic White mothers, but were enrolled in programs with slightly lower fidelity scores. No statistically significant differences emerged between non-Hispanic Black mothers and Hispanic mothers.

Interesting patterns emerged in the associations between community clusters and program operations. Although mothers in the low income, high population density, ethnic-minority majority Community Cluster (Cluster 3) were enrolled in programs with the lowest program fidelity scores, they also had more secondary activities than mothers in Cluster 1 (moderate income, low population density, majority of European ethnicity) and Cluster 2 (low-moderate income, moderate population density, ethnically diverse). Additionally, when compared with Cluster 1, Cluster 3 mothers had more IFSP sessions. Cluster 3 mothers set more goals in the area of health, growth, and development of child (Goal Area 2) than did Cluster 2 mothers, and, when compared with mothers in Cluster 1, they set fewer goals in the area of preventing repeat birth (Goal Area 4).

The timing of mothers' enrollment (parenting vs. pregnant) in HFM was related to a variety of program operations. Compared to mothers who were still pregnant, mothers who enrolled in the program after the birth of their child were enrolled in the program for less time, received fewer home visits, scored lower on individual-level fidelity, and had fewer IFSP goal activities (as evidenced by number of goal sessions, goals set, and goals met).

Interestingly, the data suggest that mothers with higher depression scores received more program services: Data show that mothers with higher depressive symptoms at T1 received more home visits, attended more groups, had higher individual-level fidelity scores, and set more IFSP goals in the area of parent health and wellness.

Other factors related to maternal well-being, including the prevalence of post-traumatic stress disorder (PTSD), parental distress, social connection, and a mother's own history of maltreatment were most often not related to program operation measures. Just a few exceptions emerged; mothers with higher parental distress (at T2) had fewer secondary activities, and those with a history of childhood maltreatment set fewer IFSP goals in the area of health, growth, and development of child (Goal Area 4).

With regard to education, ***mothers who were in school at T1 attended more groups than those not in school, and mothers who were in school at T2 stayed enrolled in the program longer, received more home visits, and had higher individual-level fidelity scores***.

The pattern of findings with employment was less consistent; mothers who were employed at T1 (about one month after enrollment) had greater program participation (as evidenced by IFSP goals met, and proportion of IFSP goal met to set). However, mothers who were employed at T2 (about one year after enrollment) scored lower on individual-level fidelity and set fewer goals in the area of supporting parenting and nurturing home environment (Goal Area 1).

There were similarly inconsistent patterns in the associations between mothers' perceived difficulty covering expenses and program operations. Whereas mothers' perceived difficulty covering expenses at T1 (about one month after enrollment) was not related to participation, mothers who reported more difficulty covering expenses at T2 (about one year after enrolling), were enrolled for fewer days, received fewer home visits, attended fewer groups, had fewer secondary activities, and set fewer goals in the area of health, growth, and development of child (Goal 2). And whereas receipt of cash assistance after enrollment was not related at all to program participation, receipt of food stamps was: Women receiving food stamps enrolled for fewer days, received fewer home visits, attended fewer groups, and had fewer IFSP sessions.

There were several indicators of living arrangements

that appeared salient to maternal use of services. Residential mobility emerged as a robust correlate of program utilization; not surprisingly, ***mothers with more residences had shorter enrollments, received fewer home visits, and had fewer secondary activities***. This suggests that residential instability may present barriers for home visitors in locating and engaging mothers who experience more residential instability. Furthermore, as number of residences increased, mothers also had fewer IFSP goal-setting sessions, set fewer IFSP goals, and set fewer IFSP goals in the areas of child development and health (Goal Area 2) and educational attainment, job, and life skills (Goal Area 3). In Section 6.4, we use qualitative data to conduct a more in-depth investigation of mothers' living arrangements, and to further understand the associations between living arrangements and program utilization.

There were also robust correlations between program operations and who the mother lived with; ***mothers who lived with an older relative or guardian at T1 had higher scores on a variety of program operations***, including individual-level fidelity; duration; IFSP goal-setting sessions; number of IFSP goals set and met; and number of IFSP goals set in the area of educational attainment, job, and life skills (Goal Area 3). ***Cohabitating with the father of the baby was generally not associated with most program indicators***, with the exception of lower fidelity: Mothers who lived with the father of the baby scored lower on individual-level fidelity but enrolled in programs with slightly higher program-level fidelity scores.

Finally, we explored whether child care arrangements were associated with program operations, given that care arrangements were so closely related to other factors that were hypothesized to be related to program operations (e.g., employment, education status). Results showed that child care arrangements at T2 were not associated with most program indicators, with one exception: Children who spent more time in non-maternal care had mothers who set fewer IFSP goals in the area of educational attainment, job, and life skills (Goal Area 3).

To summarize, results revealed several interesting patterns of associations between maternal characteristics and program operations. The most robust correlates of program utilization and fidelity included timing of mothers' enrollment (parenting vs. pregnant), maternal depression, employment and education, financial resources, residential mobility, and whether mothers lived with an adult relative or guardian. In general, mothers were more actively engaged in HFM when they enrolled before the birth of the child, were in school, reported fewer financial difficulties at T2, received food stamp benefits, had fewer moves, and lived with an older relative or guardian. Interestingly, data showed that HFM appeared to be successful at targeting mothers who experienced higher levels of depression early in their enrollment.

Table 17. **Program Operations Averages by Maternal Characteristics for Statistically Significant Associations**

	Duration (in days)	Home Visits	Groups	Secondary Activities	Individual Fidelity	Program Fidelity	IFSP Goal Sessions	IFSP Goals Set	IFSP Goals Met	Proportion of IFSP Goals Met to Set	IFSP in Goal Area 1	IFSP in Goal Area 2	IFSP in Goal Area 3	IFSP in Goal Area 4	IFSP in Goal Area 5
Demographic Characteristics															
Maternal Age at Child's Birth (Years)															
Young			2.51									3.26			
Average			1.92									2.91			
Older			1.34									2.57			
Race/Ethnicity (W, B, H,O)															
White Non-Hispanic				47.84 B,H	0.50 B	0.74 H									
Black Non-Hispanic				73.53 W	0.58 W	0.74									
Hispanic				69.39 W	0.55	0.73 W									
Other Non-Hispanic				57.41	0.59	0.75									
Community Cluster [a]															
1				52.86 3		0.74 3	2.71 3					2.95		0.11 3	
2				59.60 3		0.74 3	2.86					2.43 3		0.02	
3				83.49 1,2		0.72 1,2	3.57 1					2.64 2		0.03 1	
Timing of Enrollment															
Pregnant	503.1	27.71			0.63		3.17	7.53	4.43			1.08	3.19		
Parenting	364.2	18.66			0.39		2.51	5.77	3.06			0.58	2.40		
Maternal Well-Being															
Maternal Depression, Continuous Score (T1)															
Low			1.44		0.52										0.22
Average			1.86		0.54										0.34
High			2.78		0.57										0.46
Maternal Depression, Clinical Cutoff Score (T1)															
Below Clinical Cutoff		22.36	1.48												0.26
Above Clinical Cutoff		27.84	2.59												0.47
PTSD (N,P,F)															
Does Not Meet Criteria															
Meets Partial Criteria															
Meets Full Criteria															
Parental Distress (T2)															
Low				86.58											
Average				75.32											
High				64.06											
Social Support (T2)															
Low															
Average															

	Duration (in days)	Home Visits	Groups	Secondary Activities	Individual Fidelity	Program Fidelity	IFSP Goal Sessions	IFSP Goals Set	IFSP Goals Met	Proportion of IFSP Goals Met to Set	IFSP in Goal Area 1	IFSP in Goal Area 2	IFSP in Goal Area 3	IFSP in Goal Area 4	IFSP in Goal Area 5
High															
Mother's Own History of Child Abuse and Neglect															
No													3.27		
Yes													2.41		
Maternal Employment and Education															
Mother is Employed (T1)															
No									3.71	0.38					
Yes									5.44	0.49					
Mother is Employed (T2)															
No					0.60						1.10				
Yes					0.49						0.63				
Mother is in School (T1)															
No			1.36												
Yes			2.41												
Mother is in School (T2)															
No	444.24	23.16			0.54										
Yes	550.58	31.39			0.60										
Financial Resources															
Difficulty Covering Expenses (T1)															
Low															
Average															
High															
Difficulty Covering Expenses (T2)															
Low	557.30	30.51	2.54	75.58								3.60			
Average	495.67	27.14	2.04	67.87								3.14			
High	434.03	23.77	1.55	60.15								2.67			
Received Cash Benefits After Enrollment (DTA)															
No															
Yes															
Received Food Stamps After Enrollment (DTA)															
No	510.43	28.10	2.51			0.74	3.31								
Yes	404.43	21.38	1.41			0.73	2.65								
Living Arrangements															
Number of Residences in Past Year (T1)															
1	505.07	26.72		71.00			3.23	7.70				3.32	3.07		
2	444.88	23.89		62.38			2.91	6.90				2.89	2.66		
3	384.70	21.07		53.76			2.59	6.10				2.47	2.25		

	Duration (in days)	Home Visits	Groups	Secondary Activities	Individual Fidelity	Program Fidelity	IFSP Goal Sessions	IFSP Goals Set	IFSP Goals Met	Proportion of IFSP Goals Met to Set	IFSP in Goal Area 1	IFSP in Goal Area 2	IFSP in Goal Area 3	IFSP in Goal Area 4	IFSP in Goal Area 5
4	324.51	18.25		45.14			2.27	5.30				2.04	1.84		
5	264.33	15.43		36.52			1.96	4.50				1.61	1.44		
Number of Residences in Past Year (T2)															
1	542.91	29.61					3.45	8.18					3.31		
2	486.02	26.62					3.05	7.26					2.76		
3	429.12	23.63					2.66	6.35					2.21		
4	372.23	20.65					2.26	5.43					1.66		
5	315.33	17.66					1.86	4.51					1.11		
Mother Lives with Adult Relative/ Guardian (T1)															
No	380.57				0.49		2.50	5.46	3.00			2.21			
Yes	474.55				0.57		3.11	7.55	4.52			3.19			
Mother Lives with Adult Relative/ Guardian (T2)															
No			1.41												
Yes			2.37												
Mother Cohabitates with FOB (T1)															
No					0.57										
Yes					0.49										
Mother Cohabitates with FOB (T2)															
No						0.73									
Yes						0.74									
Child Care Arrangements															
Hours Per Week TC Spent in the Care of Family Members (T2)															
Low															
Average															
High															
Hours Per Week TC spent in Formal Child Care (T2)															
Low															
Average															
High															
Hours Per Week TC spent in the Care of Others (T2)															
Low													3.30		
Average													2.87		
High													2.44		

Note. Only statistically significant differences are shown ($p < .05$). For continuous variables, we present high, medium, and low values, which were calculated as 1 SD above the sample average, the sample average, and 1 SD below the sample average, respectively. Community Cluster is defined as follows: 1 = moderate income, low population density, majority of European ethnicity; 2 = low-moderate income, moderate population density, ethnically diverse; 3 = low income, high population density, ethnic-minority majority. DTA = Department of Transitional Assistance. FOB = Father of the Baby. IFSP = Individual Family Service Plans. PTSD = post-traumatic stress disorder. TC = Target Child.

6.2 Maternal Characteristics by Utilization Profile

This section presents findings from bivariate analyses that examined associations among maternal characteristics and the four program utilization profiles (see Section 4.1.5 for more detailed descriptions of these profiles). Results are summarized below, as well as in Table 18, which presents comparisons of the four utilization profiles across a range of maternal characteristics.

Results indicate that few maternal characteristics were related to the utilization profiles. In many ways this is a positive finding, and suggests that HFM is able to successfully engage mothers from a variety of backgrounds. As described below, statistically significant differences were detected on just a few measures, including whether the mother was parenting or pregnant at enrollment, maternal depression, and whether the mother was in school.

When mothers enrolled after the birth of their child, they were more likely to be represented in the Low User (41%) and Moderate User (37%) profiles than the High Overall User, Low Secondary Activities (25%) profile. These findings were consistent with results from Section 6.1, which suggest that ***mothers are more engaged in HFM when they enroll before the birth of their child***.

Regarding depression, mothers with clinical levels of depression were more likely to be in the High Overall User, High Secondary Activities (52%) profile than in the Low User (27%) and Moderate User (39%) profiles. Again, these findings were consistent with results from Section 6.1, and suggest that the program is successfully engaging mothers despite their risk for depression.

Finally, ***differences emerged according to whether mothers were in school***. Mothers in the High Overall User, Low Secondary Activities profile were most likely to be in school (62%) compared to the other three profiles. Interestingly, mothers in the High Overall User, High Secondary Activities profile were least likely to be in school (37%). These findings were consistent with results presented in Section 6.1, which showed significantly more home visits among mothers who were in school, but not significantly more secondary activities.

Table 18. **Descriptive Information on Maternal Characteristics by Utilization Profile**

	Program Utilization Profile								Statistically Significant Comparisons
	(1) High Overall Users, High Secondary Activities		(2) High Overall Users, Low Secondary Activities		(3) Moderate Users		(4) Low Users		
	Mean	**%**	**Mean**	**%**	**Mean**	**%**	**Mean**	**%**	
Demographic Characteristics									
Maternal Age at Child's Birth (Years)	18.7		18.6		18.7		18.9		
Maternal Race and Ethnicity									
White, Non-Hispanic		21.7		27.9		29.8		42.2	
Black, Non-Hispanic		17.4		22.1		22.1		17.3	
Hispanic		60.9		43.3		38.9		34.7	
Other, Non-Hispanic		0.0		6.7		9.2		5.8	
Community Cluster									
1		26.1		43.8		44.3		48.3	
2		30.4		32.4		35.1		29.3	
3		43.5		23.8		20.6		22.4	

	Program Utilization Profile								Statistically Significant Comparisons
	(1) High Overall Users, High Secondary Activities		(2) High Overall Users, Low Secondary Activities						
	Mean	%	Mean	%	Mean	%	Mean	%	
Mother Parenting at Enrollment		30.4		24.8		36.6		41.3	2 vs. 4 2 vs. 3
Maternal Well-Being									
Maternal Depression (T1)									
Continuous Score	16.7		13.0		14.5		12.4		
Meets Clinical Cutoff		52.2		35.7		39.2		27.2	4 vs. 1 4 vs. 3
Post-Traumatic Stress Disorder (T1)									
Does Not Meet Criteria		35.7		46.5		37.7		33.3	
Meets Partial Criteria		42.9		32.6		34.0		43.1	
Meets Full Criteria		21.4		20.9		28.3		23.5	
Parental Distress (T2)	25.3		29.9		29.4		28.0		
Social Support (T2)	66.7		69.5		67.3		69.2		
Mother's Own History of Child Abuse and Neglect (DCF)		40.0		63.6		55.0		53.6	
Maternal Employment and Education									
Mother is Employed									
T1		21.7		26.8		23.8		24.4	
T2		26.3		17.9		32.1		28.7	
Mother is in School									
T1		52.2		52.0		45.6		43.3	
T2		36.8		62.1		44.3		42.6	2 vs. 4 2 vs. 1 2 vs. 3
Financial Well-Being									
Difficulty Covering Expenses									
T1	2.2		2.5		2.5		2.5		
T2	2.5		2.5		2.7		2.7		
Received Cash Benefits After Enrollment (DTA)		56.5		54.3		64.6		56.9	
Received Food Stamps After Enrollment (DTA)		43.5		42.9		57.5		55.1	
Living and Care Arrangements									
Number of Residences in Past Year									
T1	1.4		1.8		2.0		2.0		
T2	1.7		1.7		1.8		2.0		
Mother Cohabitates with FOB									
T1		30.4		20.8		27.2		28.0	
T2		42.1		29.0		28.7		28.9	
Mother Lives with Adult Relative/Guardian									
T1		82.6		75.3		75.2		69.1	
T2		52.6		70.5		67.0		61.2	
Hours Per Week TC Spent in the Care of Family Members (T2)	18.2		19.4		20.2		21.6		
Hours Per Week TC Spent in Formal Child Care (T2)	8.2		9.2		10.4		6.5		
Hours Per Week TC Spent in the Care of Others (T2)	27.0		30.0		30.9		29.0		

Note. Community Cluster is defined as follows: 1 = moderate income, low population density, majority of European ethnicity; 2 = low-moderate income, moderate population density, ethnically diverse; 3 = low income, high population density, ethnic-minority majority. FOB = Father of the Baby.

6.3 Maternal Characteristics by Home Visitor–Mother Relationship Profile

The final set of analyses presented in this chapter examined associations between maternal characteristics and the home visitor-mother relationship profiles (Negative, Primarily Professional, Positive Professional, Positive Friend, and Positive Family Member; see Section 4.2 for more detailed descriptions of these profiles). Results are summarized below and in Table 19.

On a number of indicators, mothers in the different relationship profiles were quite similar to one another. Mothers in all four relationship profiles were close to 19 years of age at the birth of the target child. They reported similar (moderately high) levels of social support and parental distress. Most mothers (61%–83%) were likely to be living with an adult relative or guardian at both T1 and T2, and about one third of mothers in each profile reported living with the father of the child. About one third of mothers in each profile were parenting at enrollment. Finally, the percentage of mothers who lived in the different community profiles did not differ significantly across the four relationship profiles.

However, mothers in the four relationship profiles did indeed differ on several background characteristics. For example, differences emerged on background characteristics related to mothers' mental health. Mothers in the Negative, Primarily Professional and Positive Family Member profiles had the highest rates of depression at T1, compared to mothers in the other two relationship profiles (Positive Professional and Positive Friend). ***Specifically, close to 60% of the mothers in the Negative, Primarily Professional and Positive Family Member profiles scored above the clinical cutoff for depression; this rate was nearly double that of the Positive Professional profile and nearly triple that of the Positive Friend profile.***

Differences in mental health were also evident when looking at mothers' PTSD symptomatology. Mothers who did not meet criteria for PTSD were largely concentrated in the Positive Friend relationship profile (67%), unlike the other relationship profiles, in which the majority of mothers met criteria for partial or full PTSD. Mothers in the Positive Family Member profile had the highest rates of full PTSD symptomatology (47%), compared to all other profiles (Negative, Primarily Professional = 20%, Positive Professional = 21%, Positive Friend = 7%).

In addition to differences related to mental health, relationship profiles also differed on maternal race/ethnicity. Specifically, Negative, Primarily Professional and Positive Family Member relationship profiles had twice as many non-Hispanic Black mothers (32% and 36%, respectively) than the other two profiles (Positive Professional = 13%, Positive Friend = 14%). The profiles did not differ with respect to other race/ethnicity categories.

Differences also emerged with respect to education status. Mothers in the Positive Family Member relationship profile were more likely to be in school (72%), compared to mothers in the other three profiles (Negative, Primarily Professional = 26%; Positive Professional = 50%; Positive Friend = 46%).

Finally, mothers also differed with respect to receipt of food stamps. According to administrative data from DTA, 84% of mothers in the Negative, Primarily Professional relationship profile received food stamps at some point after enrolling in HFM. This figure was nearly double that of the other profiles (Positive Professional = 49%, Positive Friend = 45%, and Positive Family Member = 46%).

To summarize, in general, mothers in the four relationship profiles differed on several background characteristics, including maternal depression, PTSD symptomatology, maternal race/ethnicity, education status, and food stamp receipt. Interestingly, mothers in the Positive Family Member relationship profile had the highest rates of depression and PTSD symptomatology; these background characteristics may have informed the approach that these mothers took to relating to their home visitors and engaging in HFM services.

Table 19. **Maternal Characteristics by Home Visitor–Mother Relationship Profile (Means and Proportions)**

	Home Visitor–Mother Relationship Profile								Statistically Significant Comparisons
	(1) Negative, Primarily Professional		(2) Positive Professional		(3) Positive Friend		(4) Positive Family Member		
	Mean	**%**	**Mean**	**%**	**Mean**	**%**	**Mean**	**%**	
Demographic Characteristics									
Maternal Age at Child's Birth (years)	18.8		18.7		18.7		18.6		
Maternal Race and Ethnicity									
White, Non-Hispanic		26.3		35.4		23.2		15.2	
Black, Non-Hispanic		31.6		12.5		14.3		36.4	
Hispanic		36.8		41.7		53.6		42.4	
Other, Non-Hispanic		5.3		10.4		8.9		6.1	
Community Cluster[1]									
1		31.6		44.9		39.3		33.3	
2		52.6		38.8		30.4		39.4	
3		15.8		16.3		30.4		27.3	
Mother Parenting at Enrollment		31.6		28.6		35.7		24.2	
Maternal Well-Being									
Maternal Depression (T1)									
Continuous Score	16.2		13.9		10.7		19.8		2 vs. 4 3 vs. 4
Meets Clinical Cutoff		57.9		36.2		21.8		59.4	1 vs. 3 2 vs. 4 3 vs. 4
Post-Traumatic Stress Disorder (T1)									
Does Not Meet Criteria		26.7		50.0		66.7		17.6	1 vs. 3
Meets Partial Criteria		53.3		29.2		25.9		35.3	
Meets Full Criteria		20.0		20.8		7.4		47.1	3 vs. 4
Parental Distress (T2)	30.2		29.5		27.5		29.2		
Social Support (T2)	58.9		68.8		70.2		65.7		
Mother's Own History of Child Abuse and Neglect		68.8		56.4		59.1		62.5	
Maternal Employment and Education									
Mother is Employed									
T1		21.1		27.1		24.1		15.6	
T2		26.3		18.8		21.4		30.3	
Mother is in School									
T1		26.3		50.0		46.3		71.9	1 vs. 4 2 vs. 4 3 vs. 4
T2		36.8		45.8		57.1		60.6	
Financial Resources									
Difficulty Covering Expenses									
T1	3.0		2.5		2.4		2.7		
T2	2.8		2.6		2.6		2.6		
Received Cash Benefits (After Enrollment; DTA)		84.2		57.1		58.9		66.7	
Received Food Stamps (After Enrollment; DTA)		84.2		49.0		44.6		45.5	1 vs. 2 1 vs. 3 1 vs. 4

Table 19. **Maternal Characteristics by Home Visitor–Mother Relationship Profile (Means and Proportions) (continued)**

	Home Visitor–Mother Relationship Profile								Statistically Significant Comparisons
	(1) Negative, Primarily Professional		(2) Positive Professional		(3) Positive Friend		(4) Positive Family Member		
	Mean	%	Mean	%	Mean	%	Mean	%	
Living And Care Arrangements									
Number of Residences in Past Year									
T1	2.2		2.0		1.7		1.7		
T2	2.1		1.9		1.6		1.6		
Mother Cohabitates with Father of the Baby									
T1		31.6		20.8		20.0		29.0	
T2		36.8		26.7		28.6		43.8	
Mother Lives with an Adult Relative/Guardian									
T1		73.7		70.2		83.3		78.1	
T2		78.9		72.9		69.6		60.6	
Hours Per Week TC Spent in the Care of Family Members (T2)	17.1		19.8		17.3		22.1		
Hours Per Week TC Spent in Formal Child Care (T2)	5.6		5.1		9.7		13.4		
Hours Per Week TC Spent in the Care of Others (T2)	22.7		25.9		28.3		37.0		

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. [1]Community Cluster is defined as follows: 1 = moderate income, low population density, majority of European ethnicity; 2 = low-moderate income, moderate population density, ethnically diverse; 3 = low income, high population density, ethnic-minority majority.

6.4 Preliminary Qualitative Investigation of Living Arrangements

The relative instability that mothers experienced in their living arrangements emerged as a salient theme throughout MHFE-2: It was linked to program utilization (see Sections 6.1 and 6.2) and helped explain some of the differences in the magnitude of program effects (see Chapter 9). These results spurred additional qualitative analyses aimed at better understanding mothers' living arrangements over the course of their lifetimes, from childhood through the period of enrollment in HFM.

The purpose of this Tier Three analysis, then, was to identify life circumstances that influenced living arrangements for a select sample of mothers, and to determine the extent to which, if at all, home visitors appeared to contribute to improvements in the residential situations of these young mothers. Given how centrally living arrangements were implicated in HFM program participation and in the eventual attainment of program goals, this initial foray into the domain of residential instability provides potentially useful data for program and policy development, both within the Children's Trust and across other public agencies. Themes that emerge in this analysis can be further explored and validated in future research inquiries.

Data on mothers' living arrangements were drawn from the T1 phone interviews, during which mothers were asked how many places they had lived over the past year. Childhood data were drawn from the in-depth, in-person interviews at T1, during which participants were asked to provide a timeline of their living arrangements and a description of each residence they lived in, starting at birth. Post enrollment data

were drawn from the T2 and T3 in-depth, in-person interviews in which participants were again asked to detail their residences in the prior year.

The final HVS-based analytic sample (n = 20) was purposefully selected to represent a range of residential experiences during the year prior to HFM enrollment,[R] and in the two years following enrollment.[S] During the T2 interview (approximately one year after enrollment) mothers in this sample reported, on average, four living arrangements in the previous year; this ranged from one to seven. During the T3 interview (about two years after enrollment) mothers reported, on average, three living arrangements in the previous year; this ranged from 1 to 11.

In the sections that follow, we begin by reviewing the four core themes that emerged from our analysis of mothers' living arrangements; then, we proceed by describing each in detail. We conclude with two case studies, which provide a more in-depth illustration of how these themes emerged in two participants' lives.

6.4.1 Core Themes that Reflect Mothers' Residential Experiences

Four themes emerged from this investigation of residential instability:

1. Residential instability is often a lifelong narrative that begins in childhood.
2. The reasons for mothers' changing residence after enrolling in HFM were usually characterized by the desire for improvements (e.g., educational opportunity), the response to a stressor (e.g., family conflict), or a combination of both.
3. Residential instability resulted in the discontinuation of HFM services for some mothers.
4. Home visitors provided direct and indirect assistance related to residential instability.

Each of these themes is elaborated below.

Theme 1: Residential Instability as a Lifelong Narrative

Upon meeting a new client, the home visitor becomes immediately aware of her client's living arrangement at that time in her life. Yet qualitative data highlighted that many mothers' living arrangements were, in essence, the product of previous experiences and living circumstances. Further, the circumstances related to changes in living arrangements may have had important implications for program engagement and participation, as well as stability in future living arrangements. This pattern of findings illustrates that understanding childhood circumstances is one of the first steps to understanding how home visitors can best provide support to mothers in pursuing residential stability.

Mothers in this analytic sample (n = 20), had a diversity of living arrangements during childhood.[T] Mothers reported, on average, seven living arrangements during their childhood; however, this ranged considerably—from 1 to 30.[U] ***Relatively few mothers (25%) experienced residential stability***, which was defined as having one to three residences during childhood. About 40% of the mothers experienced *moderate residential instability*, defined as having four to six residences; and, 35% experienced *high residential instability*, defined as seven or more residences.

Next, we examined the circumstances that led to changes in residence during childhood.[V] Circumstances were first

[R] The year prior to enrollment does not overlap with the time period we later define as *childhood*.

[S] Given that we were particularly interested in how instability in living arrangements might influence mothers' ability to participate in HFM, we did not restrict the sample according to the number of home visits received. This allowed us to explore the possibility that moving might create barriers (e.g., changes in address and phone numbers) that would have made it difficult for mothers to schedule and receive even a modest number of home visits.

[T] Recall that the sample was purposefully selected to represent a range of residential instability experiences during the year prior to HFM enrollment, and in the two years post enrollment (n = 20); for more information on living arrangements for the full sample, see Chapter 9.

[U] Childhood living arrangements capture the mothers' experiences from birth up to a year prior to enrollment in HFM.

[V] Recall that the sample was purposefully selected to represent a range of residential instability experiences during the year prior to HFM enrollment, and in the two years post enrollment (n = 20);

categorized in broad terms: moves that were viewed as a desire for improvements, a response to *stressors*, or were made for unknown reasons. Desire for improvement refers to circumstances in which changes in residence occurred because the participants' caregivers sought to improve their lives. In other words, although the moves might well have been disruptive, the impetuses were positive or hopeful. The term stressors refer to negative circumstances that prompt moves because staying in the current situation would have been untenable.

Among mothers who experienced moderate or high instability in their childhood living arrangements, about ***72% attributed the changes to stressors***; only 8% attributed them to a desire for improvement, and the remaining (21%) did not provide the reasons for those moves.

In the rare cases in which desire for improvement led to moves during childhood, educational opportunity, employment, and marriage were identified as the impetuses. Given that the overwhelming majority of mothers attributed residential changes to stressors, we proceeded with an in-depth analysis of the stressors that prompted mothers to move during childhood.

As Table 20 shows, ***the most prevalent stressor was involvement with child welfare agencies***, leading to participants' removal from the home because of child maltreatment and/or running away; this accounted for 29% of all stressors. Removals generally led to entry into the foster- care system, placement with extended family, and/or adoption. There was substantial variation in the number of foster homes identified by participants; for example, one participant in this small sample recalled seven different foster homes, and another, 22. However, child maltreatment did not always lead to removal by child welfare agencies. For example, at age 12, one participant chose to move in with extended family because she was being neglected. At times, child maltreatment occurred concurrently with intimate partner violence, which also sometimes led to changes in residence. For example, one participant's father beat her with a shovel but child welfare services were not notified. When her father attempted to kill her mother, the participant called 911. The police intervened and placed the participant and the rest of her family in a protective shelter.

The second most common cause of residential changes during childhood, family conflict, refers to being kicked out of the house, which often occurred after a conflict between the participant and her caregiver or the caregiver and another family member. The period of time in which participants were barred from their homes varied from several times for a couple of days at a time, to being cast out permanently.

A third pathway to residential mobility in childhood was the experience of economic difficulties, which led to frequent moves and homelessness in an attempt to find affordable and safe housing. Caregivers' substance abuse was one of the reasons that economic difficulties occurred, adding another worrisome and dangerous dimension to these mothers' early housing experiences. Examples of stressors that fell into the *other* category included poor caregiver health, crowded living situations, and the participant's own mental health (e.g., participant left a foster home to receive in-patient care at a clinical psychiatric center).

In summary, our analyses revealed considerable residential instability during childhood for many mothers in this sample. Stressors, such as DCF/DYS removal and family conflict, were the primary precipitants. The extent of residential instability during childhood suggests that understanding these early living arrangements may be important clues for home visitors as they attempt to help mothers address challenges in this domain. In addition, these data argue for more general public attention to residential instability in the lives of families with young children, regardless of their HFM eligibility, since this situation appears related to a variety of family problems with known poor consequences for children.

for more information on living arrangements for the full sample, see Chapter 9.

Table 20. **Stressors that Led to Residential Instability in Childhood Living Arrangements**

Stressors	% of Stressors
Child Welfare Agencies (DCF/DYS Removal)	29
Family Conflict	19
Homelessness/Shelter/ Domestic Violence Shelter	10
Caregiver Substance Abuse	10
Child Maltreatment	10
Caregiver Domestic Violence	5
Other	19

Note. Stressors were cited 21 times in this analytic sample of 20 mothers. Percentages do not sum to 100% because mothers could mention more than one stressor. DCF = Department of Children and Families; DYS = Department of Youth Services.

Theme 2: Changes in Living Arrangements after Enrolling in HFM

Next, analyses were undertaken to contextualize mothers' experiences after they enrolled in HFM (i.e., the post enrollment period). First, we considered the relationship between living arrangements during childhood and during the two-year post enrollment period. As seen in Table 21, the pattern of relative instability remained consistent between the childhood and post enrollment periods, with most mothers reporting unstable living arrangements over the course of their lifetimes. This trend underscores residential stability as a narrative that begins, for these mothers, in their childhoods.

Table 21. **Residential Stability during Childhood and Post Enrollment**

Residential Stability	Childhood (%)	Post Enrollment (%)
Stability	25	20
Instability	75	80

Note. Instability during the childhood period includes both moderate and high instability groups (i.e., four or more residences).

As with our exploration of circumstances precipitating residential changes during childhood, we explored the reason for changes in post enrollment living arrangements, categorizing them as a desire for improvements, a response to stressors, or a combination of both.

Similar to analyses during childhood, the majority (59%) of participants experienced changes in residence during the pre enrollment period in response to stressors. In addition, about 12% noted desire for improvement, and 29% a combination of both types of precipitants. ***In the few post enrollment living arrangements where improvements triggered residential changes, the circumstances included pursuing an education, removing oneself from unhealthy family dynamics, and improving physical household conditions.***

The majority of mothers, however, identified stressors as the major category of reasons for their mobility (see Table 22). Again, we proceeded with an in-depth analysis of the stressors that prompted mothers to move during post enrollment.

Table 22. **Stressors Leading to Residential Mobility in the Post Enrollment Period**

Stressors	% of Stressors
Homelessness/Shelter/Domestic Violence Shelter	29
Economic Difficulties	24
Department of Children and Families (DCF) Involvement/Lost Custody	10
Domestic Violence	10
Conflict with Family, Father of Baby, or Boyfriend	10
Poor Physical Condition of Residence	10
Fire	5
Foster Care Placement	5

Note. Stressors were cited 21 times in this analytic sample of 20 mothers. Percentages do not sum to 100% because mothers could mention more than one stressor.

The most prevalent stressor cited by mothers after enrolling in HFM was being homeless, living in a shelter, and/or living in a domestic violence shelter. This circumstance was most prevalent in part because being homeless and living in a shelter was usually the consequence of other serious challenges the participants experienced, such as economic difficulties. For example, one participant fled to a domestic violence shelter with her child after the father of the baby tried to kill her. While shelters served to reduce stress by providing a safe haven for some participants, they sometimes introduced new stressors.

In one instance, an abusive relationship with the father of the baby forced a mother to flee to a domestic violence shelter. However, once in the shelter, she lost custody of her son to DCF due to child neglect, leading her to then leave the shelter.

Another stressor cited by mothers as the cause for changes in post enrollment living arrangements was conflict with their families, the fathers of their babies, or their boyfriends. Usually, family conflict referred to a fight between the participant and her significant other, which led to the severing of a relationship, necessitating the participant's move.

The poor physical condition of a residence was another reason that participants were forced to move. For example, one mother learned that her apartment had lead paint and, through testing, that her children had been exposed. The landlord removed the lead paint in the children's closet but did not follow proper procedure; the apartment then became infested with mice. The participant and her family had no choice but to leave the residence as soon as they could.

As stated before, a combination of improvements and stressors led to changes in post enrollment residence for over one quarter of the participants. In every instance, there was a predictable sequence to these events: Stressors preceded improvements, with homelessness and economic difficulties as the most likely precipitating circumstances. In addition to these difficulties, DCF involvement and the poor physical conditions of a residence were also cited as precipitating circumstances. For example, one mother and her family had to move because of unsafe living conditions in their apartment: The landlord did not provide heat during the winter, and one night the boiler caught fire so they had to be evacuated. After relocating to a new residence with her son and family, this mother became motivated to seek independence and pursue her education. She applied to college, and upon acceptance, moved with her son to a school that provided housing, support, and resources specifically for single parents.

In addition to noting that the improvements described above prompted changes in residence, some participants in the combination category described regaining custody of their children. There were participants who lost custody of their child and moved to ensure that they had an acceptable residence for the child once custody was regained.

As was true of changes in residence during childhood, residence changes during post enrollment were much more commonly attributed to stressors than to the desire for improvements.

Theme 3: Residential Instability and Discontinuation of HFM Services

As previously discussed in this report, mothers lived in two locations, on average, the year prior to enrolling in the evaluation. Quantitative analyses also revealed that mothers with more residential instability had shorter enrollments, received fewer home visits, and had fewer secondary activities (see Section 6.1). This finding was consistent with qualitative analyses of the home visitor-mother relationship (see Section 4.2.7), which identified moving as a salient theme for mothers' reasons for discontinuing services: 18% of the reasons for discontinuation at T2, and 20% at T3, were attributed to mothers' moves.

Similarly, about one third of the mothers (n = 7) in this small substudy implicated residential mobility as the reason for program discontinuation. This was expected, given that the analytic sample for this analysis included mothers who were also in analyses of the home visitor-mother relationship. We examined the context of events surrounding mothers' changes in living arrangements and their utilization of HFM services. Mothers attributed reasons for discontinuing their participation to a few core challenges: the circumstances that led to the move (e.g., losing custody of the child, family instability), the chaotic conditions associated with moving, or disappointment that they would be assigned a new home visitor.

Changes in residence brought about by stressors usually resulted in discontinuation. Contact was sometimes severed because the stressors emerged suddenly, or created chaotic circumstances. In some cases participants lost their home visitors' phone number; other times the participant changed her phone number so could not be contacted by the home visitor. In an extreme case, a participant awoke to a house fire which destroyed the house and all of her possessions. As a result, she and her baby were placed in a hotel shelter where they lived for the next six months. For a while the mother and her home visitor kept in touch, but eventually, according to the mother, the home visitor fell out of contact.

In another example, a participant moved to her mother's house to escape an abusive relationship with the father of the baby. According to the mother, she stopped receiving communication from her home visitor subsequent to that move. Eventually, she learned that because the home visitor could not reach her, her services had been terminated. As these two examples illustrate, program discontinuation resulted, at least in part, from moves set in motion by harrowing events in these mothers' personal lives.

In summary, residential mobility was implicated in several instances (about one third) of program discontinuation; this finding confirms other MHFE-2 findings (see Section 4.2.7), suggesting that continued HFM participation is challenging in the face of residential mobility.

Theme 4: HFM Direct and Indirect Assistance with Living Arrangements

Here, we examined the ways in which home visitors provided residential assistance to participants, categorizing that support as direct and indirect. *Direct assistance* was defined as activities directly targeted to improving living arrangements and the circumstances that influenced changes in residence and/or residential instability. *Indirect assistance* was defined as activities that addressed needs other than housing, but had the *potential* to influence the circumstances that precipitated the moves.

Eighty percent of mothers in this sample reported that their home visitor offered at least one form of residence-related assistance (either direct or indirect). Of these participants who reported at least one type of residential assistance, ***over half (56%) reported receiving direct assistance and 94% reported receiving indirect assistance***. Of the 20% of mothers who did not receive any type of assistance, 75% experienced moderate or high residential instability during post enrollment, ***suggesting that there was some unmet need in this analytic sample***.

Home visitors varied in how they provided direct and indirect residential assistance to participants. Table 23 displays the range in residential assistance that home visitors provided to the participants.[W]

Table 23. **Direct and Indirect Assistance Provided to Participants by Home Visitors**

Types of Residential Assistance	
Direct Assistance	**% of Direct Assistance**
Establishing a Housing Goal	25
Participating in Housing Search	25
Referral to DTA Housing Assistance	25
Financial Budgeting	17
Information on Shelters	8
Indirect Assistance	**% of Indirect Assistance**
Referral to Women, Infants and Children (WIC)	39
Employment Assistance	22
Relationship Assistance	22
Information on Welfare	6
Referral to Food Stamps	6
Other	6

Note. From an analytic sample of 20 mothers, 12 instances of direct assistance were cited, and 18 instances of indirect assistance were cited. Percentages do not sum to 100% because mothers could mention more than one type of assistance. DTA = Department of Transitional Assistance.

[W] **It is important to note that participants may have received more than one type of assistance, and could have reported both direct and indirect assistance.**

Of those who received direct assistance, the most prevalent types related to creating housing goals within the Individualized Family Service Plan (IFSP) structure (25% of direct assistance instances), participating in housing searches (25% of direct assistance instances), and providing referrals to the Department of Transitional Assistance (DTA; 25% of direct assistance instances). Each is elaborated below.

Some mothers identified moving (e.g., to their own place, to a higher quality residence) as one of their IFSP goals (see Section 4.1.6 for more information). However, identifying such a goal did not always mean that the goal was achieved. For example, one participant stated that, despite the attempts of her home visitor and other HFM staff, the stressors she was experiencing prevented her from moving to her own residence. This finding was consistent with quantitative analyses (Section 4.1.6), which showed that fewer than half of those goals identified were met by mothers.

Whether or not a residential goal was explicitly identified, some home visitors helped participants search for housing. One mother stated, "When we were looking for apartments, she would bring us through all the apartment listings." To assist mothers in securing housing, some home visitors also provided referrals to DTA, the state agency that offers assistance in securing public and subsidized housing. While DTA workers may be more qualified than home visitors to provide residential assistance, mothers reported problems with DTA services. For example, one mother stated, "I think DTA is spread too thin. They need more staff. I try to stay away from them for the most part, just do my best 'cause they never get back to you. It's such a long waiting list, you can't get on." Other participants identified similar difficulties when they sought DTA assistance. This suggests that while such a referral represents direct assistance related to housing, mothers may require additional support navigating the resources that this agency provides in order to facilitate improvements in their living arrangements.

Another type of direct assistance provided by home visitors was help with household budgeting. For example, some home visitors provided instruction on how to create and adhere to a budget. Participants who had difficulties paying rent expressed appreciation for this type of assistance. The least commonly reported direct assistance provided was information on shelters, such as how to enter the shelter system.

Next, we explored types of indirect assistance provided by the home visitor. The most prevalent type of indirect assistance was referrals to Women, Infants and Children (WIC), a public program that provides supplemental food and nutrition-related services to eligible families. To the extent that WIC reduces financial burdens, this may have enabled mothers to allocate more money to their housing. Employment assistance was also commonly cited by mothers. For example, some mothers reported that home visitors provided them with job listings, inquired with local businesses owners about openings, and introduced mothers to potential employers. Again, this type of assistance held the potential to improve mothers' financial resources, allowing them to allocate more money towards housing.

Relationship assistance was also commonly cited as a form of indirect assistance, such as in the form of advice about conflict resolution. For example, one participant stated that her home visitor helped her "stop picking fights with my boyfriend." Another participant stated that her home visitor decreased conflict between her and her boyfriend because her home visitor "gave us a lot of good tools to work stuff out instead of just yell at each other." Improving the relationship between participants and their families may have decreased the likelihood that the participant would have to change residence due to conflict. The least prevalent types of indirect assistance, welfare information and food stamp referrals, may also have increased financial stability, thus contributing to maintaining a residence.

To summarize, our exploration of home visitor support to improve residential stability revealed that ***home visitors provided direct and indirect residence-related assistance. Direct assistance contributed to helping participants***

maintain their housing or purposefully change their residence, while indirect assistance may have decreased stressors, thereby potentially improving mothers' living arrangements. Lastly, some participants who could have benefited from residence-related assistance did not report receiving any from their home visitors.

Case Studies

To further illustrate the findings presented above, two case studies are presented here. These participants differed in terms of residential instability during childhood and post enrollment, circumstances influencing residential mobility, and the assistance received from home visitors. Both cases, however, underscore how powerful the residential instability "narrative" can be when it is initiated early in a mother's childhood. We consider this finding paramount in this analysis.

Case Study #1: Elisa[x]

Elisa returned home after her birth to live with her mother and older brother; her father had left her mother beforehand. At about age four, Elisa's mother's boyfriend moved in and her younger brother was born, followed by her younger sister (when she was five). Elisa described her mother's boyfriend as "cruel." He molested her when she was three or four years old and physically abused her by "punching, grabbing and pushing." She also witnessed domestic violence as a child: Her mother's boyfriend used to beat her mother with a belt. Child welfare agencies removed Elisa and her siblings when she was six years old. Her older brother joined his father, while Elisa and her sister were placed in one foster home, and her younger brother was placed in a second one. A year later, her younger brother was placed in the same foster home as his sisters. The three children resided with their foster family, which included the mother, father, sister, mother's sister, and mother's brother. Elisa did not maintain a relationship with her biological mother and grew to consider her foster mother as her "mother." When Elisa was ten years old, her foster family adopted her and her siblings. At one point, they moved to another residence. While she lived there, seven other foster children lived with her at various times. While Elisa loved living with her adoptive family, she stated that, "I was always thinking about the past, never letting it go."

When she was 18 years old, Elisa moved in with her boyfriend while attending high school. Seven months later, she became pregnant. Upon learning about her pregnancy, she was scared and considered having an abortion. Elisa changed her mind when she and the father of the baby were in a car accident; she took their survival as a "sign." She continued attending school until she was five months pregnant. When asked why she then stopped, she said that she was going to be held back in the 12th grade and she was scared to attend school while pregnant.

Elisa enrolled in HFM a month before her baby was born. She formed a good relationship with her home visitor and said that her home visitor reminded her of her grandmother. After the birth of her son, the father of the baby became emotionally abusive, and they argued constantly. Eventually, Elisa decided that she needed a "better place for her child" and finding her own place became an IFSP goal.

In addition to assisting Elisa with finding another home by searching through housing listings, Elisa reported that her home visitor connected her to welfare and other public resources. Her home visitor and HFM staff were also assisting her with continuing her education through GED classes and obtaining her driver's permit. However, her relationship with the father of the baby became more abusive. He slapped her during an argument and then the violence escalated to a point where he tried to kill her. Elisa stated, "I would have been dead if my son wasn't there. He was holding my neck and my baby's right there in bed." After this incident, Elisa and her son fled to her mother's house in a different town and she obtained a restraining order.

After moving to a different town, it became difficult

[x] Names of the participants were changed to protect confidentiality.

for Elisa and her home visitor to continue program participation. The only way Elisa could continue office visits was to walk to the town where the office was located; this was far from her residence. She reported that she and her home visitor remained in contact via phone on a regular basis. Elisa remained at her residence for a short while before moving to a different town with her son and her mother. According to Elisa, the home visitor was unable to reach her via phone and, nine months after she enrolled, she was discharged by the program.

Elisa returned to the town from which she fled after leaving the father of the baby, and moved in with her new boyfriend and her boyfriend's mother. She then moved again with her boyfriend and her son, and became pregnant with her second child. When she was five months pregnant, she moved in with her stepfather, mother, brother and her son in a different town. When thinking about her experience with HFM, Elisa said,

> *I miss [home visitor], yeah. She was a good person, she was real good. I miss everything. Everything they're doing, they're helping out and stuff. They kept me safe. I know that they kept me safe, because if something happened, they would have helped me out real quick, or something like that.*

Case Study #2: Jennifer

After her birth, Jennifer went home to her mother, grandparents, and aunt. When she was one year old, her aunt moved out of the house. When Jennifer was three or four years old, her mother and stepfather married and they all moved to different residence. She stated that her stepfather, whom she considers her father, was an alcoholic when she was younger. Jennifer was 14 years old when her mother and her stepfather separated. After the separation, Jennifer stated that she and her mother changed residences frequently. She said, "We moved around a lot. I couldn't even try to count how many times we've moved. We definitely moved around a lot year to year." When she was 16 years old, her stepfather moved in with them for almost a year, even though he was not in a relationship with her mother. About a year later, her mother's boyfriend moved in to her home. During that time, Jennifer's mother became pregnant, but miscarried. Right before her mother miscarried, Jennifer and her mother had a disagreement; Jennifer was angry about her mother's pregnancy and her boyfriend moving in. She said, "I didn't feel like she was being a parent 100 percent of the time." After the argument, Jennifer moved in with her aunt for a week. She then moved back in with her mother and mother's boyfriend. When Jennifer was 18, she completed high school and attended college out of state. During her freshman year, she lived in a dorm with two roommates; she found this a difficult transition because she was an only child. Her younger brother was born while she was in college and his birth strengthened her relationship with her mother.

Jennifer learned that she was pregnant the summer after completing her freshman year. She returned to school to start her sophomore year without making a decision about whether she would keep the baby. Jennifer stated that she became depressed and stopped attending classes. When her mother and stepfather visited during parents' weekend, they suggested that she take a leave of absence and return home with them. Jennifer left school when she was two months pregnant and moved back in with her mother. The baby was born and went home to Jennifer, her mother, her mother's boyfriend, and her younger brother.

According to Jennifer, she enrolled in HFM a month after the birth of her baby. She instantly liked her home visitor and her HFM goals were focused on resuming her education and supporting her parenting. Her home visitor helped her learn about different educational programs. She also provided Jennifer with information about obtaining public assistance. When her baby was almost three months old, her mother kicked her (her mother's) boyfriend out of the house. A month later, Jennifer, her mother, and younger brother moved to a different city because her mother thought housing was cheaper in that area. Jennifer lost her home visitor because of the move and received a new home visitor. The family moved again in the same city because their landlord barely maintained their apartment. They had

difficulty getting heat during the winter; they notified the landlord but he never fixed the problem. At one point, they had to evacuate and move to a new residence because the housing conditions were unsafe.

Meanwhile, Jennifer was very involved in HFM. She took classes and attended parent board meetings through HFM. However, she had difficulties with her new home visitor. She stated that her home visitor was consistently late for visits, only visited for 20 minutes and that, "we never really did anything on my home visits." Jennifer was motivated to continue her education and find a place to live on her own. Without assistance from her home visitor, she applied, and was accepted, to a college that provided housing, resources, and support to single mothers. The college she applied to was one that she had identified with her first home visitor. After trying to work with her second home visitor for eight to nine months, Jennifer called her HFM supervisor, who was responsive and immediately assigned her a third home visitor.

Her third home visitor assisted her in completing all her necessary documents for college, which included housing paperwork. She informed Jennifer about all the social services for which she was eligible. Jennifer and her baby moved into college housing and she started her sophomore year. She stated,

> *I like having my own space, really feeling like I'm independent, not living under my mother's house anymore and being able to provide for a home for my son on my own.*

Since her college was located in a different town, she lost her home visitor and obtained a fourth home visitor with whom she felt comfortable. When discussing the three home visitors she connected with, Jennifer stated,

> *They were passionate about young children and helping, you know, single parents or whatever and I think that's what came through—that, okay, this person really does want to help me. And I think also them coming in with an open mind about what parents' needs are because not everyone has the same needs.*

Summary

This initial exploration revealed that, in this sample, residential instability is a lifelong narrative shaped by experiences beginning early in childhood. A majority of participants experienced residential instability, most at high levels, during childhood. In most instances, changes in residence during this pre-HFM time period were due to stressful life circumstances, some of which were likely unknown to the home visitors. This pattern of instability often continued into participants' lives after enrolling in HFM, during their pregnancies and early parenthood.

Residential instability precipitated some mothers' early exit from HFM, a lamentable consequence given the relatively high need for supports these mothers demonstrate. Some home visitors provided direct and indirect residential assistance to mothers. Direct assistance contributed to helping participants maintain their housing or purposefully change their residence while indirect assistance had the potential to decrease stressors and possibly assist in increasing residential stability.

6.5 Chapter Summary

This chapter included findings from a set of mixed-methods analyses that examined whether and how maternal characteristics might be associated with various indicators of program utilization, fidelity, and home visitor–mother relationship. These analyses were conducted in an effort to understand whether particular background characteristics might be confounded with the ways that mothers participate in, and experience, HFM services.

To this end, we began by examining how maternal characteristics were associated with discrete measures of program operations (e.g., number of days enrolled, home visits, program-level fidelity). In general, results showed that mothers were more actively engaged in HFM when they enrolled before the birth of the child, had higher depression scores, were in school, reported

fewer financial difficulties, received food stamp benefits, had fewer moves, and lived with an older relative or guardian.

We also explored how the four *utilization profiles* might be related to maternal characteristics. Results were generally consistent with the previous section, indicating that mothers are more engaged in HFM when they enrolled before the birth of their child, had higher depression scores, and were in school.

Next, we explored how the four *relationship profiles* were related to maternal characteristics. The four profiles differed on several background characteristics, including maternal depression, PTSD symptomatology, maternal race/ethnicity, education status, and food stamp receipt. Interestingly, mothers in the Positive Family Member relationship profile had the highest rates of depression and PTSD symptomatology, suggesting that maternal characteristics may have informed the approach that these mothers took to relating to their home visitors.

Finally, qualitative data was used to explore how one particularly salient maternal characteristic, *living arrangements*, might influence various aspects of program operations. This exploration revealed that residential stability is a process that often begins at the participants' own birth, and then persists into adolescence and early adulthood. For some mothers, HFM enrollment was discontinued prematurely as a result of residential instability and the stressful circumstances that led to, and resulted from, residential changes. However, for those who remained enrolled in HFM, home visitors often provided *direct* and *indirect* residence-related assistance. Later in this report we continue to explore the importance of living arrangements through an examination of how this characteristic affected the magnitude of program effects (see Chapter 9).

CHAPTER SEVEN

Tiers Four & Five: Overall Program Impacts

A primary goal of this evaluation was to understand whether HFM was effective at achieving its five stated goals: (1) to prevent child abuse and neglect by supporting positive, effective parenting; (2) to achieve optimal health, growth, and development in infancy and early childhood; (3) to encourage educational attainment, job, and life skills among parents; (4) to prevent repeat pregnancies during the teen years; and (5) to promote parental health and well-being.

To that end, analyses were conducted to see whether the intervention group (HVS) was significantly different from the control group (RIO) on a variety of indicators within these five goal areas. Following standards in the home visiting evaluation field, an Intent to Treat (ITT) approach was used in these analyses, meaning that mothers randomly assigned to the treatment group were considered to be part of the HFM group whether or not they actually used any home visiting services.

This chapter begins with a brief synopsis of main findings from other evaluations of HFA programs. The evaluations included here, all of which were rated to be of either moderate- or high-quality design by the Department of Health and Human Services Home Visiting Evidence of Effectiveness (HomVEE),[36] were conducted in six locations: Alaska, Arizona, Georgia, Hawaii, New York, and San Diego.[37] We then present descriptive data on all outcome measures used in our analyses, followed by a summary of the findings from the ITT analyses. Each section is organized according to the five HFM goal areas.

7.1 Findings from Other Evaluations of Healthy Families America Programs

This section presents a brief overview of key outcome findings from other HFA evaluations.[Y]

Goal 1: Prevent Child Abuse and Neglect by Supporting Positive, Effective Parenting

Similar to the present study, other evaluations have examined the HFA program's ability to prevent child maltreatment using both administrative data (Child Protective Services) and self-report data from mothers (e.g., the Conflict Tactics Scale – Parent-Child [CTS-PC] measure). Studies examining program effects on parenting practices and attitudes have used a variety of measures, including standardized questionnaires and observations.

None of the evaluations included in this review found shorter-term effects (in the first three years of child's life) using administrative child maltreatment data.

[Y] Unless otherwise noted, program effects are in the expected direction (i.e., more favorable effects for the treatment group compared to the control group). *Significant* program effects are to be interpreted as those that are statistically significant (i.e., when $p < .05$).

Only one found a longer-term effect (after seven years); in this case the program was effective at reducing the likelihood that a biological mother was identified as a perpetrator of sexual abuse.[38]

However, evidence of program effectiveness in the area of child maltreatment has been shown using self-report data from mothers. Many evaluations, including this one, have used the CTS-PC to measure child maltreatment outcomes, although evaluations often differ in terms of which subscales are used. For the most part, few program effects have been documented for a majority of these subscales. Of the subscales that have shown program effects, the most consistently documented findings include reduced common corporal punishment,[39] mild physical assault,[40] and psychological aggression[41] in the early (first three) years of the child's life. Additionally, one evaluation found a significant program effect on reducing serious physical abuse at years one, two, and seven of the evaluation;[42] however, other evaluations have not detected effects on this subscale.[43]

In terms of promoting positive parenting, HFA evaluations generally have not found significant program effects on parenting attitudes, quality of interactions, or knowledge of child development. However, two evaluations found significant impacts on increasing parenting efficacy,[44] and one study found an effect on improving the quality of the home environment.[45]

Goal 2: Achieve Optimal Health, Growth, and Development in Infancy and Early Childhood

Evaluations have used numerous measures to assess program impacts on child development and health, including standardized measures such as the Bayley Scales of Infant Development (BSID), the Child Behavior Checklist (CBCL), the Stanford-Binet Intelligence Scale, the Ages and Stages Questionnaire (ASQ), the Preschool Language Scale-3 (PLS-3), as well as such indices as the child's birth weight and quality of health care (e.g., availability and quality of a primary health care provider, compliance with recommended number of well-child visits, availability of insurance, history of immunizations, and number of hospitalizations or emergency room visits). Studies typically have failed to find program effects in this goal area, with few exceptions. Two evaluations found a program effect on availability of health care coverage,[46] one found an effect on the birth weight of the children whose mothers were randomized prenatally,[47] and one found an effect on the number of well-child visits.[48] Additionally, only two studies reported significant effects on select subscales of child cognitive and socio-emotional development measures, though a consistent pattern of findings was not identified across studies.[49]

Goal 3: Encourage Educational Attainment, Job, and Life Skills Among Parents

The evaluations reviewed for this report have used a variety of measures to assess outcomes related to Goal 3, including mothers' educational outcomes, receipt of various public assistance programs, family income, and mothers' or other family members' employment. The only domain where program effects have been detected is in maternal education. Specifically, two programs had an impact on whether mothers attend school or training programs.[50]

Goal 4: Prevent Repeat Pregnancies During the Teen Years

Four evaluations examined whether the program had an effect on reducing repeat pregnancies or encouraging birth control use, but no significant impacts were found.[51]

Goal 5: Promote Parental Health and Well-Being

When assessing program impacts on maternal well-being, previous evaluations have examined a wide range of maternal outcomes (e.g., life skills; use of resources; social support; confidence in relationships; alcohol, tobacco and drug use; depression and mental health, intimate partner violence; and loneliness). For the most part, programs have not found significant impacts on these outcomes, with two exceptions. One evaluation found that programs impact mothers' use

of community-based resources (e.g., mental health counseling, financial counseling, center-based family assistance) reported at 6 and 12 months.[52] Another evaluation found that programs reduce mother-perpetrated intimate partner violence after the birth of the child.[53]

Summary

While HFA met the Department of Health and Human Services (DHHS) criteria to be considered an evidence-based early childhood home visiting program model, evaluations of HFA programs have continued to yield findings that are inconsistent across locations. When appropriate, we used many of the same instruments, procedures, and analytic strategies used in these evaluation studies, in order to facilitate comparisons across studies and hopefully contribute to a more coherent overview of HFA effectiveness.

7.2 Descriptive Information on Outcome Variables

In this section we present descriptive information on all variables used in the outcome analyses, for the full evaluation sample (i.e., for the treatment and control groups combined). As was explained in the Chapters 1 and 2, outcome analyses were conducted with data drawn from T2 (12 months post enrollment) and T3 (24 months post enrollment). Descriptive data from both time points are presented in this section, organized by goal area, and are also summarized in Table 24.

Goal 1: Prevent Child Abuse and Neglect by Supporting Positive, Effective Parenting

The primary indicators used for Goal 1 analyses were *administrative reports of child maltreatment, self-reported maltreatment, parenting stress, parenting attitudes and beliefs, parenting sensitivity*, and *parent mind-mindedness* (for more detailed information, see Appendix 2, which reviews all measures used in this study).

Administrative data revealed relatively high rates of child maltreatment for the full evaluation sample. According to agency data from DCF, which covered the period from enrollment to approximately 27 months post enrollment, 31% of all children had some type of maltreatment report on file. Twenty percent of all children had a *substantiated* maltreatment report on file. Of the substantiated maltreatment reports, the majority listed the mother as a perpetrator (either alone or in combination with another perpetrator). Furthermore, of the substantiated reports, the great majority (95%) was for neglect only; the few remaining cases included multiple types of abuse (4%) or physical abuse only (1%). (Note that because the overwhelming majority of substantiated maltreatment cases were neglect only, maltreatment type was not used as an outcome.)

When asked at T3, via the CTS-PC scale, about their methods for discipline, mothers reported a moderate level of nonviolent discipline (M = 48; possible range of 0–100). Mothers' self-reported use of corporal punishment at least once in the past year increased from 27% at T2 to 61% at T3. This is perhaps not surprising, given the increase in child age from T2 to T3, in most cases from an infant to young toddler.

Participants reported relatively high levels of parenting stress on two of the three subscales of the Parenting Stress Index (PSI): *parental distress* and *difficult child*. Specifically, the average score for parenting distress was 29.5 at T2 and 28.7 at T3. For the *difficult child* subscale mothers scored, on average, 23.6 at T2 and 26.4 at T3. (For both subscales the possible range was 12–60 points; scores higher than 35 are considered to be in the clinical range, meaning that mothers might benefit from intervention services.[54]) This suggests that mothers in the sample struggled with issues related to parenting competence, stresses associated with restrictions on a parent's life, conflict with the child's other parent, social support, and depression. Further, this suggests that mothers were finding it difficult to deal with their children. And yet, on the *dysfunctional interaction* subscale, average scores were quite low, and remained well below the clinical threshold (18.1 at T2 and 18.8 at T3; possible range 12–60 and scores higher than 30 considered in the clinical range). This suggests

that mothers generally believed that their child was meeting their expectations, and their interactions with the children were satisfying.

When asked at T3, via the Adult-Adolescent Parenting Inventory (AAPI), about their parenting beliefs and attitudes, mothers endorsed relatively high positive parenting attitudes about child rearing (higher scores indicate more positive beliefs). Specifically, on average, mothers scored 14 (out of 28) on *appropriate expectations of their child*, 28 (out of 40) on *empathy*, and 31 (out of 44) on *disagreement with the use of corporal punishment*.

Analysis of video recordings of parent-child interactions, which were coded using the Emotional Availability Scales (EA), showed that mothers demonstrated moderate levels of sensitivity when interacting with their children (M = 5; the maximum possible score is 9) at both T2 and T3 during both a free-play and teaching task.

Results also showed that mothers demonstrated low behavioral mind-mindedness at both T2 and T3. (*Mind-mindedness* refers to mothers' predisposition to treat their young child as an individual with a mind, rather than only an entity with needs that must be satisfied; see Appendix 2 for more detailed information on this measure.) The proportion of mind-minded comments to all comments was 0.08, meaning that out of each 100 comments made, only eight were mind-minded. Representational mind-mindedness is often used to assess mind-mindedness with older children. The proportion of representational mind-mindedness at T3 was 0.42, meaning that out of each 100 comments made, 42 were mind-minded.

Goal 2: Achieve Optimal Health, Growth, and Development in Infancy and Early Childhood

Next, several outcome measures were used to assess children's health and well-being: *language development, behavioral problems, responsiveness,* and *birth outcomes*.

According to DPH data, 78% of the full evaluation sample met all three criteria to be considered a *healthy birth*, meaning that the child was not born low birth weight (>2,500 grams), was delivered full term (> 37 months), and received a high Apgar score (9 and higher). Program impacts on this outcome were assessed only among women who were pregnant at enrollment (65% of the sample).

Mothers were asked at T3, via the MacArthur-Bates Communicative Development Inventories (MB-CDI), to report on children's English language and communication skills. (Recall, we only used English language proportion scores because the number of children with Spanish language proportion scores was too small to analyze.) On average, children could produce almost one half (42%) of the English words on the MB-CDI list.

As assessed by the Brief Infant Toddler Emotional Assessment (BITSEA) at T3, mothers reported that their children displayed relatively few behavioral problems (M = 13, out of a possible 62) and relatively high competence (M = 18, out of a possible 22).

Analysis of video recordings showed that children's responsiveness to their mothers during both free-play and teaching tasks was moderate. Scores could range from 1 to 7; among MHFE-2 mothers the average scores for free play were 3.8 at T2 and 4.6 at T3, and the average scores for teaching task were 3.3 at T2 and 4.4 at T3.

Goal 3: Encourage Educational Attainment, Job, and Life Skills Among Parents

Indicators used to assess participants' progress toward Goal 3 included *self-reported educational attainment, employment, sufficiency of resources*, and *relative difficulty covering expenses*.

Just over half of mothers (56%) in the full evaluation sample obtained a high school diploma or GED by T2. Not surprisingly, that number increased by T3 to 72%. We also asked mothers if they had enrolled in any postsecondary education. By T2, when mothers were ap-

proximately 20 years old, 8% of mothers had completed at least one year of college; by T3, when mothers were approximately 21 years old, that proportion was 14%. Around one third of participants reported being employed at T2 (28%) and T3 (37%).

Two indicators of financial well-being were used as outcomes for Goal 3: the Family Resource Scale (FRS), and mothers' responses to a question about perceived difficulty covering expenses. Interestingly, when asked about their most basic needs on the FRS (e.g., food for two meals a day, house or apartment, enough clothes for your family), mothers tended to report that most of those needs were met (M = 88 at T2 and M = 87 at T3, out of a possible 100). And yet, a significant portion of the sample also reported having some or major difficulties covering expenses, and this remained relatively stable from T2 to T3 (64% and 63%, respectively). This seems to suggest that MHFE-2 mothers have access to the most basic resources, but still struggle financially to cover all of their expenses.

Goal 4: Prevent Repeat Pregnancies during the Teen Years

To assess mothers' progress toward Goal 4, we used maternal self-report on *repeat pregnancies, births*, and *use of contraceptives*.

Twenty-three percent of mothers in the full evaluation sample experienced a repeat pregnancy by T3, and 14% had a repeat birth after the birth of the target child. A majority of mothers reported using hormonal birth control at T2 and T3 (63% and 58%, respectively). Around one fifth of the sample reported using condoms at T2 and T3 (22% and 19%, respectively).

Goal 5: Promote Parental Health and Well-Being

Indicators used to examine maternal health and well-being included the following: *use of mental health services, personal mastery, engagement in risky behaviors*, and *intimate partner violence*.

About one third of mothers indicated that they had used mental health services at some point between pregnancy and T2 (28%) or between pregnancy and T3 (32%).

Mothers reported rather low levels of perceived personal mastery (M = 1 at T3, possible range = 0–4, with higher scores indicating higher mastery), suggesting that often mothers did not see themselves as being in control of the forces that significantly influence their lives.

Mothers were also asked to report on their engagement in a range of risky behaviors at T3. Thirty-one percent of mothers engaged in three or more risky behaviors, 20% used drugs at least once in their lifetime, and 17% of mothers had consumed five or more drinks of alcohol in a row within a couple of hours in the past month. Forty-five percent of mothers had smoked cigarettes frequently or daily in the past month, and 15% reported having used marijuana in the past month.

Finally, about one third of mothers reported experiencing at least two partner-perpetrated acts of intimate partner violence (36% at T2 and 38% at T3). In addition, many mothers (45% at T2 and 40% at T3) reported perpetrating at least two acts of intimate partner violence against their partners (i.e., *self*-perpetrated intimate partner violence).

7.3 Results from the ITT Analyses (Overall Program Impacts)

This section presents overall program impacts, according to HFM goal area. Program effects were observed in four of the five goal areas, and included findings related to *perpetrator of maltreatment, parenting stress, whether mothers completed at least one year of college, condom use, engagement in risky behaviors, marijuana use*, and *self-perpetrated intimate partner violence*. Below we describe each of these findings in more detail.

Goal 1: Prevent Child Abuse and Neglect by Supporting Positive, Effective Parenting

In keeping with findings from the large majority of home visiting evaluations, administrative data from DCF show that the program did not have an overall impact on the reduction of child maltreatment rates; children in the treatment group were just as likely as those in the

Table 24. **Descriptive Information for Outcomes in the Five HFM Goal Areas**

	%	Mean	Min	Max
Goal 1: Prevent Child Abuse and Neglect by Supporting Positive, Effective Parenting				
Child Maltreatment (DCF Data)				
Any Reports Made Since Enrollment	31			
At Least One Report Substantiated	20			
Substantiated Report, Mother is a Perpetrator	16			
Conflict Tactics Scale – Parent Child (CTS-PC)				
Non-Violent Discipline (T3)		48.16	0.00	100.00
Corporal Punishment ("Ordinary"; T2)	27			
Corporal Punishment ("Ordinary"; T3)	61			
Parenting Stress (PSI)				
Parental Distress (T2)		29.45	12.00	57.00
Parental Distress (T3)		28.69	12.00	56.00
Difficult Child (T2)		23.56	12.00	46.00
Difficult Child (T3)		26.38	12.00	52.00
Dysfunctional Interaction (T2)		18.11	12.00	39.00
Dysfunctional Interaction (T3)		18.84	12.00	40.00
Parenting and Child Rearing Attitudes (AAPI; T3)				
Inappropriate Expectations of Child		14.35	0.00	28.00
Lack of Empathy		27.77	11.00	40.00
Corporal Punishment		31.23	8.00	44.00
Maternal Emotional Availability (EA)				
Sensitivity (Free Play; T2)		4.91	1.00	8.00
Sensitivity (Free Play; T3)		4.86	1.00	8.00
Sensitivity (Teaching Task; T2)		4.56	1.00	7.00
Sensitivity (Teaching Task; T3)		4.86	1.00	8.00
Maternal Mind-Mindedness				
Behavioral (T2)		0.08	0.00	0.40
Behavioral (T3)		0.08	0.00	0.33
Representational (T3)		0.42	0.00	1.00
Goal 2: Achieve Optimal Health, Growth, and Development in Infancy and Early Childhood				
English Language and Communication Skills (MB-CDI; T3)		0.42	0.02	1.00
Socio-Emotional Development (BITSEA; T3)				
Behavioral Problems		12.89	0.00	52.00
Competence		18.01	4.00	22.00
Child Responsiveness (EA)				
Free Play (T2)		3.78	1.00	7.00
Free Play (T3)		4.59	1.00	7.00
Teaching Task (T2)		3.33	1.00	7.00
Teaching Task (T3)		4.36	1.00	7.00
Healthy Birth (DPH data)	78			
Goal 3: Encourage Educational Attainment, Job, and Life Skills Among Parents				
Mother Finished HS Diploma or GED (T2)	56			
Mother Finished HS Diploma or GED (T3)	72			
Mother Finished At Least One Yr. of College (T2)	8			
Mother Finished At Least One Yr. of College (T3)	14			
Currently Employed (T2)	28			

Table 24. **Descriptive Information for Outcomes in the Five HFM Goal Areas (Continued)**

	%	Mean	Min	Max
Currently Employed (T3)	37			
Difficulties in Covering Expenses (T2)	64			
Difficulties in Covering Expenses (T3)	63			
Adequacy of Basic Resources (FRS; T2)		87.66	21.15	100.00
Adequacy of Basic Resources (FRS; T3)		87.36	26.79	100.00
Goal 4: Prevent Repeat Pregnancies During the Teen Years				
Repeat Pregnancy (T3)	23			
Repeat Birth (T3)	14			
Mother Used Condoms (T2)	22			
Mother Used Condoms (T3)	19			
Mother Used Hormonal Birth Control (T2)	63			
Mother Used Hormonal Birth Control (T3)	58			
Goal 5: Promote Parental Health and Well-Being				
Mother Received Mental Health Services Since Pregnancy (T3)	28			
Personal Mastery (T3)	32			
Youth Risk Behavior (YRBS; T3)		0.92	0.00	2.86
Mother Engages in Three or More Risky Behaviors	31			
Mother Consumed Five or More Drinks of Alcohol in a Row within a Couple of Hours	17			
Mother Smoked Frequently/Daily	45			
Mother Used Drugs At Least Once in Lifetime	20			
Mother Used Marijuana	15			
Intimate Partner Violence (CTS2S)				
Self as Perpetrator (T2)	45			
Self as Perpetrator (T3)	40			
Partner as Perpetrator (T2)	36			
Partner as Perpetrator (T3)	38			

Note. T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). AAPI = Adult-Adolescent Parenting Inventory, BITSEA = Brief Infant-Toddler Social and Emotional Assessment, CTS2S = Conflict Tactics Scale – Partner, CTS-PC = Conflict Tactics Scale – Parent-Child, DCF = Department of Children and Families, DPH = Department of Publish Health, EA = Emotional Availability, FRS = Family Resource Scale, PSI = Parenting Stress Index, MB-CDI = MacArthur-Bates Communicative Development Inventories, YRBS = Youth Risk Behavior Surveillance System.

Table 25. **HFM Impacts in Goal 1: Prevention of Child Abuse and Neglect, Positive Parenting Skills**

	B	*OR*	*p*
Department of Children and Families (DCF) Data			
Any Report [a]		1.00	.981
At Least One Substantiated Report		0.88	.594
Perpetrator Identity is Mother (Alone, or in with Other) [b] ***		8.76	<.001
Parenting Stress, Parental Distress Subscale (PSI)			
T2	-1.03		.283
T3 *	-2.12		.019
Parenting Stress, Dysfunctional Interaction Subscale (PSI)			
T2	-0.26		.619
T3	-0.34		.623
Parenting Stress, Difficult Child Subscale (PSI)			
T2 *	-1.45		.035
T3	-0.54		.573
Parenting and Child Rearing Attitudes (AAPI) [c]			
Inappropriate Expectations	0.30		.611
Lack of Empathy	0.49		.410
Corporal Punishment	0.92		.166
Corporal Punishment, "Ordinary" (CTS-PC)			
T2		0.70	.074
T3		0.85	.426
Non-Violent Discipline (CTS-PC)			
T3	-3.13		.317
Mother Sensitivity (Teaching Task)			
T2	-0.13		.487
T3	-0.08		.611
Mind-Mindedness (Behavioral)			
T2	-0.01		.197
T3	-0.01		.384
Mind-Mindedness (Representational; T3)	0.02		.449

Note. *** $p < .001$, ** $p < .01$, * $p < .05$; T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). We present Betas (*B*) for continuous outcomes and Odds Ratios (*OR*) for binary outcomes. DCF = Department of Children and Families, CTS-PC = Conflict Tactics Scale – Parent-Child, AAPI = Adult-Adolescent Parenting Inventory.

[a] Any report filed with DCF was considered, regardless of substantiation.

[b] Analyses for this outcome included mothers with substantiated cases of maltreatment. The reference group includes substantiated reports of maltreatment with other-only perpetrators.

[c] Higher scores on AAPI indicate more positive parenting attitudes and child rearing.

control group to have DCF reports—including "any report" (regardless of substantiation) or substantiated reports (see Table 25).

However, ***among mothers with substantiated DCF maltreatment reports, mothers in the treatment group (HVS) were more likely to be identified as the perpetrator (as opposed to "other-only" perpetrators) than mothers in the control group (RIO)***. Specifically, where there were substantiated DCF maltreatment reports, 90% of mothers in the treatment group (HVS) were identified as the perpetrator, whereas 60% of mothers in the control group (RIO) were identified as the perpetrator.[z]

One explanation that is often provided in the home visiting literature when similar findings have been revealed is that mothers in the treatment group experienced increased surveillance in the home, from the home visitors. This increased surveillance may make it possible for home visitors to provide more detailed information to DCF, which can then be used to determine substantiation. Furthermore, data show that neglect was the predominant type of maltreatment. The presence of the home visitor may be particularly instrumental in determining the perpetrator of neglect; instances of neglect are likely harder to describe to DCF among other individuals who typically file reports, but likely do not directly witness what goes on in the home (e.g., teachers, doctors, neighbors).

The program also had a direct effect on parenting stress. Mothers in the treatment group reported less parenting stress at T2 (Difficult Child Subscale; effect size = 0.22) and T3 (Parental Distress Subscale; effect size = 0.25). On average, HVS mothers scored approximately 23 points on Difficult Child Subscale and 28 points on the Parental Distress Subscale, whereas RIO mothers scored 24 and 30 points on the two measures, respectively. Effect sizes of this magnitude suggest the program had a small but significant impact on parenting stress.

Finally, there was a trend-level impact on mothers' T2 corporal punishment, with 24% of HVS mothers reporting use of harsh discipline compared to 30% of RIO mothers.

Goal 2: Achieve Optimal Health, Growth, and Development in Infancy and Early Childhood

As seen in Table 26, ***no significant effects were detected for Goal 2 outcomes***, including child behavior (problems and competence subscales), English language skills, child responsiveness (teaching task and free play), or healthy baby.

[z] Here we present adjusted probabilities from the regression models.

Table 26. **HFM Impacts in Goal 2: Health, Growth, Development in Infancy and Early Childhood**

	B	*OR*	*p*
Child Behavior Skills, Problem Subscale (BITSEA; T3)	-0.27		.704
Child Behavior Skills, Competence Subscale (BITSEA; T3)	0.06		.803
English Language Skills (MB-CDI; T3)	-0.02		.533
Child Responsiveness Score Teaching Task (EA)			
T2	0.01		.965
T3	-0.12		.486
Child Responsiveness Score Free Play (EA)			
T2	-0.09		.586
T3	-0.07		.640
Healthy Baby (DPH)[a]		1.12	.628

Note. *** $p < .001$, ** $p < .01$, * $p < .05$; T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). We present Betas *(B)* for continuous outcomes and Odds Ratios (*OR*) for binary outcomes. BITSEA = Brief Infant-Toddler Social and Emotional Assessment, MB-CDI = MacArthur-Bates Communicative Development Inventories, EA = Emotional Availability, DPH = Department of Public Health.

[a] Analyses for this outcome included women who were pregnant at enrollment.

Table 27. **HFM Impacts in Goal 3: Mothers' Educational Attainment, Employment, Life Skills**

	B	*OR*	*p*
Mother Finished at Least One Year of College			
T2		1.08	.834
T3 **		1.92	.007
Mother Finished HS Diploma or GED			
T2		0.99	.958
T3		0.87	.524
Mother is Currently Employed			
T2		0.85	.396
T3		0.77	.122
Difficulties Covering Expenses			
T2		1.14	.434
T3		0.88	.423
Adequacy of Basic Resources			
T2	1.29		.257
T3	-0.47		.708

Note. *** $p < .001$, ** $p < .01$, * $p < .05$; T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). We present Betas *(B)* for continuous outcomes and Odds Ratios (*OR*) for binary outcomes.

Table 28. **HFM Impacts in Goal 4: Prevention of Repeat Pregnancies During Teen Years**

	B	*OR*	*p*
Repeat Pregnancy (T3)		0.94	.715
Repeat Birth (T3)		0.73	.160
Mother Uses Condoms			
T2 *		1.61	.015
T3		1.20	.382
Mother Uses Hormonal			
Birth Control			
T2		1.10	.609
T3		0.86	.407

Note. *** $p < .001$, ** $p < .01$, * $p < .05$; T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). We present Betas *(B)* for continuous outcomes and Odds Ratios (*OR*) for binary outcomes.

Goal 3: Encourage Educational Attainment, Job, and Life Skills Among Parents

In Table 27 we summarize the overall impacts related to education, employment, and life skills development (Goal 3). As shown, there was a significant program effect on *educational attainment*; ***mothers in HFM were more likely to finish at least one year of college by T3 than mothers in the control group*** (*OR* = 1.92, *p* = .007). The odds of finishing at least one year of college were nearly double for HVS mothers, when compared to RIO mothers; 17% of HVS mothers completed at least one year of college by T3 whereas only 10% of RIO mothers completed at least one year of college.

Goal 4: Prevent Repeat Pregnancies During The Teen Years

As shown in Table 28, HFM had a significant impact on family planning: ***Mothers in HVS were more likely than those in RIO to use condoms at*** T2; 25% of mothers in HVS reported using condoms, whereas only 18% of mothers in RIO reported this practice.

Goal 5: Promote Parental Health and Well-Being

Several significant effects were detected for Goal 5 outcomes (Table 29). ***Mothers in the treatment group were less likely to engage in three or more risky behaviors than were mothers in the control group.*** Specifically, 36% of RIO mothers reported engaging in three or more risky behaviors, whereas only 25% of HVS mothers did. ***Mothers in the treatment group were also less likely to report using marijuana*** (11%) than were mothers in the control group (20%).

Additionally, ***mothers in the treatment group were less***

Table 29. **HFM Impacts in Goal 5: Parental Health and Well-Being**

	B	*OR*	*p*
Mother Received Mental Health Services After Pregnancy			
T2		1.06	.775
T3		1.23	.259
Personal Mastery (T3)	-0.03		.656
Youth Risk Behavior (YRBS; T3)			
Mother Engages in Three or More Risky Behaviors **		0.59	.004
Mother Consumed Five or More Drinks of Alcohol in a Row Within a Couple of Hours		0.90	.659
Mother Smoked Frequently/Daily		0.68	.143
Mother Used Drugs		0.69	.178
Mother Used Marijuana *		0.49	.026
Intimate Partner Violence, Self as Perpetrator (CTS2S)			
T2 *		0.60	.010
T3		1.12	.658
Intimate Partner Violence, Partner as Perpetrator (CTS2S)			
T2		0.77	.078
T3		1.13	.644

Note. *** $p < .001$, ** $p < .01$, * $p < .05$; T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). We present Betas *(B)* for continuous outcomes and Odds Ratios (*OR*) for binary outcomes. CTS2S = Conflict Tactics Scale – Partner, PSI = Parenting Stress Index, YRBS = Youth Risk Behavior Surveillance System.

likely to report being a perpetrator of intimate partner violence. Slightly over half of the mothers in the control group (51%) reported perpetrating acts of intimate partner violence more than once in the past year, compared to 39% of mothers in the treatment group.

Although only significant at the trend-level, HVS mothers were slightly less likely than RIO mothers to be victims of domestic violence (36% vs. 39%, respectively).

7.4 Chapter Summary

Findings from the ITT analyses of main program effects suggest that HFM is having an impact on families in four of the five goal areas (see Tables 25 – 29 for significant findings). To summarize, when compared to mothers in the control group (RIO), mothers in the treatment group (HVS) were:

- Less likely to experience parenting stress (Goal 1);
- More likely, among mothers with substantiated DCF maltreatment reports, to be identified as the perpetrator (Goal 1);
- More likely to finish at least one year of college (Goal 3);
- More likely to use condoms (Goal 4);
- Less likely to engage in three or more risky behaviors (Goal 5);
- Less likely to use marijuana (Goal 5); and
- Less likely to perpetrate intimate partner violence (Goal 5).

CHAPTER EIGHT

Tiers Four & Five: Understanding the Pathway to Program Impacts

This chapter reviews findings from a set of mediation analyses that were undertaken to help explain the pathways through which HFM impacts may have been achieved. That is, these analyses examined whether HFM had indirect, longer-term effects on outcomes measured at T3 (approximately two years after enrollment), by driving shorter-term change on outcomes measured at T2 (approximately one year after enrollment). Because the intent of these analyses was to understand the pathways through which the program achieves its goals, we explored mediation hypotheses only for those outcomes that (a) were measured at T3, and (b) showed a significant main effect in the Intent to Treat (ITT) analyses.

Table 30. **Proposed Mediators of Program Effects for Each Goal Area**

Goal Area	Mediators (measured at T2)
Goal 1: Prevent Maltreatment by Supporting Positive Parenting	Parental Distress (PSI subscale) Social Connection (PYD)
Goal 2: Achieve Optimal Health, Growth, and Development in Infancy and Early Childhood	Mediation hypotheses were not tested for this goal area, given that there were no main effects of the program on Goal 2 outcomes.
Goal 3: Encourage Educational Attainment, Job, and Life Skills Among Parents	Social Connection (PYD) Connection to School (PYD Subscale) Connection to Community (PYD Subscale) Hours Per Week Target Child Spent in Formal Child Care
Goal 4: Prevent Repeat Pregnancies During the Teen Years	Mediation hypotheses were not tested for this goal area, given that there were no main effects of the program on any of the Goal 4 outcomes measured at T3.
Goal 5: Promote Parental Health and Well-Being	Parental Distress (PSI subscale) Social Connection (PYD)

Note. T2 = Time 2 of data collection (approximately one year post enrollment). PSI = Parenting Stress Index. PYD = Positive Youth Development.

The mediators (i.e., pathway variables) used in these models were chosen for their theoretical merit. Table 30 lists these mediators, by goal area. This section begins with descriptive information on all variables used as mediators in the analyses, followed by results of the pathway models.

8.1 Descriptive Information on Mediators

Descriptive analyses were run for the full sample (i.e., treatment and control groups combined). Descriptive information is summarized below, as well as in Table 31.[AA] All descriptive information provided below is from T2 data.

Mothers reported an average score of 29.5 on parental distress (possible range = 12–60). Parental distress scores at or above 36 indicate clinical levels of distress, meaning that participants had relatively high, though still sub threshold levels of parental distress. According to the authors of the PSI, this suggests mothers might benefit from intervention services.[55]

On average, mothers scored 68 points on the measure of total social connection. More specifically, mothers scored 70 points on Connection to School subscale and 51 points on the Connection to Community subscale. Given that the maximum possible score is 100 on each of these scales, these scores indicate that mothers perceived moderately high levels of support in the social and school domains, but lower community support.

On average, children spent 8.1 hours per week in some form of formal child care (including family child care provider, child care center, Early Head Start, or child care at mother's school).

8.2 Results from the Mediation Analyses

We explored mediation hypotheses only for those outcomes with a significant main effect on a T3 outcome (parenting [Goal 1], employment, education, and financial resources [Goal 3], and maternal well-being [Goal 5]).[AB] As presented below, ***results of these analyses did not support the mediation hypotheses in any of the models that were tested***. Yet, we found several significant pathways illustrating associations between the proposed mediators and the outcomes. These findings are summarized below, by goal area.

Goal 1: Prevent Maltreatment by Supporting Positive Parenting

As previously discussed (see Chapter 7), there was a significant main effect on one T3 outcome related to Goal 1: *parenting distress* at T3. As illustrated in Figure 11, we examined whether reduced parental distress and increased social connection at T2 would be the

[AA] **Descriptive information on these mediator variables is presented elsewhere in the report, given that some mediators also serve as outcomes or moderators. Note: Differences in descriptive information may appear if other analyses use data from a different time point.**

[AB] **In other words, we did not test mediation models for significant program effects where the outcome was measured at T2 or measured using administrative data from government agencies. This decision was made in an effort to ensure temporal precedence (i.e., that the shorter-term mechanisms preceded the longer-term impacts). See Chapter 2 for details.**

Table 31. **Proposed Mediators of Program Effects for Each Goal Area**

	Mean	Min	Max
Parental Distress (PSI Subscale)	29.45	12.00	57.00
Social Connection (PYD)			
Total Score	67.56	0.00	100.00
Connection to Support Subscale	70.42	33.33	100.00
Connection to Community Subscale	51.83	0.00	100.00
Hours Per Week Child Spent in Formal Child Care	8.12	0.00	50.00

Note. All mediators were measured at Time 2 (T2; approximately one year post enrollment). PSI = Parenting Stress Index. PYD = Positive Youth Development.

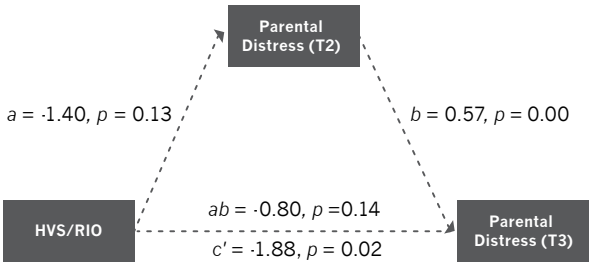
shorter-term mechanism through which the program reduced parental distress at T3.

Figure 11. **Proposed Mediation Model for Goal 1 Outcomes**

Results of this analysis did not support the mediation hypotheses. However, both of the proposed mediators, parental distress and social connection at T2, were associated with the level of parental distress at T3.

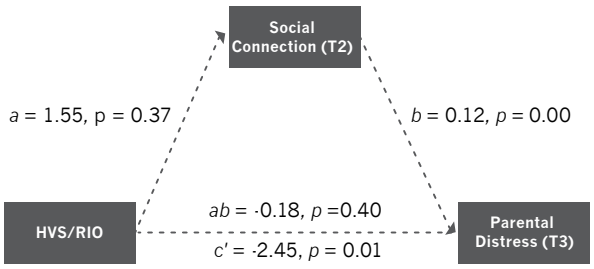
As shown in Figure 12, the direct effect of the program on parental distress (see path *c'* in Figure 12) was statistically significant and consistent with the main effect models. Additionally, parental distress at T2 had a significant positive association with parental distress at T3 (see path *b*). However, the program did not decrease parental distress at T2 (path *a*). In other words, ***while parental distress at T2 was associated with parental distress at T3, the non-significant ab pathway suggests that the program's longer-term impact on parental distress at T3 was not due to a shorter-term impact at T2.***

Figure 12. **Is the Effect of HVS on T3 Parental Distress Mediated by T2 Parental Distress?**



Similarly, as show in Figure 13, social connection at T2 was significantly associated with parental distress at T3 (path *b*); however, there was no association between the program and social connection at T2 (see the non-significant path *a*). In other words, ***there is no evidence that the program's longer-term impact on parental distress at T3 was achieved by having a shorter-term effect on social connection at T2*** (as evidenced by the non-significant *ab* pathway).

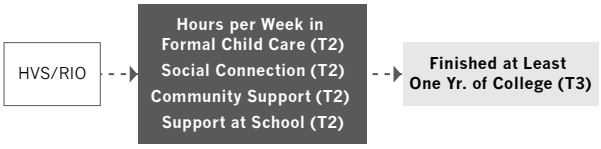
Figure 13. **Is the Effect of HVS on T3 Parental Distress Mediated by T2 Social Connection?**



Goal 3: Encourage Educational Attainment, Job, and Life Skills Among Parents

We hypothesized that the number of hours that children spent in formal child care and higher social connection (including community and school connection) at T2 would be the shorter-term mechanisms through which the program would impact the likelihood of *completing at least one year of college* by T3. Figure 14 illustrates the proposed mediation models.

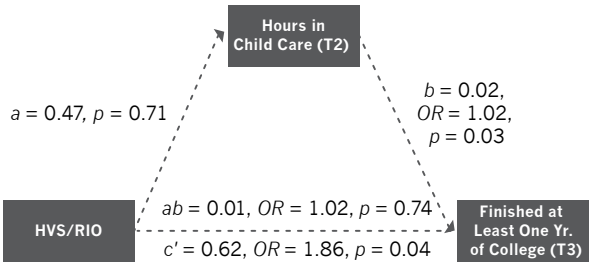
Figure 14. **Proposed Mediation Model for Goal 3 Outcomes**



The first mediator to be examined was *number of hours per week spent in formal child care*. As shown in Figure 15, both the program (path *c'*) and childcare at T2 (path *b*) were significantly associated with mothers' likelihood of finishing at least one year of college by T3. In other words, as hours in child care increased (at T2), mothers were more likely to finish at least one year of college (at T3). However, the total effect (*a*) of the program on the number of hours TC spent in formal child care at T2 was not significant. These findings suggest that ***HVS***

mothers were more likely than RIO mothers to finish at least one year of college, but this was not due to the program's influence on children's child care arrangements.

Figure 15. **Is the Effect of HVS on T3 College Mediated by T2 Hours in Formal Child Care?**



Results did not offer support for the remaining proposed mediators: While the program did have a direct effect on the probability of finishing at least one year of college, it did not have a direct effect on perceived social connection or the two connection subscales, nor were was social connection related to the outcome of interest.

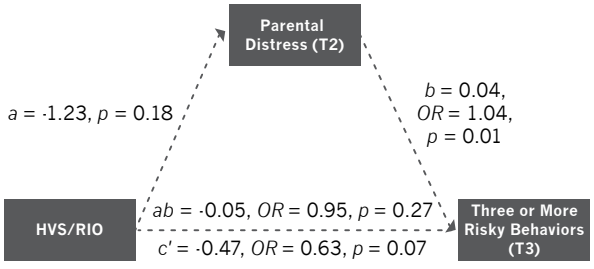
Goal 5: Promote Parental Health and Well-Being

In the Goal 5 area, there were significant main effects on participants' engagement in *risky behaviors and use of marijuana*. Figure 16 illustrates the proposed mediation model, which tested whether reduced parental distress and increased social connection at T2 were the shorter-term mechanisms through which the program impacted mothers' risky behaviors and marijuana use, as reported at T3.

Figure 16. **Proposed Mediation Model for Goal 5 Outcomes**

The first proposed mediator, parental distress at T2, was associated with the odds of engaging in three or more risky behaviors at T3. As shown in Figure 17, and consistent with the models presented above, the program did not decrease parental distress at T2 (path *a*). However, parental distress at T2 was positively associated with the likelihood of the mother engaging in at least three risky behaviors (path *b*). The direct effect of the program on risky behaviors (path *c'*) did not reach statistical significance (as it did in the main effect models), but was marginally significant (p = 0.07), and the direction of the effect was consistent. (This discrepancy is likely due to the change in analytic sample, given that these models only included mothers with data on both the outcome and mediator.) To summarize, ***while parental distress at T2 was associated with a greater likelihood of engaging in risky behaviors at T3, there is no evidence that this was the mechanism through which the program had longer-term impacts on risky behaviors*** (as evidenced by the non-significant ab pathway).

Figure 17. **Is the Effect of HVS on T3 Risky Behaviors Mediated by T2 Parental Distress?**



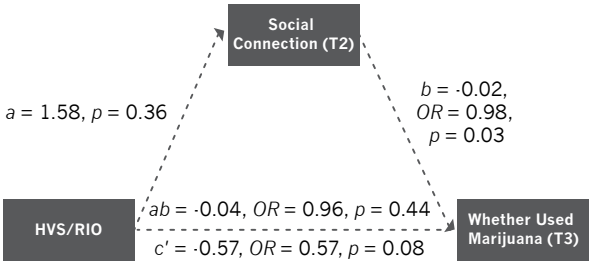
Finally, the second proposed mediator, social connection at T2, was associated with the odds of using marijuana at T3. As shown in Figure 18, social connection at T2 (path *b*) was negatively associated with marijuana use at T3 (i.e., as social connection increases, mothers were less likely to report using marijuana). However, the program did not increase social connection at T2 (as evidenced by the non-significant path *a*). The direct effect of the program on marijuana use (path *c'*) was marginally significant (p = 0.08), and the direction of the effect was consistent with the main effect models. In other words, ***while social connection was associated with reductions in mothers' odds of using marijuana, there is no evidence to support the hypothesis that social connection was the mechanism through which the program had longer-term***

impacts on these outcomes.

8.3 Chapter Summary

Several analyses were conducted to explore possible pathways through which HFM impacts were achieved. We selected a set of mediators for each goal area based on theoretical and empirical research. Analyses did not reveal any instances in which the proposed mediators explained the pathway between random assignment and its longer-term effect on the T3 outcome. It is likely that some other mediating mechanisms explain the pathways; we will continue to explore these possibilities.

Figure 18. **Is the Effect of HVS on T3 Use of Marijuana Mediated by T2 Social Connection?**



Nevertheless, a few interesting patterns did emerge. First, results show that, when children spent more time in child care at T2, mothers were more likely to finish at least one year of college by T3. Although the program did not have an effect on child care arrangements, it appears to be an important factor in helping young women attend college. Secondly, lower parenting distress and higher social connections at T2 were associated with lower engagement in risky behaviors at T3 and lower parenting distress at T3. As such, earlier parental distress and lack of social connections appear to be important risk factors for mothers' longer-term well-being.

To summarize, several shorter-term factors were associated with more favorable longer-term outcomes. Given that most mothers stay in the program for one year, which coincides with the time of T2 assessment, it may be advisable for the program to focus on impacting those shorter-term goals. It is possible that by having an impact on the shorter-term goals, the program would help mothers gain the skills they need to achieve more of the longer-term goals of the program even if the mother only stays in the program for one year. Taken together, our findings propose several opportunities on which the program could capitalize.

CHAPTER NINE

Tiers Four & Five: Understanding Differential Goal Achievement by Subgroups

Subgroup analyses allow us to test whether the magnitude of program impacts differed depending on mothers' experiences and background characteristics. This set of follow-up analyses is important because HFM serves a heterogeneous group of mothers: Each mother brings a unique set of experiences and background characteristics with her when she enrolls in the program. Given this diversity, it is reasonable to expect that the program would be more effective for mothers with certain experiences and background characteristics than for others. For example, the program might have larger impacts for the most vulnerable mothers, such as those mothers who experience more instability (e.g., high mobility, or less support from family members). Alternatively, it might be those mothers who are more stable who are able to fully benefit from the services.

This chapter begins with a presentation and description of the variables used to construct the subgroups for these analyses, followed by the results from these subgroup analyses.

9.1 Descriptive Information on Subgroups

The subgroups included in this series of analyses were chosen for their theoretical relevance and/or common usage in other home visiting program evaluations. Subgroups were formed according to the following characteristics:

- Maternal age at child's birth,
- Number of residences in last year,
- Adequacy of basic resources,
- Level of financial difficulties,
- Social connection,
- Maternal depression (including a continuous score and a clinical cutoff score),

- Trauma exposure,
- Post-traumatic stress disorder (PTSD),
- Intimate partner violence,
- Maternal race and ethnicity,
- Whether the mother cohabitates with father of the baby,
- Whether the mother lives with an adult relative/guardian,
- The mother's own history of child abuse and neglect,
- Whether the mother is in a committed relationship with the father of baby,
- Whether the mother was pregnant or parenting at enrollment, and
- Community cluster.[AC] [AD]

[AC] We test all outcome variables, with the exception of perpetrator of DCF maltreatment report (due to small sample size constraints).

[AD] All moderators were assessed at T1 or were time invariant. See Appendix 2 for more detailed information about the variables used for subgroup analyses.

Before summarizing the results, descriptive information (i.e., means and percentages) for each of the subgroup characteristics is presented for the full sample (i.e., treatment and control groups combined). The characteristics were grouped into the following categories: *demographic characteristics, mental health and well-being, living arrangements*, and *community characteristics* (see Table 32). Unless otherwise specified, the data reported below were collected at the T1 interview.

Demographic Characteristics

At the birth of the target child (TC), mothers were, on average, 18.8 years of age. Over two thirds of the sample self-identified as non-Hispanic White or Hispanic (37% and 36%, respectively); the remainder self-identified as non-Hispanic Black (19%) or non-Hispanic other (8%). About one third of mothers were parenting at time of enrollment (35%) and almost half (47%) were in a committed relationship with the father of the baby. Mothers reported that, for the most part, their *basic needs* (e.g., food for two meals a day, house or apartment, enough clothes for your family) were met (M = 85, out of a possible score of 100). Mothers also reported an average score of 2.6 on the measure of *financial difficulties*, which indicates some difficulties (the possible range was 1 = no difficulties to 4 = major difficulties).

Mental Health and Well-Being

Several measures were used in the subgroup analyses related to *social connection, mental health, history of maltreatment*, and *intimate partner violence*. On average, mothers scored 68 points (out of a possible range of 0 to 100) on the measure of total social connection, indicating that mothers felt moderately high connection to their families, schools, and communities. Mothers scored an average of 14.3 points on the continuous measure of depression, and 38% of mothers scored above the clinical cutoff (16 or higher). Mothers reported that they and their partners perpetrated an average of three violent acts towards each other. More than half of the mothers (55%) had substantiated reports of maltreatment as a child. On average, mothers experienced three traumatic events in their lives, and the majority met the criteria for either full or partial PTSD (39% met full criteria, 29% met partial criteria, and 31% did not meet criteria).

Living Arrangements

Three indicators of maternal living arrangements were used in these analyses: *number of moves in the previous year*, *whether the mother lived with the father of the baby,* and *whether she lived with an adult relative or guardian*. On average, mothers lived in two locations in the year prior to enrolling in the evaluation. A little more than one quarter of mothers lived with the father of the baby (27%) and about three quarters lived with an adult relative or guardian (73%).

Community Characteristics

As described in Section 1.3.2, 2010 Census data on *income, ethnic diversity*, and *population density* were used to characterize, at the block group level, the types of communities in which participants lived. Results of cluster analyses indicated participants lived in three community types: majority White with low population density and moderate income (47%); ethnically diverse, moderate population density, and low to moderate income and (30%); ethnic-minority majority with high population density and low income (23%).

9.2 Results from the Subgroup Analyses

As seen in Table 33, results revealed many instances in which program effects differed depending on mothers' experiences and background characteristics. In fact, these analyses revealed significant program impacts for certain subgroups across all five goal areas, including those goal areas in which main effects were not detected (see Chapter 7).

Results suggest that program impacts differ depending on maternal risk factors. As is the case with findings in other home visiting evaluations, the patterns that emerged from these analyses were not entirely consistent. In some instances, the program appeared to have larger impacts for the most vulnerable mothers, but there were also models suggesting that the program was more effective for mothers who experienced greater stability. We present the findings separately, for both situations. Results also highlighted several interesting patterns of program effects according to

Table 32. **Descriptive Information for Subgroup Measures**

	%	Mean	SD	Min	Max
Demographic Characteristics					
Maternal Age at Child's Birth (Years)		18.76	1.28	15.05	21.44
Maternal Race and Ethnicity					
White, Non-Hispanic	37				
Black, Non-Hispanic	19				
Hispanic	36				
Other, Non-Hispanic	08				
Mother Parenting at Enrollment	35				
Whether Mother in Committed Relationship with Father of Baby	47				
Adequacy of Basic Resources		85.21	14.52	31.25	100.00
Level of Financial Difficulties		2.56	0.94	1.00	4.00
Maternal Well-Being					
Social Connection		67.56	16.20	0.00	100.00
Maternal Depression					
Continuous		14.31	10.64	0.00	55.00
Clinical Cutoff	38				
Trauma Exposure		3.34	2.96	0.00	9.50
Post-Traumatic Stress Disorder (PTSD)					
Does Not Meet PTSD Criteria	31				
Meets Partial PTSD Criteria	29				
Meets Full PTSD Criteria	39				
Mother's Own History of Child Abuse and Neglect	55				
Intimate Partner Violence		3.48	2.94	0.00	16.00
Living Arrangements					
Number of Residences in Last Year		2.00	1.69	1.00	29.00
Mother Cohabitates with Father of the Baby	27				
Mother Lives with an Adult Relative/Guardian	73				
Community Characteristics					
Community Cluster					
1	47				
2	30				
3	23				

Note. Mediators were measured at T1, with the exception of Social Connection and Intimate Partner Violence, which were measured at T2. Further, mother age at birth of TC and mother's own history of child abuse and neglect (DCF data) could happen after T1. PTSD = Post-Traumatic Stress Disorder; Community Cluster 1 = moderate

maternal background characteristics (e.g., race/ethnicity, community context). Finally, some results were counter to program expectations; we discuss these findings last, and offer some possible explanations.

Program Effects Larger for More Vulnerable Mothers

Several findings suggest that the more vulnerable mothers benefited more from the program than mothers with lower levels of risk. This was the case for several outcomes related to *parenting* (Goal 1). For example, the program was more effective at decreasing mothers' use of corporal punishment for mothers who had greater exposure to traumatic events. Along related lines, the program was more effective at reducing mothers' dysfunctional interactions with their children among mothers who reported higher residential mobility, and reducing mothers' parenting stress, as well as their perceptions of their children as difficult among mothers who did

not reside with the father of their baby.

A similar pattern was observed for Goal 2 (*healthy child development*) outcomes. The program had a more positive impact on mothers' likelihood of having a healthy birth among the subgroups of mothers who were depressed and reported major financial difficulties. The program also had a favorable impact on children's language and communication skills among the most residentially mobile mothers.

With regard to program impacts on *financial and educational outcomes* (Goal 3), the program was more effective at increasing mothers' access to basic resources (as measured by the FRS) among mothers who (a) reported greater levels of intimate partner violence, (b) presented with more PTSD symptomatology, and (c) had undergone greater exposure to traumatic events. The program was also more effective at helping mothers complete at least one year of college when mothers experienced greater levels of intimate partner violence and were not in a committed relationship with the father of their babies.

Finally, the program was sometimes more effective at helping more vulnerable mothers to *reduce risky behaviors* (Goal 5). For example, the program was more effective at reducing smoking behaviors among mothers who had moderate to high levels of trauma exposure, and reported more depressive symptoms. Finally, the program was more effective at reducing overall engagement in risky behaviors (i.e., mothers' report of three or more risky behaviors) among mothers who reported greater levels of depressive symptoms.

Larger Program Effects for Less Vulnerable Mothers

Other results, however, suggest that the program had a greater impact on mothers who were less vulnerable. There were several outcomes related to parenting (Goal 1) for which this was the case. Program effects on maternal mind-mindedness were greater for mothers who reported having more basic resources (as measured by the FRS) and mothers who had higher levels of social connection. Furthermore, program impacts on parental stress were greater for mothers who reported higher levels of basic resources and had only partial or no PTSD symptoms.

Program impacts on child behavior (i.e., the competence subscale of the BITSEA , Goal 2) were more pronounced among mothers who did not have a substantiated report of maltreatment during their childhood. The program was also more effective at *preventing repeat pregnancy* (Goal 4) among older mothers.

Finally, the program was sometimes more effective at reducing mothers' engagement in risky behaviors among less vulnerable mothers (Goal 5). For example, the program was more effective at reducing mothers' marijuana use when mothers had no PTSD symptomatology. Furthermore, the program was more effective at reducing overall drug use when mothers had very low levels of residential mobility and lived with an adult relative or guardian. The program was effective at reducing smoking among mothers in committed relationships with the father of their baby.

Program Effects According to Mothers' Demographic Characteristics

Analyses testing whether program impacts differed according to mothers' background characteristics revealed several interesting trends. Analyses using maternal race/ethnicity as a moderator showed that ***most impacts were statistically significant within the group of non-Hispanic Black mothers***, including corporal punishment (Goal 1), repeat pregnancy (Goal 4), intimate partner violence (including both self and partner as perpetrator), and smoking (Goal 5). Just two significant program effects were detected for non-Hispanic White mothers, including favorable impacts on maternal mind-mindedness (representational) and parental distress (Goal 1). Finally, only one significant program impact was detected for Hispanic mothers. In this instance, Hispanic mothers in the treatment group were actually *less* likely to finish high school or a GED program than Hispanic mothers in the control group (Goal 3).[AE]

Interestingly, findings also revealed that the ***program***

[AE] The group of mothers who self-identified as "non-Hispanic other" was included in the analyses; however, we do not interpret differences between this group and the three remaining race/ethnicity groups due to the very small sample size of this group.

was more effective in several outcome areas among mothers who enrolled when they were already parenting. The program had more favorable effects on beliefs about corporal punishment (Goal 1), repeat birth (Goal 4), and self-perpetrated intimate partner violence perpetration (Goal 5) when mothers enrolled after the birth of their child. Although these mothers were less likely than RIO mothers to be employed.

Finally, results showed that ***program effects sometimes varied according to community profiles, although these were not in a consistent direction.***

Other Subgroup Patterns

Several unexpected patterns emerged from the data. In some instances we found what might appear to be more optimal outcomes for certain subgroups when mothers were assigned to the *control group* (RIO), compared to those in the treatment group (HVS). This pattern appeared to be concentrated in two goal areas: *parenting* (Goal 1) and *employment and perceived adequacy of resources* (Goal 3). ***For the more vulnerable subgroups only, results showed that several indicators of parenting skills (Goal 1) were more favorable for those in the control group.*** These findings were mostly limited to outcome data that were collected using video recordings (e.g., maternal mind-mindedness, maternal emotional availability). One possible hypothesis for this pattern of findings is that the more vulnerable mothers in the treatment group may have altered their behavior during the videotaping in response to prior "surveillance" by home visitors (i.e., an "observer effect" that arises when people respond to the knowledge they are being observed). One of the HFM goals is to help parents recognize strengths and challenges in their own parenting behaviors; it is possible that those more vulnerable mothers who had felt themselves being "observed" by their home visitor were more wary and self-conscious (than mothers in the control group) when being observed by the research team.

When the outcome of interest was mothers' perception of financial difficulties and basic resources (FRS; Goal 3), more optimal outcomes were found in RIO (control group) mothers belonging to the following subgroups: (a) lower levels of depression, (b) older, (c) lower trauma exposure, and (d) Community Cluster 2: low-moderate income, moderate population density, ethnically diverse.

These findings are obviously counter to program expectations, which hold that the program should be helping mothers to access basic resources (not preventing them from doing so), especially given HFM's focus on referring participants to community resources (e.g., child care centers, public housing services, charities that provide free furniture or toys). It is important to remember, however, that this scale assesses mothers' *perceived* adequacy of resources and financial difficulties, not their *actual* resources. It is possible that, at least for these particular subgroups of mothers, participants in the RIO group were less cognizant of what they did not have than were the HVS participants, precisely because they did *not* have a home visitor working to increase their awareness of what they needed and how to meet those needs. If this was the case, it is reasonable that mothers in the treatment group perceived themselves as having fewer resources than mothers in the control group. Whether this perceived lack of resources has longer-term impacts on mothers' actual obtainment of these resources is a question that can be probed further with longitudinal data.

Next, for some subgroups of mothers, results showed that mothers in the treatment group were *less likely to be employed* (Goal 3) than those in the control group. This pattern was found for mothers in the following subgroups: (a) mothers who enrolled after pregnancy, (b) mothers who cohabitated with the father of the baby, (c) mothers with higher levels of social connection, and (d) mothers who reported lower residential mobility. One possible explanation is that the program is emphasizing certain decisions as opposed to others for mothers with these characteristics. For example, HFM may be encouraging mothers to focus on goals such as college attainment over employment goals. Given that college completion is often a prerequisite for higher paying jobs, this finding might suggest that HFM is helping mothers to develop more successful career trajectories.

Table 33. **Results from Subgroup Analyses: Do Program Impacts Vary by Subgroup?**

Moderator [a]	Goal Area	Outcome	*p*-value for Interaction	Subgroup	Difference between HVS and RIO [b]	
					Predicted Averages	Predicted Probabilities
Maternal Depression, Clinical Cutoff	2	Healthy Birth (DPH)	0.017	Below Cutoff		-0.06
				Above Cutoff		0.14*
	5	Whether Mother Engaged in Three or More Risky Behaviors (T3)	0.034	Below Cutoff		-0.04
				Above Cutoff		-0.22**
Maternal Depression, Clinical Continuous	1	Maternal Mind-Mindedness, Behavioral (T3)	0.030	Low	0.02	
				Average	-0.01	
				High	-0.03*	
	3	Difficulties in Covering Expenses (T2)	0.034	Low		0.11**
				Average		0.02
				High		-0.06
	5	Whether Mother Engaged in Three or More Risky Behaviors (T3)	0.019	Low		0.00
				Average		-0.10*
				High		-0.21***
	5	Whether Mother Smoked Frequently/-Daily (YRBS, T3)	0.019	Low		0.01
				Average		-0.08
				High		-0.17*
Intimate Partner Violence (CTS, T2)	1	Maternal Sensitivity, Teaching Task (EA, T2)	0.014	Low	0.22	
				Average	-0.15	
				High	-0.51†	
	3	Adequacy of Basic Resources (FRS, T3)	0.029	Low	-3.66	
				Average	-0.17	
				High	3.32*	
	3	Whether Mother Finished At Least One Year of College (T2)	0.009	Low		-0.04
				Average		0.02
				High		0.09*
Mother's Own History of Child Abuse and Neglect (DCF)	2	Social-Emotional and Behavioral Adjustment, Competence Score (BITSEA, T3)	0.003	No	0.88*	
				Yes	-0.69 †	

Table 33. **Results from Subgroup Analyses: Do Program Impacts Vary by Subgroup? (cont.)**

Moderator [a]	Goal Area	Outcome	*p*-value for Interaction	Subgroup	Difference between HVS and RIO [b]	
					Predicted Averages	Predicted Probabilities
Timing of Random Assignment	1	Parenting and Child Rearing Attitudes, Corporal Punishment (AAPI, T3)	0.011	Pregnant	-0.09	
				Parenting	3.21**	
	3	Employment Status (T3)	0.017	Pregnant		0.00
				Parenting		-0.16**
	4	Repeat Birth (T3)	0.029	Pregnant		0.01
				Parenting		-0.10*
	5	Intimate Partner Violence, Self As Perpetrator (CTS, T2)	0.031	Pregnant		-0.06
				Parenting		-0.27**
Adequacy of Basic Resources (FRS)	1	Maternal Mind-Mindedness, Representational (T3)	0.044	Low	-0.04	
				Average	0.02	
				High	0.08*	
	1	Parental Distress (PSI, T2)	0.016	Low	0.23	
				Average	-1.38	
				High	-2.98*	
Level of Financial Difficulties	2	Healthy Birth (DPH)	0.032	No Difficulties		-0.13
				Major Difficulties		0.17*
Community Cluster [c]	1	Maternal Sensitivity, Free Play (EA, T3)	0.025 (2 vs. 3)	1	-0.09	
				2	0.11	
				3	-0.71**	
	1	Parental Distress (PSI, T2)	0.022 (2 vs. 3)	1	-1.67	
				2	2.10	
				3	-3.06†	
	3	Adequacy of Basic Resources (FRS, T3)	0.048 (1 vs. 3)	1	-0.62	
			0.009 (2 vs. 3)	2	-4.59*	
				3	4.86†	
	4	Whether Mother Used Condoms (T2)	0.035 (1 vs. 2)	1		0.11*
			0.000 (2 vs. 3)	2		-0.06
				3		0.16***
	4	Whether Mother Used Hormonal Birth Control (T2)	0.041 (2 vs. 3)	1		0.01
				2		0.13†
				3		-0.05
	4	Whether Mother Used Hormonal Birth Control (T3)	0.013 (1 vs. 2)	1		-0.15**
			0.021 (1 vs. 3)	2		0.12
				3		0.02

Table 33. **Results from Subgroup Analyses: Do Program Impacts Vary by Subgroup? (cont.)**

Moderator [a]	Goal Area	Outcome	*p*-value for Interaction	Subgroup	Difference between HVS and RIO [b]	
					Predicted Averages	Predicted Probabilities
Mother Cohabitates with Father of the Baby	1	Difficult Child (PSI, T2)	0.004	No	-2.38**	
				Yes	1.39	
	1	Parental Distress (PSI, T3)	0.020	No	-3.07*	
				Yes	0.68	
	3	Employment Status (T3)	0.000	No		0.01
				Yes		-0.21**
Relationship Status with Father of the Child	1	Maternal Mind-Mindedness, Behavioral (T2)	0.039	Not Committed	0.00	
				Committed	-0.03*	
	3	Whether Mother Finished At Least One Year of College (T3)	0.004	Not Committed		0.11***
				Committed		0.03
	5	Whether Mother Smoked Frequently/ Daily (YRBS, T3)	0.028	Not Committed		0.03
				Committed		-0.21**
Maternal Race and Ethnicity	1	Corporal Punishment, Ordinary (CTS, T2)	0.011 (White vs. Black)	White		-0.02
				Black		-0.24***
				Hispanic		-0.08
	1	Maternal Mind-Mindedness, Representational (T3)	0.049 (White vs. Black)	White	0.07*	
				Black	-0.04	
				Hispanic	0.01	
	1	Parental Distress (PSI, T2)	0.003 (White vs. Hispanic)	White	-4.37**	
				Black	-0.20	
				Hispanic	0.98	
	3	Whether Mother Finished HS or GED (T3)	0.042 (White vs. Black) 0.011 (White vs. Hispanic)	White		0.12†
				Black		-0.08
				Hispanic		-0.17*
	4	Repeat Pregnancy (T3)	0.023 (Black vs. Hispanic)	White		0.00
				Black		-0.12*
				Hispanic		0.08†
	5	Intimate Partner Violence, Partner as Perpetrator (CTS, T2)	0.000 (Black vs. Hispanic)	White		-0.11
				Black		-0.26***
				Hispanic		0.09

Table 33. **Results from Subgroup Analyses: Do Program Impacts Vary by Subgroup? (cont.)**

Moderator [a]	Goal Area	Outcome	*p*-value for Interaction	Subgroup	Difference between HVS and RIO [b]	
					Predicted Averages	Predicted Probabilities
Maternal Race and Ethnicity (continued)	5	Intimate Partner Violence, Self as Perpetrator (CTS, T2)	0.006 (Black vs. White) 0.000 (Black vs. Hispanic)	White Black Hispanic		-0.11† -0.43*** 0.02
	5	Whether Mother Smoked Frequently/ Daily (YRBS, T3)	0.031 (Black vs. Hispanic)	White Black Hispanic		-0.04 -0.24* 0.00
Whether Mother Lives with an Adult Relative/Guardian	5	Whether Mother Used Drugs (YRBS, T3)	0.002	No Yes		0.09 -0.11**
Number of Residences in Last Year	1	Non-Violent Discipline (CTS, T3)	0.023	1 2 3 4 5	-6.67* -3.05 0.56 4.17 7.78	
	1	Dysfunctional Interaction (PSI, T3)	0.006	1 2 3 4 5	0.60 -0.35 -1.29 -2.23* -3.17*	
	2	Language and Communication Skills (MB, T3)	0.018	1 2 3 4 5	-0.06† -0.02 0.03 0.07 0.11†	
	3	Employment Status (T3)	0.041	1 2 3 4 5		-0.10* -0.02 0.05 0.12 0.17†
	5	Whether Mother Used Drugs (YRBS, T3)	0.003	1 2 3 4 5		-0.11* -0.07 0.00 0.08 0.17*
Maternal Age At Child's Birth	3	Adequacy of Basic Resources (FRS, T3)	0.005	Younger Average Older	1.84 -0.43 -2.69†	
	4	Repeat Pregnancy (T3)	0.034	Younger Average Older		0.05 -0.01 -0.07*
Social Connection (PYD, T2)	1	Non-Violent Discipline (CTS, T3)	0.029	Low Average High	-9.31* -2.72 3.87	
	1	Maternal Mind-Mindedness, Behavioral (T3)	0.000	Low Average High	-0.04** -0.01 0.02*	
	3	Employment Status (T2)	0.040	Low Average High		0.06 -0.01 -0.10†

Table 33. **Results from Subgroup Analyses: Do Program Impacts Vary by Subgroup? (cont.)**

Moderator [a]	Goal Area	Outcome	*p*-value for Interaction	Subgroup	Difference between HVS and RIO [b]	
					Predicted Averages	Predicted Probabilities
Post-Traumatic Stress Disorder (UCLA)	1	Dysfunctional Interaction (PSI, T2)	0.042 (Full vs. None) 0.030 (Full vs. Partial)	None	-1.95†	
				Partial	-2.08*	
				Full	0.48	
	1	Maternal Sensitivity, Free Play (EA, T2)	0.037 (Partial vs. None)	None	-0.90*	
				Partial	0.23	
				Full	-0.34	
	1	Maternal Sensitivity, Teaching Task (EA, T3)	0.008 (Full vs. None)	None	0.15	
				Partial	-0.15	
				Full	-0.92*	
	2	Child Responsiveness, Free Play (EA, T2)	0.034 (Full vs. Partial)	None	0.09	
				Partial	0.11	
				Full	-0.68*	
	3	Adequacy of Basic Resources (FRS, T3)	0.031 (None vs. Full) 0.048 (Full vs. Partial)	None	-2.89	
				Partial	-3.15	
				Full	4.15†	
	3	Whether Mother Used Marijuana (Past Month; YRBS, T3)	0.012 (None vs. Partial)	None		-0.26***
				Partial		0.09*
				Full		-0.01
Trauma Exposure (UCLA)	1	Corporal Punishment, Ordinary (CTS, T3)	0.029	Low		0.06
				Average		-0.05
				High		-0.13†
	3	Adequacy of Basic Resources (FRS, T3)	0.003	Low	-4.49*	
				Average	0.01	
				High	4.50*	
	4	Whether Mother Used Hormal Birth Control (T3)	0.05	Low		-0.16*
				Average		-0.06
				High		0.04
	5	Whether Mother Smoked Frequently/ Daily (YRBS, T3)	0.006	Low		0.02
				Average		-0.14*
				High		-0.28**

Note. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$; We only present statistically significant results (i.e., instances when the overall interaction was statistically significant in the regression model). We test all outcome variables, with the exception of Perpetrator of DCF Maltreatment Report (due to small sample size constraints). T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). AAPI = Adult-Adolescent Parenting Inventory, BITSEA = Brief Infant-Toddler Social and Emotional Assessment, CTS2S = Conflict Tactics Scale–Partner, CTS-PC = Conflict Tactics Scale – Parent-Child, DCF = Department of Children and Families, DPH = Department of Publish Health, EA = Emotional Availability, FRS = Family Resource Scale, PSI = Parenting Stress Index, MB-CDI = MacArthur-Bates Communicative Development Inventories, YRBS = Youth Risk Behavior Surveillance System.

[a] For continuous moderators we present HVS – RIO differences for *High* (1 SD above the mean), *Average* (at the mean), and *Low* (1 SD below the mean) values of the moderator. For Maternal Age At Child's Birth, *Younger* = 17.48 Years, *Average* = 18.76 Years, and *Older* = 20.05 Years; for Maternal Depression, *Low* = 3.67 points, *Average* = 14.31 points; and *High* = 24.95 points; for Adequacy of Basic Resources (FRS), *Low* = 70.69 Points, *Average* = 85.22 points, and *High* = 99.73 points; for Trauma Exposure, *Low* = 0.38, *Average* = 3.34, and *High* = 6.29; for Social Connection, *Low* = 51.37, *Average* = 67.56, and High = 83.76; and for Intimate Partner Violence, *Low* = 0.54, *Average* = 3.48, and *High* = 6.42.

[b] For continuous outcomes we present the program effect as a difference in mean scores (i.e., HVS Average Score – RIO Average Score). For binary outcomes we present the difference in terms of predicted probabilities (i.e., the average predicted probability for HVS minus the average predicted probability for RIO).

[c] Cluster 1: moderate income, low population density, majority of European ethnicity; Cluster 2: low-moderate income, moderate population density, ethnically diverse; Cluster 3: low income, high population density, ethnic-minority majority.

9.3 Chapter Summary

In this chapter we explored whether HFM was more or less effective for different groups of mothers, depending on their experiences and background characteristics. The results presented in this section confirm how important it is to conduct subgroup analyses when evaluating a program with a participant population as diverse as that of HFM. ***Program impacts were found for particular subgroups even in those goal areas for which there were no main effects.***

Findings from these analyses revealed several interesting, although somewhat complex, patterns of results. First, it is clear that the magnitude of program effects tended to vary depending on whether mothers exhibited more or less vulnerability, though the direction of those differentiations was by no means consistent. Depending on the particular outcome and subgroup used in the model, it was sometimes the case that *more* vulnerable mothers benefited more from the program, and sometimes the case that program had a greater impact on mothers who were *less* vulnerable.

Findings related to mothers' background characteristics were slightly more consistent, with favorable program effects more likely to accrue among non-Hispanic Black mothers in a variety of outcome areas, when compared to non-Hispanic White or Hispanic mothers. Finally, findings also revealed that program effects varied depending on whether the mother was pregnant or parenting at enrollment. The program had more favorable effects on corporal punishment, repeat birth, and self-perpetrated intimate partner violence when mothers enrolled after the birth of their child.

Several unexpected patterns emerged from the data. In some instances we found what might appear to be more optimal outcomes for certain subgroups when mothers were assigned to the control group (RIO), compared to those in the treatment group (HVS). This pattern appeared to be concentrated in two goal areas: Goal 1 (parenting) and Goal 3 (employment and perceived adequacy of resources). We offered a few possible explanations for these results (e.g., how the construct was measured, what decisions the program might have been emphasizing or not emphasizing, the "observer effect"), but, as will be discussed in a later section, this is certainly an area requiring further research.

CHAPTER TEN

Tiers Four & Five: The Links Between Utilization and Outcomes

In addition to discerning differences between the HVS and RIO groups, program staff and policy makers, understandably, are also interested in how various patterns of program use promote the achievement of program outcomes. This chapter, then, presents results from Tier Four activities examining the links between program utilization and maternal and child outcomes. We explored these questions in two phases.

The first phase of our analyses examined whether program utilization was associated with outcomes in the five goal areas.[AF] Specifically, analyses explored whether outcomes were related to indicators of program use, including (a) number of home visits, (b) number of secondary activities,[AG] (c) whether the mother attended any groups, and (d) the nature of mothers' relationship with their home visitors (i.e., home visitor-mother relationship profiles).

The second phase consisted of more in-depth analyses related to optimal dosage (in terms of the number of home visits). Specifically, we explored whether a minimum number of home visits was necessary before associations could be detected between home visits and outcomes. In other words, this analysis allowed us to explore the possibility that an association between home visits and outcomes might not appear until a specific threshold of visits was reached by mothers. We selected two possible thresholds to test: a *low* and a *high one*. The low threshold was five visits. Because the first few visits are typically devoted to administrative activities, such as completing intake and assessment documents, it has been suggested in the field that fewer than five home visits may not be a dosage sufficient enough to enable mothers to benefit from services.[56] We then repeated this process using a higher threshold of 18 visits, chosen because one of HFM's program benchmarks is that participants receive at least 18 visits per year enrolled.

As a reminder, as is the case with the findings presented in Chapters 5 and 6, the analyses described in this chapter, as well as Chapter 11, were conducted only on the HVS group, and are therefore correlational, and not causal.

10.1 Results from the Utilization Analyses

First, we present results from analyses that examined the overall association between utilization and outcomes. They are followed by results from threshold analyses,

[AF] We test all outcome variables, with the exception of perpetrator of DCF maltreatment report (due to small sample size constraints).

[AG] *Secondary activities* is a term used to describe any non-visit activities conducted by the home visitor or HFM staff with, or on behalf of, the participant (e.g., phone calls to government agencies, unannounced visits to the mother's home to deliver groceries). For more information on the nature of these activities, see Section 4.1.3.

which were used to examine whether the association between home visits and outcomes differed when home visits were below and above a given threshold.

10.1.1 Association Between Utilization and Outcomes

For home visits and secondary activities, presented in the first section of this chapter, we identified *low, medium*, and *high* numbers of visits and activities based on averages and distributions.[AH] Because analyses only included those home visits, activities, and groups that happened before the outcome was measured, this value differed depending on the time point at which the outcome was measured. Thus, for T2 outcomes, low, average, and high values correspond to 3, 17, and 31 home visits; and 8, 44, and 80 secondary activities, respectively. For T3 outcomes, low, average, and high values correspond to 0, 22, and 44 home visits; and 3, 59, and 114 secondary activities, respectively (see Table 34).[AI] The other utilization indicator used in these analyses was *number of groups attended*; because the number of groups was so comparatively low, and the distribution so skewed (with most participants attending no groups), we compared mothers who attended at least one group to mothers who attended none.

As shown in Tables 34 and 35, indicators of program utilization were significantly related to a variety of outcomes.

It is important to note that these analyses were conducted only with mothers in the treatment (HVS) group. Whereas the RCT design improves our confidence in the causal nature of program impacts, it is important to recall that mothers were not randomly assigned to service levels. As such, the analyses presented in this chapter represent a departure from the experimental design, and cannot be interpreted as causal. Indeed, as discussed in Chapter 6, mothers who received more services are different on a number of background characteristics from those receiving fewer services. Consequently, results of these analyses may actually be largely explained by participants' background characteristics.

Home Visits

As seen in Table 35, results show that receipt of ***home visits was related to child maltreatment (Goal 1), repeat pregnancy, use of hormonal birth control (Goal 4), and partner-perpetrated intimate partner violence (Goal 5)***.

In the area of maltreatment, mothers who received more home visits were significantly less likely to have a child maltreatment report with DCF (*OR* = 0.992, *p* = .022); mothers who received zero visits had a 31% probability of having a DCF report, compared to a 28% probability among mothers who received an average number of visits, and a 25% probability among mothers who received a high number of visits.

Similarly, as home visits increased, more favorable outcomes were detected in the area of *repeat pregnancy* (T3; *OR* = 0.985, *p* < .001) and *mothers' use of hormonal*

[AH] **The results presented in this section represent predicted probabilities, and are based on the regression models. A low number of home visits and secondary activities is defined as 1 standard deviation below the average; a high number is defined as 1 standard deviation above the average.**

[AI] **Maltreatment outcomes measured with DCF data spanned the course of 27 months, and did not correspond with our data collection time points. For these outcomes we used the measure of home visits and secondary activities that happened before the T3 interview, as it most closely aligned to the time frame of the data window.**

Table 34. **Cut Points Used to Explain Utilization Findings**

Time Point	Home Visits			Secondary Activities		
	Low	Average	High	Low	Average	High
Data that Occurred Prior to T2	3	17	31	8	44	80
Data that Occurred Prior to T3	0	22	44	3	59	114

birth control (T3; *OR* = 1.008, *p* = .036). The probability of having a repeat pregnancy was higher for mothers who received zero visits (27%) than for mothers who received an average number of visits by T3 (21%) or a high number of visits by T3 (16%). Mothers' likelihood of using hormonal birth control was greater if the mother received a high number of visits (60%), compared to if the mother received an average number of visits (56%) or no visits (52%).

Results also showed that the number of home visits was correlated with higher rates of *partner-perpetrated intimate partner violence* at T2 (*OR* = 1.022; *p* = .015). The probability of reporting partner-perpetrated intimate partner violence was higher for mothers with a high number of home visits (38%) than for mothers with a low number of home visits by T2 (26%).

This last finding underscores the importance of interpreting results with caution. For example, it is unlikely that HFM causes mothers to experience higher levels of intimate partner violence. Rather, there are several more plausible explanations to offer. It could be that HFM targeted higher risk mothers and deliberately provided them with more visits. Or perhaps mothers experiencing intimate partner violence were more likely to seek out and accept this form of support. Finally, it is possible that those mothers who had more frequent and prolonged interaction with their home visitors were more likely to become aware of or admit that they were experiencing intimate partner violence. Here, one could well interpret this finding as a positive one.

Secondary Activities

Just one significant association between secondary

Table 35. **The Association Between Home Visits, Secondary Activities, Groups, and Outcomes**

Goal Area	Outcome	Home Visits	Secondary Activities	Groups (any vs. none)
1	Parenting and Child Rearing Attitudes (AAPI; T3) [a]			
	Lack of Empathy			*B* = 1.672
	Corporal Punishment			*B* = 2.198
	Child Maltreatment (DCF Data); Whether Any Reports were Made Since Enrollment	*OR* = 0.992		
3	Difficulties in Covering Expenses (T3)		*OR* = 1.004	
	Whether Mother Finished At Least One Year of College (T3)			*OR* = 2.263
	Whether Mother Finished HS Diploma or GED (T2)			*OR* = 1.555
	Whether Mother Finished HS Diploma or GED (T3)			*OR* = 1.664
4	Repeat Pregnancy (T3)	*OR* = 0.985		
	Whether Mother Used Hormonal Birth Control (T3)	*OR* = 1.008		*OR* = 1.862
5	Intimate Partner Violence (CTS2S); Partner as Perpetrator (T2)	*OR* = 1.022		
	Whether Mother Received Mental Health Services Since Pregnancy (T2)			*OR* = 1.897
	Whether Mother Received Mental Health Services Since Pregnancy (T3)			*OR* = 2.480

Note. Only statistically significant results are shown ($p < .05$). T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). We test all outcome variables, with the exception of perpetrator of DCF maltreatment report (due to small sample size constraints). We present Betas (B) for continuous outcomes and Odds Ratios (OR) for binary outcomes. AAPI = Adult-Adolescent Parenting Inventory, CTS2S = Conflict Tactics Scale – Partner. DCF = Department of Children and Families.
a Recall, higher scores on the AAPI indicate more favorable parenting attitudes.

activities and outcomes emerged (Table 35). ***Mothers who received more secondary activities reported greater difficulty in covering expenses*** (Goal 3; T3; *OR* = 1.003, *p* <.048). The predicted probability that mothers would report difficulty covering expenses was higher for mothers who received a high number of secondary activities (65%) than for mothers who received an average number of secondary activities (61%) or a low number of secondary activities (56%). Again, this finding might suggest that HFM is targeting higher risk mothers and is able to provide more services to mothers who experience greater financial difficulty. Further, it might indicate that home visitors are helping mothers figure out what constitutes an adequate living situation (e.g., regarding housing, child care, nutrition, etc.), and mothers increasingly appraise their own circumstances more critically.

Groups

When compared to mothers who did not attend any groups, mothers who attended at least one group had more favorable outcomes in parenting attitudes (Goal 1), education (Goal 3), use of birth control (Goal 4), and use of mental health services (Goal 5).

As seen in Table 35, mothers who attended at least one group reported higher scores on two AAPI subscales (recall that higher scores on the AAPI indicate more favorable parenting attitudes). They scored, on average, about two points higher on the *Lack of Empathy* and *Corporal Punishment* subscales compared to mothers who did not attend any groups (*B* = 1.672, *p* = .041; *B* = 2.198, *p* = .027, respectively).

More favorable education outcomes were also found for mothers who attended at least one group. These mothers were more likely to finish their high school diploma or GED by T2 and T3 (*OR* = 1.555, *p* = .004; *OR* = 1.664, *p* = .007, respectively). Mothers who attended at least one group also had a higher probability of finishing a high school diploma or GED (61% by T2, 77% by T3), compared to mothers who did not attend any groups (53% by T2, 68% by T3). Similarly, mothers who attended at least one group were more likely to finish at least one year of college by T3 (24%) compared to mothers who did not attend any groups (13%; *OR* = 2.263, *p* < .001).

Finally, more favorable outcomes related to Goals 4 and 5 were found among mothers who attended at least one group. Mothers who attended at least one group were more likely to use hormonal birth control at T3 (65%) compared to mothers who did not attend any groups (51%; *OR* = 1.897). Mothers who attended at least one group were also more likely to use mental health services at both T2 and T3 compared to mothers who did not attend any groups (33% vs. 22%, *OR* = 1.897 at T2; 42% vs. 25%, *OR* = 2.480 at T3).

Home Visitor–Mother Relationship

Finally, we examined the association between the home visitor-mother relationship and outcomes (see Table 36). Recall that four relationship profiles emerged from the data, including Negative, Primarily Professional; Positive Professional; Positive Friend; and Positive Family Member (see Section 4.2 for more detailed descriptions of these profiles). Several noticeable trends emerged from analyses with the four profiles. This section begins by reviewing comparison of the three positive relationship profiles, followed by findings revealing differences between the positive profiles and the one negative profile.

Mothers in the Positive Family group doing better in some indicators of parenting (Goal 1), adequacy of resources (Goal 3), and intimate partner violence (Goal 5). On parenting measures, mothers in the Positive Family group scored more favorably on maternal sensitivity as measured during Free Play (*M* = 4.96) than did mothers in the Positive Professional profile (*M* = 4.35), and on maternal sensitivity as measured during the Teaching Task, they scored better than mothers in the Positive Friend profile (*M* = 4.83 vs. *M* = 4.19). Mothers in Positive Family scored better than both other positive profiles (Positive Professional and Positive Friend) on a number of indicators, including *Inappropriate Expectations of Child*

subscale of the AAPI at T3 (*M* = 16.18, compared with *M* = 13.81 and *M* = 14.02, respectively), partner-perpetrated intimate partner violence (16% vs. 36% and 40%), and adequacy of basic resources (*M* = 92.39 vs. *M* = 85.89 and *M* = 85.58).

Mothers in the Positive Professional relationship profile did slightly more favorably than mothers in the other groups in terms of covering expenses (Goal 3), birth control (Goal 4), and drug use (Goal 5). Specifically, when compared to mothers in the Positive Friend relationship profile, mothers in the Positive Professional profile were less likely to report difficulties in covering expenses at T3 (Goal 3; 45% vs. 65%). When compared with both of the other profiles, (Positive Friend and Positive Family), mothers in Positive Professional were more likely to report using condoms at both T2 and T3 (29% vs. 14% and 17% at T2; 43% vs. 17% and 15% at T3), and less likely to report drug use (4% vs. 19% and 23%).

Mothers in the Positive Friend relationship profile scored better than their counterparts in only one area: personal mastery (Goal 5). When compared with the Positive Family profile, mothers in Positive Friend scored higher on personal mastery (*M* = 1.04 vs. *M* = 0.64)

There are several areas in which mothers in the Negative, Primarily Professional relationship profile evidenced more favorable outcomes than mothers in the three positive profiles, including outcomes related to parenting (Goal 1), child development (Goal 2), education (Goal 3), and use of mental health services (Goal 5). Mothers in the Negative, Primarily Professional relationship profile demonstrated more Maternal Sensitivity towards their children (*M* = 5.11) compared to mothers in the Positive Friend relationship profile (*M* = 4.19). Children of mothers in this profile scored lower on measures of behavior problems (*M* = 10.77) compared to children of mothers in the Positive Professional relationship profile (*M* = 14.23). They also scored higher on child responsiveness at T2 (*M* = 4.29), compared to mothers in the Positive Professional relationship profile (*M* = 3.45), Positive Friend relationship profile (*M* = 3.50), and Positive Family profile (*M* = 3.72).

By T2, mothers in the Negative, Primarily Professional relationship profile were more likely to finish at least one year of college than mothers in the Positive Professional relationship profile (21% vs. 5%), and by T3, these mothers were more likely to finish at least one year of college when compared to mothers in the Positive Friend relationship profile (41% vs. 17%). Mothers in the Negative, Primarily Professional relationship profile were also more likely to use mental health services at T2 than were mothers in the Positive Professional profile category (42% vs. 22%).

Areas in which mothers in the Negative, Primarily Professional relationship profile demonstrated less favorable outcomes than mothers in the positive profiles included birth control, repeat pregnancy (Goal 4), and partner-perpetrated intimate partner violence (Goal 5). The probability of using condoms at T3 was much lower for mothers in the Negative, Primarily Professional relationship profile (25%) compared to mothers in the Positive Professional relationship profile (43%). Perhaps not surprisingly then, the predicted probability of having a repeat pregnancy was much higher for mothers in the Negative, Primarily Professional relationship profile (33%) compared to mothers in the Positive Family relationship profile (5%). Finally, more mothers in the Negative, Primarily Professional relationship profile reported experiencing partner-perpetrated intimate partner violence (39%) compared to mothers in the Positive Family relationship profile (16%).

Recall from Chapter 5 that mothers in the Negative, Primarily Professional profile received significantly fewer home visits, over a significantly shorter period of time, than did the mothers in the other groups. This suggests that these mothers, for a variety of reasons, discontinued services early on in their enrollment. It may be that they did not feel they needed the program, and in some ways, regarding parenting and educational attainment, for example, their early assessment might well be correct. In other ways, however, the findings that mothers in the profile were less likely to use condoms, more likely to have a repeat birth, and more likely to experience more intimate partner violence, imply that perhaps greater participation in the program may have

helped them. In either case, they appear not to have given the relationship time to "ripen;" nor did they actively seek another home visitor to extend their participation.

Table 36. **The Association Between Home Visitor–Mother Relationship Profile and Outcomes**

Goal Area	Outcome	Relationship Profile				Statistically Significant Comparisons
		(1) Negative, Primarily Professional	(2) Positive Professional	(3) Positive Friend	(4) Positive Family Member	
Predicted Probabilities, for Binary Outcomes						
3	Whether Mother Finished At Least One Year of College (T2)	0.21	0.05	0.11	0.14	1 vs. 2
	Whether Mother Finished At Least One Year of College (T3)	0.41	0.16	0.17	0.24	1 vs. 3
	Difficulties in Covering Expenses (T3)	0.51	0.45	0.65	0.57	2 vs. 3
4	Repeat Pregnancy (T3)	0.33	0.13	0.16	0.05	1 vs. 4
	Whether Mother Used Condoms (T2)	0.28	0.29	0.14	0.17	2 vs. 3
	Whether Mother Used Condoms (T3)	0.25	0.43	0.17	0.15	1 vs. 2 2 vs. 3 2 vs. 4
5	Whether Mother Received Mental Health Services Since Pregnancy (T2)	0.42	0.22	0.31	0.26	1 vs. 2
	Youth Risk Behavior (YRBS; T3), Mother Used Drugs	0.14	0.04	0.19	0.23	2 vs. 3 2 vs. 4
	Intimate Partner Violence (CTS2S), Partner as Perpetrator (T2)	0.39	0.36	0.40	0.16	1 vs. 4 2 vs. 4 3 vs. 4
Predicted Means, for Continuous Outcomes						
1	Parenting and Child Rearing Attitudes, Inappropriate Expectations of Child (AAPI; T3)	15.72	13.81	14.02	16.18	2 vs. 4 3 vs. 4
	Maternal Emotional Availability, Sensitivity (Free Play; T2)	5.37	4.35	4.63	4.96	2 vs. 4
	Maternal Emotional Availability, Sensitivity (Teaching Task; T2)	5.11	4.23	4.19	4.83	1 vs. 3 3 vs. 4
2	Socio-Emotional Development, Behavioral Problems (BITSEA; T3)	10.77	14.23	11.84	14.04	1 vs. 2
	Child Responsiveness (EA), Free Play (T2)	4.29	3.45	3.50	3.72	1 vs. 2 1 vs. 3 1 vs. 4
3	Adequacy of Basic Resources (FRS; T3)	90.08	85.89	85.58	92.39	2 vs. 4 3 vs. 4
5	Personal Mastery (T3)	0.98	0.90	1.04	0.64	3 vs. 4

Note. Only statistically significant results are shown (i.e., at least one significant pairwise comparison, where $p < .05$). We test all outcome variables, with the exception of perpetrator of DCF maltreatment report (due to small sample size). T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). AAPI = Adult-Adolescent Parenting Inventory, BITSEA = Brief Infant-Toddler Social and Emotional Assessment, CTS2S = Conflict Tactics Scale–Partner, EA = Emotional Availability, FRS = Family Resource Scale, YRBS = Youth Risk Behavior Surveillance System.

Summary

Analyses examining the link between maternal and child outcomes and various indicators of program utilization yielded somewhat inconsistent results, with most findings indicating a positive association between service use and outcomes, but some showing the opposite.

First, the number of home visits received was associated with more favorable outcomes in the areas of child maltreatment, repeat pregnancy, and use of hormonal birth control. More favorable outcomes were consistently found for mothers who attended at least one group: Mothers who attended at least one group had more favorable outcomes on two AAPI subscales (*Lack of Empathy* and *Corporal Punishment*), high school diploma or GED completion at both T2 and T3, and the probability of finishing at least one year of college at T3. On the other hand, there were a couple of indicators for which an increase in program utilization was associated with less favorable outcomes: The number of home visits that mothers received was correlated with higher rates of partner-perpetrated intimate partner violence, and the number of secondary activities received was associated with greater difficulty in covering expenses at T3.

In addition, we examined the association between the home visitor-mother relationship and outcomes. Interestingly, results showed that mothers in the Negative, Primarily Professional relationship profile had more favorable outcomes in a few areas, compared to mothers in the remaining three categories. When the three positive relationship profiles were compared to one another, more favorable outcomes were detected for the Positive Professional relationship profile compared to the Positive Friend relationship profile. Next, when comparing the Positive Professional and Positive Family relationship profiles, the findings were mixed: Sometimes more favorable findings were found for the former, other times for the latter. Finally, when comparing the Positive Friend to the Positive Family relationship profiles, the Positive Family relationship profile appeared to have more favorable outcomes than the Positive Friend relationship profile in a variety of ways.

10.1.2 The Link Between Home Visits and Outcomes: Threshold Analyses

As described earlier, we fit two models for all goal area outcomes, one with the threshold of five and another with a threshold of 18 home visits. Our primary aim was to determine whether there was a minimum number of home visits necessary to detect an association between the number of home visits received and each of the goal area outcomes. These findings are summarized in Table 37. ***Overall, results do not provide robust evidence of a threshold when estimating the association between home***

Table 37. **The Link Between Home Visits and Outcomes: Threshold Analyses**

Goal Area	Outcome Variable	Below Threshold	Above Threshold	Equivalency Test (p-value)
		# HVs [0-4]	**# HVs [5+]**	
3	Mother Finished HS Diploma or GED (T2)	1.221*	0.979*	.027
	Mother is Currently Employed (T3)	1.129*	0.991	.025
4	Repeat Pregnancy (T3)	1.137*	0.976***	.014
		# HVs [0-17]	**# HVs [18+]**	
No statistically significant results were detected when the threshold was set at 18 home visits.				

Note. Threshold analyses were conducted on all outcome variables, although we only present results when the equivalency test was statistically significant. We test all outcome variables, with the exception of perpetrator of DCF maltreatment report (due to small sample size constraints). All outcomes are binary measures; therefore the results are presented as Odds Ratios (OR). T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment).

visits and outcomes. When we considered a threshold of five or more visits, only three instances were identified where the association between home visits and the outcome differed above and below this threshold, and when the threshold of 18 or more home visits was tested, there were no such instances.

As the p-values in the right-hand column of Table 37 show, the association between home visits and an outcome was different below the threshold (i.e., zero to four home visits) and above the threshold (i.e., five or more home visits) for three indicators. ***Evidence of a threshold emerged for two outcomes related to Goal 3: whether a mother finished her high school diploma or GED by T2, and whether a mother was employed at T3***, but in both cases the direction was perhaps surprising. Specifically, if mothers received fewer than four home visits, the association between the number of home visits and the outcome was positive: Each additional home visit was associated with a higher likelihood of having obtained a high school diploma or a GED by T2. However, this association changed if the number of visits a mother received was above the threshold (i.e., when mothers experienced five or more home visits); as home visits increased, mothers' likelihood of finishing high school or getting their GED decreased. Next, with each additional home visit *below* the threshold (zero to four home visits), mothers were more likely to have been employed by T3. Again, this association changed above the threshold; when mothers experienced five or more home visits, there was no longer an association between number of home visits and maternal employment. These "thresholds" may indicate a "ceiling effect," in that once a certain number of visits was received, the association between home visits and the outcome was no longer detected.

In the case of repeat pregnancy at T3 (Goal 4), however, there was evidence of a threshold in the more typical sense of the term. With each additional home visit below the threshold (zero to four home visits), mothers were more likely to have had a repeat pregnancy by T3. This association changed again once the threshold was met. When mothers received more than five home visits there was a negative association between home visits and mothers' likelihood of having a repeat pregnancy. In other words, after the five-visit threshold, as home visits increased, mothers were less likely to have had a repeat pregnancy by T3.

To summarize, analyses explored whether mothers needed to receive a minimum number of home visits before an association between visits and the outcome could be detected. Results did not show strong evidence of such an obvious threshold. And, those few significant findings that did emerge (for the five-visit threshold only) yielded inconsistent results. Whereas the repeat birth outcome reflected what one might hypothesize (i.e., that better outcomes would be detected only above the cutoff mark), education and employment outcomes were associated with visits occurring only *below* the threshold. As is discussed above, findings such as these confirm how difficult it is to interpret correlational analyses, given that HFM may be targeting higher risk mothers (see Chapter 6).

10.2 Chapter Summary

The analyses presented in this chapter explored the associations between program utilization and participant outcomes. As has been discussed already in this chapter, these findings are correlational and cannot be interpreted as causal; rather, they serve to illuminate patterns of associations that may provide initial explorations into how program operations and outcomes are interrelated.

The first phase of analyses examined whether various aspects of program use, including the type of relationship participants had with their home visitors, were associated with outcomes in the five goal areas. The second set of analyses attempted to detect whether there was a critical number of home visits that needed to be reached before positive outcomes could be observed. Results from these analyses are equivocal: More services and more positive relationships with the home visitor were associated both with more and less favorable outcomes.

CHAPTER ELEVEN

Tiers Four & Five: The Links Between Fidelity and Outcomes

This chapter explores whether maternal and child outcomes varied as a function of program- and/or individual-level fidelity. These analyses may provide insight into whether the program is more effective at achieving its goals when (a) programs operate as the HFM model intends, and/or (b) individuals utilize services as the HFM model intends.[AJ, AK]

First, we assessed whether *program*-level fidelity was associated with outcomes in each of the five goal areas. Then, we assessed whether *individual*-level fidelity was associated with outcomes in each of the five goal areas. Overall, we found three statistically significant associations between program-level fidelity and the outcomes, and six statistically significant associations between individual-level fidelity and the outcomes. Those associations are summarized below, beginning with program-level fidelity. Before proceeding with the results, we caution the reader once more that analyses presented in this chapter are a departure from the experimental design, meaning that they should not be interpreted as causal.

11.1 Associations Between Program-Level Fidelity and Outcomes

The three instances where program-level fidelity and outcomes were significantly related pertained to Goals 2 and 5; no significant associations were found for the other goals (see Table 38). We summarize these findings below, starting with Goal 2.

[AJ] For descriptive information on program- and individual-level fidelity see Section 4.1.

[AK] We test all outcome variables (see Appendix 2 for an overview), with the exception of perpetrator of DCF maltreatment report (due to small sample size constraints).

Goal 2: Optimal Health, Growth, and Development in Infancy and Early Childhood

In the area of child growth and development, ***there was a positive association between program-level fidelity and child responsiveness*** (in interactions with their mothers during the EA teaching task, T3). Children whose mothers spent time in higher fidelity programs scored, on average, 0.51 points higher on the child responsiveness measure than children of mothers in lower fidelity programs (note, the range on this measure is 1 to 7).[AL]

Goal 5: Parental Health and Well-Being

There were two indicators of parental health and well-being that were significantly associated with mothers' program-level fidelity, both in the expected

[AL] *Higher* and *Lower* program-level fidelity scores correspond to 1 standard deviation above and below the sample average (i.e., *Lower* program-level fidelity = .70; *Higher* program-level fidelity = .78).

Table 38. **Associations Between Program-Level Fidelity and Outcomes**

Goal Area	Outcome	*B*	*OR*	*p*-value
2	Child Responsiveness, Teaching Task (EA, T3)^	6.28	--	.047
5	Whether Mother Smoked Frequently/Daily (YRBS, T3)	--	< 0.01	.015
	Whether Mother Used Drugs (YRBS, T3)	--	< 0.01	.045

Note. ^ indicates outcome was tested in a multilevel model; see Chapter 2 for details. We only present statistically significant results. Analyses were run with all outcome variables, with the exception of perpetrator of DCF maltreatment report (due to small sample size constraints). T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). We present Betas (B) for continuous outcomes and Odds Ratios (OR) for binary outcomes. YRBS = Youth Risk Behavior Surveillance System.

direction. ***Mothers who spent most of their time in higher fidelity programs had a lower probability of cigarette smoking and drug use at T3*** (.33 and .10, respectively) than mothers who spent most of their time in lower fidelity programs (.45 and .19, respectively). On average, as mothers' program-level fidelity scores increased, mothers' odds of smoking cigarettes (*OR* = 0.00) and using drugs (*OR* = 0.00) decreased.

11.2 Associations Between Individual-Level Fidelity and Outcomes

As with program-level fidelity, associations between individual-level fidelity and outcomes were concentrated in certain goal areas and not others; in this case, there were significant findings in outcomes pertaining to Goals 3, 4, and 5. Unlike the case of program-level fidelity, however, associations between individual-level fidelity and outcomes were not always in the expected direction. Findings are summarized below and in Table 39.

Goal 3: Encourage Educational Attainment, Job, and Life Skills Among Parents

Within the Goal 3 area, mothers' likelihood of being employed at T2 was significantly associated with mothers' individual-level fidelity scores. ***Faithful use of HFM was associated with a decrease in mothers' likelihood of being employed.*** On average, mothers who obtained "perfect" individual-level fidelity scores (i.e., individual-level fidelity score = 1) had 72% lesser odds of being employed at T2 than mothers who failed to meet any program benchmarks (i.e., individual-level fidelity score = 0; *OR* = 0.28). That is, mothers who met more HFM benchmarks were less likely to be employed than those mothers who met fewer HFM benchmarks.

Goal 4: Repeat Pregnancies During the Teen Years

In the Goal 4 area, findings showed that individual-level fidelity was associated with a decrease in mothers' likelihood of having a repeat birth by T3. Thus, unlike the Goal 3 finding, the association between mothers' individual-level fidelity and the likelihood of having a repeat birth by T3 was in the expected direction. On average, mothers who obtained "perfect" individual-level fidelity scores (individual-level fidelity score = 1) had 68% lesser odds of having a subsequent birth than mothers who failed to meet any program benchmarks (individual-level fidelity score = 0; *OR* = 0.32). In other words, ***mothers who used the program as prescribed were less likely to have another baby within two years post enrollment***.

Goal 5: Parental Health and Well-Being

Within Goal 5, there was a positive association between individual-level fidelity and utilization of mental health services at both T2 and T3. Mothers with "perfect" individual-level fidelity scores (that is, individual-level fidelity score = 1) had nearly five times greater odds of reporting using mental health services at T2 than mothers who failed to meet any program benchmarks (*OR* = 4.87). Similarly, mothers with "perfect" individual-level fidelity scores had nearly four times greater odds

of reporting that they received mental health services at T3 than mothers who failed to meet any program benchmarks (*OR* = 3.97). That is, ***mothers who used the HFM services as intended also were more likely to also use mental health services***.

Finally, also within Goal 5, we found associations between individual-level fidelity and intimate partner violence. Like Goal 3 findings, the direction of this association was counter to what we would have expected. Specifically, mothers with "perfect" individual-level fidelity scores had on average nearly four times greater odds of reporting they had experienced partner-perpetrated violence at T2 than mothers who failed to meet any program benchmarks (*OR* = 3.75). Moreover, on average, mothers with "perfect" individual-level fidelity scores had 3.6 times greater odds of reporting they had perpetrated violence in the past year against their partners (measured at T3) compared to mothers who failed to meet any program benchmarks (*OR* = 3.58). In other words, ***mothers who used the program most faithfully were also more likely to report having experienced intimate partner violence, both as victims and perpetrators***.

11.3 Chapter Summary

This chapter explored whether HFM was more effective at achieving its goals when (a) programs operated as the HFM model intends, and/or (b) individuals utilized services as the HFM model intends.

When we assessed associations between *program*-level fidelity and outcomes in each of the five goal areas, three statistically significant associations emerged. These instances pertained to Goals 2 and 5. Specifically, mothers who enrolled in programs with higher fidelity scores had children who scored more favorably on child responsiveness (in interactions with their mothers during the EA teaching task, T3). Mothers who enrolled in programs with higher fidelity scores were also less likely to smoke cigarettes or to use drugs. No associations were found between program-level fidelity and outcomes in Goals 1, 3, or 4.

When we assessed whether *individual*-level fidelity was associated with outcomes in each of the five goal areas we found six statistically significant associations. These findings were concentrated among outcomes pertaining to Goals 3, 4, and 5. To summarize, we found that as mothers' individual-level fidelity scores increased, their likelihood of being employed (T2) and having a repeat birth by T2 decreased. Additionally, as mothers' fidelity to the program increased, so did mothers' utilization of mental health services (at T2 and T3) as well as her likelihood of having experienced partner-perpetrated intimate partner violence (at T2 and T3).

Table 39. **Associations Between Program-Level Fidelity and Outcomes**

Goal Area	Outcome	*OR*	*p*-value
3	Employment Status (T2)	0.28	.004
4	Repeat Birth (T3)	0.32	.034
5	Whether Mother Received Mental Health Services After Pregnancy		
	T2	4.87	.021
	T3	3.97	.006
	Intimate Partner Violence, Partner as Perpetrator (CTS2S)		
	T2	3.75	.014
	T3	3.58	.043

Note. We only present statistically significant results. Analyses were run with all outcome variables, with the exception of perpetrator of DCF maltreatment report (due to small sample size constraints). T2 = Time 2 of data collection (approximately one year post enrollment), T3 = Time 3 of data collection (approximately two years post enrollment). We present Betas (B) for continuous outcomes and Odds Ratios (OR) for binary outcomes. CTS2S = Conflict Tactics Scale – Partner.

Unlike our analyses of program-level fidelity, those of individual-level fidelity revealed many unexpected associations with outcomes; that is, the associations that were not always in the expected direction. As was the case with the descriptive information presented in the previous chapter (Chapter 10), there is likely no one straightforward interpretation for these findings. For example, the finding that mothers adhering most closely to the HFM models were less likely to be employed, for instance, might suggest that the program is emphasizing certain goal areas (e.g., focusing on parenting) over others (e.g., employment). However, it could also be that those women who are not employed are more easily able to adhere to a consistent visit schedule. It is important to emphasize once again that results should be interpreted with caution. These analyses were run on a subsample of mothers (HVS only), and therefore represent a departure from the experimental design, meaning that causal interpretation is no longer possible. Analyses such as these should really be seen as hypothesis generating, rather than hypothesis testing, and suggest many interesting areas for further research.

CHAPTER TWELVE

Discussion

This report is the culmination of the second phase of the Massachusetts Healthy Families Evaluation (MHFE-2), a multi-year study of the Healthy Families Massachusetts (HFM) program, a statewide, universal, voluntary newborn home visiting program for first-time young parents living in Massachusetts. Affiliated with Healthy Families America (HFA), HFM provides parenting support, information, and services to young parents via home visits, goal-setting activities, group-based activities, secondary contacts (e.g., phone calls), and referral services. Providing social support and practical assistance directly to young mothers prenatally and during their children's first three years, home visitors aim to support and model healthy relationships, help families to provide a safe and enriching environment, provide education about parenting and child development, support parents' educational and occupational development and goals, provide crisis intervention, and connect families to services in their communities.

Following a sample of approximately 700 mothers and their children at three data collection time points from 2008 through 2012, the MHFE-2 evaluation sought to understand how mothers used the program, whether the program contributed to their progress across the five HFM goal areas, and how participants' personal, family, program, and community contexts influenced their utilization and outcomes. The evaluation methods used in the conduct of MHFE-2 and the full set of findings are summarized in the report, and so are not reprised here. Rather, this discussion is meant to highlight, integrate, and interpret key findings, and to identify key methodological contributions of the study, in the service of improving HFM, home visiting programming more generally, and the home visiting evaluation and research fields.

This chapter begins with a brief overview salient features of the study design. This is followed by a discussion of findings related to both program operations and program impacts. Each section contextualizes and interprets key findings. We conclude with implications for HFM program and policy, implications for the wider home visiting and family support fields, and suggested topics for future research.

12.1 Notes on Study Methodology

To begin, there are several features of this evaluation to take into account when interpreting and generalizing the findings: the unique HFM population; the interdisciplinary, multi-methods design; and the conservative analytic approach. Each of these is discussed in more detail below.

HFM Serves an Adolescent Population

Currently, there are Healthy Families affiliates in 40 states; yet HFM remains the only statewide implementation of the model that specifically targets adolescent

parents. Whereas the average age of participants in the other randomized controlled trials (RCT) of HFA programs ranges from 23 to 25 years, the mean age of our sample is 18.6.

This distinction is important because adolescent parents are simultaneously managing the difficult transitions to both adulthood and parenthood, often in the context of challenging life circumstances. Indeed, in addition to their young age, the mothers in this sample exhibited a wide range of psychosocial risk and vulnerabilities, as seen below.

Mothers' challenging life circumstances at enrollment included:

- High rates of residential instability (average of two moves in the past year);
- More than half with childhood history of maltreatment;
- More than one third clinically depressed;
- High incidence of lifetime trauma (average of three traumatic events); and
- High rates of intimate partner violence in relationships, both as victim and as perpetrator (approximately 3.5 acts per year, on average).

Research also suggests that adolescent parents can also be quite resilient,[57] and for a home visiting program attempting to help these young mothers, their adolescence may constitute not only a challenge, but also an opportunity to facilitate positive transitions into both parenthood and adulthood. HFM's diverse clientele used the program in very different ways—based on their needs, current life situations, and "fit" with the services—yet when viewed holistically, it seems that HFM played a significant role in improving outcomes (e.g., risky behaviors) that are especially salient to an adolescent parent population.

Interdisciplinary, Multi-Method Approach

The evaluation was designed and managed by a well-established, interdisciplinary team of senior investigators, including team members who initiated the first cohort evaluation of HFM—MHFE-1—in 1998. The evaluation study design, informed by the fields of developmental science, cultural psychology, and child and family policy, employed multiple methodologies. The protocols included standardized, validated measures; project-developed surveys; in-depth interviews including open- and closed-ended questions; and observations of parent–child interactions. In addition, our team had access to comprehensive program and state agency data. This approach enabled us to gather relevant information about the mothers at multiple levels, allowing for a host of secondary analyses that can be used to explain, interpret, and answer further questions about the mothers' experiences, and the family, program, and community contexts in which they parented.

Conservative Analytic Approach

Finally, we used a rigorous study design to isolate treatment effects: a randomized controlled trial (RCT). By randomly assigning eligible women to receive HFM services in full (HVS) or to receive referrals and information only (RIO), we can assume that any differences in outcomes between the HVS and RIO groups are due to the impact of HFM, rather than to existing differences between the women. From a policy perspective, this level of confidence in our impact findings is imperative. Within this RCT framework, we adhered to a conservative analytic plan; we limited the number of variables we tested in order to mitigate Type 1 error, and we examined the Intent to Treat (ITT) effects only. Each of these points is explained in more detail below.

To the Extent that We Could, We Guarded Against Type 1 Error. Given the sheer breadth of the five HFM goal areas, the impact study necessarily included a host of measures, which in turn generated a wide variety of variables to be tested. Wary of finding results that occurred by chance (Type 1 error), we greatly restricted the number of variables we included in our main effect analytic models to those that aligned best with the five HFM goals, and/or made the most theoretical sense.

We Adhered to an Intent to Treat (ITT) Analytic Approach. Using an ITT approach means that all participants are included in the analyses of program

effects, regardless of whether they actually took up the service or received any home visits. Indeed, in the present study, 14% of women assigned to the HVS group did not receive any home visits, effectively receiving no "treatment." Certainly, this last point suggests the inherent challenge in the rigorous approach chosen for this evaluation: possible program effects may be diluted by including these women who were offered, but did not take up or, indeed, only participated at a very low level (e.g., received fewer than five home visits) in the analyses of program effects. While tempting to exclude the 14% from analyses, this approach would invalidate the RCT design, as it is likely that the women who did not take up any (or a few) home visits are somehow different to those who did participate at the expected level. Unless we know specifically *how* they differ, which would require a means of specifically measuring these differences *prior* to their enrollment, we cannot use statistical techniques to make up for this limitation of the study design. Finally, and very importantly, staying true to the RCT design ensures that the findings from the present study are taken seriously among the home visiting research and wider policy communities.

> Rigorous studies have identified a few highly-effective social interventions. These interventions are backed by strong evidence of effectiveness – i.e., well-conducted randomized controlled trials, carried out in typical community settings, showing sizable, sustained effects on important life outcomes. Although rare, their very existence suggests that a concerted effort to grow the number of proven interventions, and spur their widespread use, could fundamentally improve the lives of millions of Americans. *The Coalition for Evidence-Based Policy*[AM]

Of course, it must be noted that the RCT method has its limitations. Notably, economic and political contexts change over the course of an RCT, which is multiyear by design, so that the generalizability of even the most carefully produced findings can be questionable. Yet, in the present study, the core findings resonate so well with the adolescent sample, they seem promising as lessons that are relevant now, and will remain so for several years. We proceed below with discussion of findings related to program operations.

12.2 Discussion of Program Operations

Since the passage of the Patient Protection and Affordable Care Act in 2010, states have been awarded over $1.5 billion through the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) initiative to develop and expand statewide systems of evidence-based home visiting programs. With this influx of funds—substantial by family support programming standards—there is, of course, considerable interest in answering the "does it work" question. The RCT presented here was designed to answer this very question, and as such will likely join the ranks of those home visiting evaluations that, according to the Department of Health and Human Services Home Visiting Evidence of Effectiveness (HomVEE) project, contribute to the evidence base on home visiting. Taken as a whole, however, this home visiting "evidence base" is actually quite equivocal, with evaluations of the *same home visiting model* often demonstrating different program impacts, for different populations, under different circumstances. These inconsistencies may be inevitable, considering what Jacobs wryly describes as the "intrusions of context" (e.g., family dynamics, community contexts, shifting policy environments) that beset even the most tightly designed evaluations of complex programs for real people within real-life settings.[58]

A particularly pervasive "intrusion of context" to consider is that of the program implementation itself. Despite the implicit assumption that an evidence-based model will operate true to its design, it is well-known in the home visiting field that such an ideal is simply unattainable; indeed, most evaluations find that, for example, participants discontinue services well before the recommended duration, and receive far fewer home visits than deemed optimal.[59] Documenting in detail how the home visiting program is operating, then, is crucial, both as a precursor and complement to the assessment

[AM] See http://coalition4evidence.org/

of program effects. Our evaluation investigated the extent to which the program was being implemented as intended; described how participants utilized and experienced HFM services; and analyzed the relations among different aspects of program operations, the associations with maternal characteristics, and the ways in which program use relates to outcomes. The study included innovative new ways of capturing information on program fidelity and utilization, such as the creation of a person-centered measure of fidelity as a complement to the program-centered measure, the expansion of our conceptualization of what constitutes a home visiting service to include non-visit activities, and a qualitative exploration of how a robust subsample of HVS participants experienced their relationships with their home visitors.

Measuring Program Fidelity

Fidelity generally is defined as the extent to which an intervention is implemented as intended by its designers.[60] Evaluators have characterized and measured fidelity along multiple dimensions, including program reach, dosage, quality of content, quality of relationship, participant response, and program differentiation and adaptation.[61] For this report, we limited our assessment of program fidelity to elements pertaining to *initial client engagement* and adherence to *HFM service-delivery standards*. While the composite we developed focuses only on a selection of the HFM performance indicators, it includes those indicators deemed "sentinel" (i.e., most critical to program success) by the Children's Trust.

Results show that, when averaged across indicators, programs, and fiscal years, program-level fidelity scores were quite high, with a surprisingly narrow range. Considering that HFM is being implemented by multiple types of agencies across a state with considerable geographic and demographic diversity, the fact that such a high, invariant degree of fidelity has been achieved across programs is laudable, and unusual in a statewide initiative.[62] Researchers have identified several areas that may influence adherence, including well-defined program frameworks, implementation policies, monitoring and accountability systems, built-in feedback loops, and ongoing technical assistance to programs.[63] Indeed, the Children's Trust has built a home visiting network that shows strength in every one of the aforementioned areas, and the high program fidelity scores seem to bear out the importance, and effectiveness, of these ongoing quality assurance efforts.

At the same time, this is a voluntary program, meant to be responsive and adaptive to participants' needs.[64] As such, there is a great deal of flexibility built into the model; the expectation is that the home visitor will work *with each participant* to establish goals, settle on a service delivery plan, and adjust home visit content and schedule in both anticipation of, and reaction to, the participant's needs. It is perhaps not surprising, then, that when you look at *utilization at the individual level*, a radically different story of engagement and adherence emerges. A discussion of these utilization findings follows.

Measuring Fidelity and Utilization at the Individual Level

Our program fidelity index provides a broad overview of how faithfully HFM programs were *implementing* services at the time of data collection. However, we also were interested in how each individual participant, as the consumer of these services, *utilized* the program. In this regard, we distinguish between *implementation* fidelity and *utilization* fidelity. When we look at the patterns of use among participants, we see much more variability than was evident in the average program fidelity scores, with some mothers meeting every benchmark we measured, and others meeting none. In general, mothers met only about half of the performance indicators, and when it came to the HFM sentinel benchmarks—what we term in the report as their *overall* exposure (i.e., duration, number of home visits, etc.)—fidelity was even lower.

Raw indicators of utilization (i.e., program duration and number of home visits) showed wide variability as well, with mothers staying in the program between less than

1 month and up to 3.5 years, and receiving between 0 and 118 visits. On average, mothers received only slightly fewer home visits (24) over a shorter period of time (about 15 months) than aimed for by the program (at least 27 visits, and a minimum of 18 months). The median values, however, which probably are a more accurate representation of participants' service use, were 14 visits and 10 months, respectively. Seen another way, approximately 58% of HVS participants received fewer than 18 home visits, including 30% who received fewer than 5 home visits, and 14% who did not receive any home visits at all.

As the program fidelity values would suggest, this lackluster uptake cannot be primarily attributed to implementation failure on the part of the program. Analyses of secondary activities—non-visit activities, such as phone calls or texts—suggest that home visitors make substantial effort to connect with mothers who may not be interested in participating at all or only for a short period of time. That is, the vast majority of secondary activities had content related to issues of enrollment/engagement (10%) or scheduling of visits (38%), and attempted visits that did not happen (10%). Further, only 16% of secondary activities (10 activities per mother, on average)[AN] could be described as substantive, in which mothers verbally connected to their home visitors about something other than scheduling. What this suggests is that a sizable proportion of the secondary activities were actually efforts by home visitors to engage mothers. Mothers who were offered but did not take up HFM still had an average of almost 14 secondary activities, and those who received only one to four visits had an average of nearly 23 activities.[AO]

A closer examination of the records for those women who never received a visit is further illustrative of this tension between implementation attempts on the part of the home visitor, and service utilization on the part of the participant. Our initial hypothesis about the non-visited women, based on discussions with the Children's Trust, was that these participants might have been placed on a waitlist when first assigned, a practice (common at the time) that could have resulted in a long gap between enrollment and offer of service, and a consequent loss of participant interest. An examination of the secondary activity memo fields for these women, however, revealed that only about one fifth had been on the waitlist, and these women were actually contacted after only a month or two by a home visitor to receive services. In fact, in the case of almost every non-visited participant, the home visitor had behaved in accordance with program standards: attempted to contact the mother multiple times in multiple ways, checked in with the organization that originally referred the participant, dropped by the participant's home, and sent mailings with information and invitations to social events. Despite home visitors' diligent efforts, the mothers either never were reached, repeatedly failed to honor appointments, or simply changed their minds about participating in the program.

What these data suggest is that even a program operating at considerably high standards is not able to consistently engage its target population. In fact, these findings are completely in line with utilization findings other home visiting evaluations have been reporting for the past two decades.[65] As noted by the implementation evaluators of the Evidence-Based Home Visiting to Prevent Child Maltreatment (EBHV) initiative, "the pattern underscores the difficulty in establishing firm expectations for service dosage within the context of a *voluntary program*" (p. 44). That the potential HFM participants are teenagers probably compromises utilization even further.

Understanding "Low Users"—Who Are They, and How Did They Fare?

As suggested above, a program that is universal—that attempts to engage *everyone*—is likely to fail in this endeavor with at least some groups of women. It seems that no matter how firm the expectations for service delivery, participants inevitably will vote with their

[AN] The median was four substantive activities.

[AO] The medians were 12 and 18.5 activities, for mothers who received no visits and mothers who received one to four visits, respectively.

feet. Examining how patterns of utilization differ by mothers' background characteristics, and even program outcomes, may help us to understand who these groups of women are, namely whether or not taking up the service or leaving the program "early" signals mothers' strength or vulnerability.

Who Are the Low Users?

Mothers who received lower program dosage (i.e., home visits and secondary activities), with less fidelity to the model were:

- More likely to enroll postpartum,
- Less likely to live with an older relative or guardian,
- Less residentially and financially stable,
- More likely to receive public programs since pregnancy, notably food stamps, and
- Less likely to be depressed at enrollment.

We see here a pattern in which mothers' low utilization seems to signal both strengths and vulnerabilities. On the one hand, the findings in the box above suggest that mothers who failed to engage with the program were less residentially and financially stable. On the other hand, mothers who used less of the program were less depressed, and perhaps more self-sufficient, at least based on the degree to which they are already hooked into services and supports, such as food stamps.

A case study of the 14% who never received a visit provides evidence of this phenomenon. We conducted a qualitative analysis of those secondary activity memo fields that were detailed enough to allow for a rudimentary coding of mothers' reasons for not participating (33% of the group that received no home visits). According to the home visitors' notes, about half the mothers did not participate because they were busy with education, or otherwise engaged in positively managing their lives (e.g., working, volunteering). For the other half of the mothers, the home visitors noted that challenging life circumstances (e.g., residential mobility) were barriers to participation.

How Did the Low Users Fare?

Results from analyses of the associations between utilization and maternal outcomes, likewise, support this strength/vulnerability phenomenon, with fewer visits being associated with both positive and negative outcomes.[AP]

Mothers who received fewer home visits were:

- More likely to be reported to DCF for child maltreatment,
- Less likely to use birth control,
- More likely to have a repeat pregnancy, and
- Less likely to report being a victim of interpersonal violence.

What we can conclude from the analysis examining program dosage (i.e., number of home visits) with outcomes—as we would any correlational analysis—is that there is a relation between number of home visits and some outcomes, but that we cannot necessarily predict the direction of the association (e.g., does receiving more home visits result in better outcomes, or do women with better outcomes take up more home visits?); nor do we know if another variable is driving this association. At both ends of the utilization spectrum, then, there are mothers making use of the program in widely divergent ways. It is likely the case, for instance, that some mothers may be better able to stay on course with the program and receive proffered services, and subsequently achieve more favorable outcomes. On the other hand, home visitors probably work harder to engage and serve young women who are faring poorly at enrollment, which may result in worse outcomes sometimes being observed among women with more home visits, even if they demonstrate relative improvements over time. The same argument can be made for women who leave the program early: it may be a signal of strength or vulnerability, and in the case of the child maltreatment outcome, whether women stay or go could be directly related to the outcome in question.

[AP] **These analyses are outside of the RCT design and focus only on the HVS group.**

In theory, a lack of fidelity to an evidence-based model should lead to a diminished treatment effect,[66] and it is certainly possible that results of this evaluation would have been stronger had the treatment group more faithfully taken up the services. That there were effects, however, despite this diluted treatment contrast between HVS and RIO, suggests that at least some of the mothers who did not use the program as intended were still getting what they needed from it. It is useful to interpret these findings outside of the constraining assumption that a faithfully implemented program model would, or should, work the same way for *all* participants. A more nuanced and multidimensional consideration of client behavior with regard to program services may allow for programs to make adjustments in their services that are genuinely responsive to individual client needs.

While intensive home visiting may be wholly useful and desirable for some mothers, it is likely that regardless of the initial "sell," other mothers do not feel that that level of service is needed in their lives. As suggested by the group of mothers who took up the program but only at a low level, some mothers may not want, or think they need, more than a few initial home visits, but may be interested in less hands-on forms of support and referral. It may be that different packages or menus of support could be offered to mothers based on their perceived need and preference. This tailored service could also alleviate the need for home visitors to make significant efforts recruiting or attempting to schedule mothers who are ultimately not interested in taking up the home visiting service. The ubiquity of technology in today's world makes non face-to-face contact considerably easier, and may be a platform with which this generation of young people is more familiar and comfortable. That being said, the value of a home visitor present in the home environment, directly connecting to—and perhaps challenging—young women cannot be overstated, and any consideration of additional modalities of support needs to continue to have home visiting as its core.

In sum, women opted not to participate for a variety of reasons. It does not appear that HFM systematically failed to reach a particular demographic within the adolescent parent population; rather the reasons mothers choose not to participate are quite diverse and likely related to their desire for, and ability to receive, support at that particular point in time. While the program offers "universal eligibility" based on a single criterion (age at first childbirth) families may experience the program and metabolize the services differently depending on their own characteristics and circumstances. We attempt to explore this interesting topic in more detail next in this discussion, when we focus on the home visitor-client relationship.

Understanding the Home Visitor–Mother Relationship

The first cohort evaluation of HFM[67] suggested that, for some mothers, the home visitor-mother relationship is the critical element of the program—above and beyond the information, resources, and other connections the program may provide. MHFE-2 continued this line of inquiry, delving more deeply into the ways that mothers perceived these relationships, and how their perceptions both reflected satisfaction with HFM, and influenced rates of participation and outcome attainment.

This report explored the home visitor-mother relationship dynamic from the mothers' point of view, using information on mothers' perceptions of relationship quality, the role that home visitors played in mothers' lives (i.e., friend, family member, professional), and any points of connection or disconnection mothers experienced with their home visitors. The mixed-methods analysis, which relied primarily on qualitative data collected during in-depth interviews with mothers, offers a deeper understanding of how young mothers develop relationships with their home visitors, and why their relationships may thrive or fracture over time. It is important to keep in mind that this detailed investigation of relationships was carried out only *among young mothers who had at least four home visits*, indicating that we do not know very much about the home visitor-mother relationships among women who had only a few home visits, including the extent to

which this relationship may have accounted for their low program uptake.

The majority of mothers characterized their relationships with their home visitors as positive, and their impressions fell into four categories:

- *Positive Friend:* characterized by closeness, comfort, familiarity, informality, compatibility, expertise, but also authority and boundaries;
- *Positive Family Member:* characterized by emotional investment, caring, closeness, support, availability, directness;
- *Positive Professional:* characterized by understanding, support, acceptance, flexibility, listening; and
- *Negative Professional:* characterized by disagreements, lack of flexibility, disinterest, appearing judgmental.

Collaboration, indicating the degree to which the home visitor and the client share responsibility over goals and processes in the home visit, is viewed as a central component of successful home visitor-client relationships.[68] The variations we observed between the four relationship profiles (Positive Friend, Positive Family Member, Positive Professional, Negative Professional) suggest that a critical type of collaboration relates specifically to relationship-building goals and processes, expressed in home visitor-mother dyads as *responsiveness to one another's individual stylistic tendencies*, *comfort level with intimacy*, and *preferences about the content and nature of interactions* within the context of a formal helping relationship. Relative harmony in this area facilitates relational satisfaction among mothers, manifested as trust, caring, and varying degrees of closeness, or what the literature calls *bond*.[69] The relationship profiles in which mothers enjoyed the most relational satisfaction—the Friend, Family Member, and Positive Professional profiles—seemed to have the highest degree of relationship-building collaboration. On the contrary, the Negative Professional profile relationships seemed to suffer from a lack of relationship-building satisfaction, and mothers expressed dissatisfaction about mismatches in each party's perceptions of what was appropriate in this relational context. These mismatches were expressed as *disconnects*, or misalignments related to behavioral conduct, the content of advice, and the way it was delivered.

Our examination of how maternal characteristics may contribute to the shaping of home visitor-mother relationships revealed that certain maternal factors appeared to be more salient than others. Most notably, the mothers who viewed their home visitors as friends were less depressed and had experienced less trauma in their lives than mothers in the other relationship groups, which perhaps enabled them the necessary trust and flexibility related to interpersonal boundaries to establish a more informal friend-like relationship with their home visitors. Interestingly, the women who viewed their home visitors as family members exhibited the highest rates of depression and trauma, which may suggest that they were specifically seeking an intimate helping relationship characterized by emotional safety and trust.

Variations in mothers' perceptions of their home visitors' role, and the degree to which mothers and home visitors achieved alignment in terms of relational preferences, was evident in program utilization patterns. Mothers who saw their home visitors as Positive Friends—the profile that could be considered to have the highest degree of relational satisfaction according to statistical findings—experienced considerably more secondary activities, including substantive secondary activities, than mothers who viewed their home visitors as Positive Family Members or Professionals.

The Positive Friend and Family Member profiles were characterized by high levels of intimacy, and these mothers were also enrolled in the program for the longest period of time. Though mothers in the Positive Professional profile, who reported varying levels of intimacy and distance with their home visitors, were enrolled in the program for approximately eight months longer and received more than two times the number of home visits than those in the Negative Professional profile, they were not enrolled as long, nor did they

receive as many home visits, as the other two positive profiles.[AQ] The continuum of professional distance particular to each type of relationship may also explain some of the variation in program utilization.

To further understand the link between the relationship profiles and mothers' utilization of the program, individual fidelity was examined in greater detail. By way of a reminder, individual fidelity captures the degree to which mothers used the program as it was intended, and it can be broken down into two distinct categories: (a) fidelity related to initial exposure, and (b) fidelity related to overall exposure. While *initial exposure* fidelity scores were not significantly different for mothers in the different relationship profile groups, mothers who viewed their home visitors as Negative Professionals had lower *overall exposure scores* (the subscale that comprises HFM sentinel indicators) than mothers who viewed their home visitors as friends or as family members. It is important to note that mothers categorized in the Negative Professional profile were not opposed to receiving help from professionals; in fact, their outcomes indicate that they were more likely than some other mothers to utilize mental health services since becoming pregnant. Perhaps in acknowledgment that HFM was not directly meeting these mothers' needs, their home visitors referred them for mental health services, or perhaps these mothers found that the mental health services were more critical for their immediate needs. The data do not allow us to disentangle this further.

Further analysis of participants' reasons for discontinuing HFM enrollment indicates that women in the Negative Professional profile were more likely than women in other profiles to leave because of the program's perceived irrelevance and the home visitor's behavior. To the extent that these women were more seasoned at being recipients of formal helping services (e.g., mental health services), they may have had more of a basis for comparison, assessment, and evaluation, and higher expectations, for programs and professional relationships than those in the other relationship profiles. Alternatively, it may be the case that some of the mothers in this group experienced an interruption or disconnect in the early stages of relationship development, leading them to view their home visitors in a negative light and subsequently taper off their involvement.

The whole of these findings suggests there is something about the intimacy achieved through HFM that is appealing to certain mothers and, perhaps, even keeps them engaged in the program. Mothers who seek more interpersonal intimacy in formal helping relationships may want to, or feel obligated to, remain in the program longer because of the closeness they developed with their home visitor. Of course, the relationship is bidirectional (and these analyses are not causal), so it could also be true that women who stay in HFM for a longer time have the chance—or the ability—to develop more intimate relationships with their home visitors. While longer enrollment does not necessarily lead to gains in the program-specific goals measured here, there may be other gains achieved by these mothers that are beneficial nonetheless. For instance, considering the history of trauma among many of the mothers in the Positive Family and Positive Professional profiles (82% and 50%, respectively, met full or partial PTSD criteria), establishing and maintaining an intimate, functional relationship with an adult may well have been an achievement in itself. Further, mothers in these relationships may have perceived gains at a more micro-level, such as successfully resolving a conflict with a family member or partner due to advice provided by the home visitor that would be more difficult to measure. Interestingly, none of the four profiles stood out in terms of consistently achieving more favorable parenting and child outcomes as measured by the study.

Overall, the majority of home visitors were well-received by mothers, despite variations in role designation. The observed links between relationship profile and utilization and maternal characteristics, and both similarities and variations in mothers' self-reports of relationship satisfaction, point to the importance of collaborative, highly individualized relationships based on

[AQ] Although some of these differences are not statistically significant, likely due to small sample sizes, the differences between groups are notable. See Table 15 for details.

the unique preferences and needs of each mother in the home visiting relationship. In other words, home visitors who are responsive to the type of relationship mothers seem to want to develop with them (which mothers' typically expressed indirectly through their interactions with home visitors and their responses to home visitors' approach and advice) may be able to achieve better relationship quality.[70] To the extent that mothers who are more satisfied in the relationship stay engaged longer, home visitors who practice this responsiveness have the opportunity to work with mothers on desired outcomes. It is important to keep in mind that however different the mothers in the Negative Professional profile appear relative to other mothers—at least in the way they perceived their relationships with their home visitors—this was a small group of about 20 women. Yet combining this small group with the mothers who received very few home visits, and were thus excluded altogether from the relationship analysis, suggests that consideration of how to prevent the *major disconnects* and promote engagement among some mothers is important going forward.

Conclusions for Program Operations

Key findings

- Programs were largely delivered as designed, which presents a picture of HFM as a well-managed program.
- Within programs, however, there was substantial variability on mothers' take-up, particularly after the initial enrollment and intake stage.
- Mothers with high utilization tended to enroll prenatally, live with an older relative or guardian, were more residentially and financially stable, were less likely to receive public programs since pregnancy, notably food stamps, and were more likely to be depressed at enrollment.
- Mothers received a lot of secondary contacts from their home visitor, which suggests that direct home visits are not the only worthwhile mode of service delivery.
- Many non-visit activities may have represented significant efforts of home visitors to contact and enroll mothers who may not have been interested in the program.
- A few associations—largely favorable—between the number of home visits women received and their outcomes were detected. It is not possible, however, to determine if any observed effects were due to the program or due to the characteristics with which women entered the program.
- Mothers who did engage with the program (i.e., have at least four visits) developed distinct relationships with their home visitors.
- While largely positive, there was a group who viewed their home visitors in a more unfavorable light.
- Further understanding of the anatomy of a home visit could help to determine at what point mothers disengage and why.

Findings from our process evaluation of program operations reveal a complicated picture. While HFM, overall, conducted itself with high fidelity to the program model, person-centered investigations of how participants used the program revealed considerably more variability and less fidelity. More program use was related to both maternal strengths and vulnerabilities, as well as to both positive and negative outcomes. Similarly, positive home visitor–client relationships were related to maternal characteristics, utilization, and outcomes in complicated and inconsistent ways. The findings presented here add to the growing body of home visiting evaluation research attempting to better understand program implementation, and the complex, dynamic, relational contexts in which home visitors deliver services. It is hoped that information generated from these process evaluation activities will be useful to programs, raising interesting questions about, and informing changes or improvements in, the ways in which they operate.

12.3 Discussion of HFM Impacts

HFM had impacts on development in areas of critical importance for adolescents, and especially for adolescent parents: learning to control stress, curbing externalizing and risky behaviors, and increasing educational attainment. There were also a number of other program impacts relevant for particular subgroups of young mothers.

Given the conservative and rigorous nature of the ITT approach, notably the inclusion of young women who received no, or few, home visits in the treatment group, the fact that significant program impacts were found across a range of goal areas reflects a noteworthy measure of effectiveness of the HFM home visiting model. Since the MHFE-2 sample is entirely composed of young mothers, it is particularly important to examine the types of outcomes in which significant impacts were found, including *reductions in parenting stress, higher college attendance, use of birth control,* and *decreases in impulsive and risky behaviors*, and to consider their relevance to this specific population. And, going back to the findings on the relationship between mothers and their home visitors, it is important to think about how home visitors can engage with young mothers to facilitate outcomes in these areas.

While it is beyond the scope of this discussion to review every finding in the report, the aim here is to highlight, and perhaps explain further, the key findings, as well as to attempt a synthesis across findings to better understand the story of HFM in its second decade. We first discuss findings related to parenting (Goal 1), including both impacts found for the full sample, as well as a number of relevant findings for particular subgroups of mothers. Next, we look at findings related to education and employment (Goal 3), and then explore findings related to mothers' health and well-being (Goals 4 and 5), summarizing main effects, as well as effects for subgroups of mothers, as relevant. Finally, we consider the lack of findings on the health and development of target children (Goal 2), and offer some hypotheses as to why the present study failed to detect any treatment effects on these children in the short term.

HFM as an Early Warning System for Child Maltreatment

Although generally of most interest to policymakers, home visiting programs do not have a well-documented history of *directly* leading to significant reductions in official reports of child maltreatment.[71] Likewise, we did not detect any program effects on the prevalence of substantiated child maltreatment reports using DCF data in the present study. We did, however, find that, among women whose children had received a substantiated report of maltreatment (20% of the MHFE-2 sample), young women in the HVS group were more likely to be documented as the perpetrator than women in the control group (90% vs. 60% for HVS and RIO, respectively).

According to the 2012 *Child Maltreatment* report,[72] the mother was the sole or joint perpetrator in 61.9% of cases, which is similar to the rate for mothers in the control group.

This finding reflects one of the complications of trying to accurately assess child maltreatment among mothers participating in home visiting programs compared with mothers who are not: Contact with home visitors makes it more likely that child abuse or neglect will be identified and reported among families receiving home visits—the so-called "surveillance bias,"[73] whereas it may go unnoticed among families in the control group. There was simply more opportunity to observe parenting behavior among HVS than RIO mothers. Viewed through a preventative lens, the presence of surveillance effects could be seen in a positive light, with home visitors filling a crucial gap in the detection and prevention of child maltreatment. That is, an extra set of "eyes and ears" in the home may have made it more likely that HVS mothers' worrisome behaviors were flagged early on. This may be particularly true when maltreatment is more subtle, and thus more difficult to detect from outside the home, as is the case with neglect of infants and toddlers, which was overwhelmingly

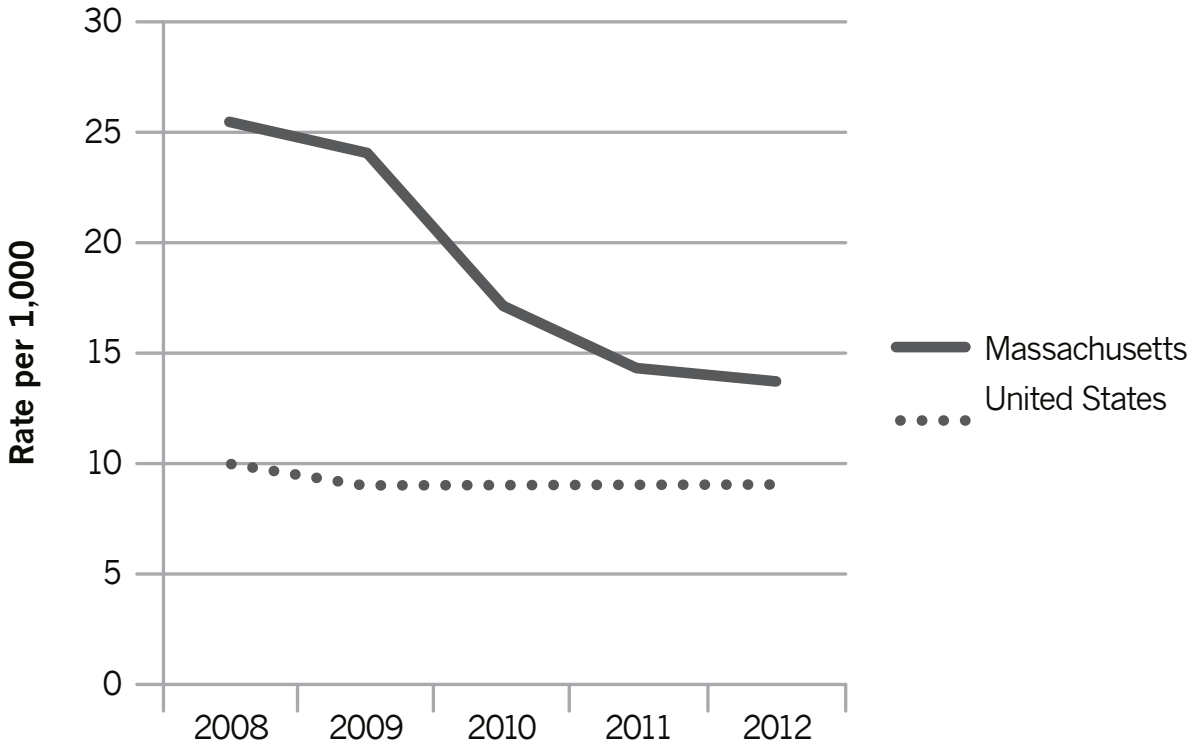
the most prevalent type of maltreatment found among mothers in the study.

Put in context of the high rates of maltreatment report and substantiation in Massachusetts (see Figure 19) —particularly during the timeframe of the present study—and the fact that home visitors were well-trained mandated reporters honed in to detecting abuse and neglect, the finding on perpetration is not particularly surprising and could indicate that children at risk of maltreatment are being identified early and are not "falling through the cracks."

Rather than assume our findings were the result of increased surveillance on HVS mothers by home visitors,[74] which tends to be the default position when findings are inconclusive, we carried out two follow-up analyses, both of which revealed support for this hypothesis. First, given the known links between risky behavior, substance abuse, and child maltreatment,[75] we hypothesized that mothers' exhibition of high levels of risky behaviors at the time of enrollment, including unprotected sex, physical fights, and substance use, would serve as potential "red flags" for home visitors, and make them more sensitive to, or on alert for, observed behaviors that may be construed as maltreatment, particularly neglect. In this vein, we detected a significant association between mothers' participation in risky behaviors at T1 and the probability of being reported to DCF for maltreatment in the HVS group only. This relation between risky behaviors and later reports was not seen for mothers in the control group. If these risky behaviors are indeed linked to later maltreatment, and home visitors are signaling an early alert for these mothers, HFM is truly operating in a preventive way.

A second follow-up analysis, this time analyzing home visitors' notes from home visits and other activities

Figure 19. **Children Confirmed by Child Protective Services as Victims of Maltreatment in United States and Massachusetts, Rate per 1,000, 2008-2012**



Note. Data available from http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment

among the young women whose children had any DCF reports made while the mothers were still enrolled in HFM (n = 59)[AR] revealed that, while home visitors were direct reporters in only 9% of cases, there were an additional 17% of cases in which they played an indirect role in the mother's report with DCF, either by supplying evidence supporting allegations, or assisting mothers through the reporting process. (Home visitors did not always mention DCF in their notes, making it difficult to ascertain the full extent of their involvement.) Other service providers or police were the reporters in about a quarter (25%) of cases. These findings suggest that home visitors were part of a wider circle of service providers in close contact with mothers.

Below, we present a few examples of home visitors' involvement in allegations to DCF.

- **Direct involvement of home visitor:** "Today's visit was a tuff (sic) one. I went to my supervisor and talked with her and with conversations with the director of the program it was decided to file a 51A mostly on the question of PostPartum Depression and concern for the safety of the child as well of the participant."
- **Concerns expressed by home visitor:** Mother reports hospital filed 51A. Home visitor reports she is concerned for both the child's and mother's safety. Mother asks home visitor to support her during DCF visits, and to speak on her behalf, as she knows and trusts home visitor. However, home visitor discusses concerns about depression and child's safety with DCF, which upsets mother.
- **DCF contacted home visitor:** A particular visit took place in a DCF office, regarding custody of target child. Mother lost custody of child, and home visitor helped mother understand DCF service plan. Home visitor and mother spoke on phone to DCF at a later date about foster placement for child, requesting the child's father's aunt to be a foster parent.

[AR] Women whose DCF reports pre- or postdated their HFM start and end dates, respectively, and women who did not receive any home visits were excluded from this analysis.

While findings across HFA evaluations suggest that home visiting may not be directly linked to reductions in substantiated child maltreatment, it is important to underscore the preventative role home visitors may play as observers of early parenting behavior. Surveillance means early identification and support, ideally before worrisome parenting behaviors elevate to critical levels. Given the enormous societal consequences of child maltreatment, the role of home visitors as first line reporters is underscored. Most parents who were themselves maltreated do not go on to maltreat their own children, of course, but research suggests that about one third do.[76] Among the 55% of mothers in MHFE-2 who were victims of child maltreatment, the fact that less than a quarter were subsequently maltreating their own children is noteworthy. Further understanding of the whole system of supports mothers were receiving from the wider community is important to better understand the role HFM plays in helping to break the cycle of neglect and violence, and how it can do so more effectively, perhaps before minor transgressions become substantiated DCF cases.

Although HFM appeared to operate effectively in serving as an early warning system for abuse and neglect, it is important to remember that neglect is not wholly an intrapersonal problem, it is contextual as well. Our findings, and interpretations thereof, also beg the more philosophical question of whether DCF reports should be such a key player in this system of early warning. There are certainly other ways of working with families to prevent the elevation of poor parenting to abuse and neglect that avoid the stigma of DCF reports. For HFM to maximize its effectiveness in actually reducing neglect, it needs full community engagement and connections to normative community institutions. Ultimately, prevention and intervention efforts need to address multiple aspects of the "dynamic system," including the mother's characteristics, the family context, and the broader ecological context.

Moving on from formal reports of child maltreatment, it may be more reasonable to expect that home visits can positively affect parenting practices, which are certainly

related—and may be precursors—to child maltreatment. Program effects on parenting outcomes are of particular interest for this sample of young mothers. Although not consistent across the other evaluations of HFA-affiliated programs, favorable program effects were reported for Early Head Start (EHS) and some of the NFP evaluations in the areas of maternal emotional support, sensitivity, and responsiveness.[77]

Although the present study did not find any program effects in positive parenting behaviors, HVS mothers did exhibit fewer negative parenting attitudes and behaviors than RIO mothers; notably, HVS mothers reported lower levels of parenting stress compared with RIO mothers. Reducing parenting stress may lead to greater ability of families to meet developmental challenges in several domains, including child discipline, maternal well-being, maintaining stable partner relationships, and achieving educational goals.

While some home visiting programs have documented impacts on positive parenting behaviors, the favorable program effects on parental stress break new—and important—ground.[78] Parenting cognitions—or the way in which parents think about parenting—are important aspects of parenting, alongside their actual behavior.

Findings also revealed that maternal reports of corporal punishment, both attitudes and actual behavior, were lower among some subgroups of HVS mothers compared with RIO mothers, including mothers with higher exposure to traumatic events, young women who enrolled while parenting, and non-Hispanic Black mothers.[AS]
In relation to young mothers with significant experiences of trauma in their lifetimes, these program effects in corporal punishment are notable. For these mothers with histories of violence, abuse, and trauma, the home visiting service seems to help break the cycle of abuse and neglect.

[AS] For non-Hispanic Black mothers and mothers with more exposure to traumatic events, the program effect is on actual use of corporal punishment in the past year. For mothers who enrolled postpartum, the measure focuses on attitudes about corporal punishment.

The fact that HVS mothers who were already parenting at enrollment (vs. the full sample, including pregnant mothers) were less likely to endorse corporal punishment is not entirely surprising. It may be easier—or more realistic— for young mothers to reflect on appropriate disciplinary practices when they have a child, and/or when the child reaches an age where discipline becomes an issue. Yet, many mothers leave the program before or soon after their babies are born, which may dilute the potential effectiveness of any parenting advice and report received.

The program effects on parenting are particularly relevant when considering the evidence base. Research on adolescent parenthood documents that younger mothers face disproportionately high exposure to multiple sources of stress, such as poverty, underemployment, school failure, isolation and decreased social support, depression and other mental health concerns, and single parenthood, coupled with the fact that, in many cases, they lack the cognitive, emotional, and social resources to cope with these stressors.[79] Consequently, compared to older mothers, adolescent mothers are more likely to report unrealistic expectations regarding the needs of their children, and exhibit less supportiveness and positive regard toward their infants, which may unfavorably affect their children.[80] Our findings hold promise for the future, and suggest that fewer negative parenting behaviors and attitudes may be an important pathway to future favorable outcomes.

The whole of these parenting findings is important, particularly when considered in the context of the obstacles these young parents may face, and the promise early supports may offer. That HFM helped the mothers in our sample to better cope with the stresses of being a parent and, for certain subgroups, led to less use and acceptance of harsh discipline is no small feat. Further, the findings revealed that home visitors may have helped to flag potentially harmful parenting behaviors, suggesting that the mothers most at risk of maltreatment were receiving attention—although, as noted above, instigating a case with DCF may not always be the best option relative to, for example, connecting the

mother with other services and supports. In any case, the evaluation findings suggest that HFM provided early support to mothers to help reduce negative parenting behaviors and beliefs, which could lead to improved maternal and child well-being down the road.

Supporting positive, effective parenting: Positive program effects for HVS

Less parenting stress	• Main effect
Less corporal punishment (behavior and attitudes)	• Subgroup effect for mothers who • were exposed to more trauma • were non-Hispanic Black • enrolled postpartum

Impact on College Attendance

The evaluation revealed a significant impact of HFM on mothers' college attendance. A meta-analysis of home visiting programs found that maternal education was the one area for which programs targeting teenage mothers had consistent effects,[81] although most of these studies focused on high school attainment, suggesting, once again, that the findings from the present study cover new terrain.

Although the percentage of women who attended college was small across the sample (14%), HVS mothers were 1.7 times as likely as RIO mothers to do so, which may have important implications in the future. A recent economic study using national data found that increasing the educational attainment of teen mothers by just a high school diploma—not even college—was predicted to lead to increases in adolescent mothers' children's later average annual family incomes at age 29 by nearly $6,000.[82] While the economic evidence base for HFA is not substantial, cost-benefit analysis of the Nurse Family Partnership (NFP) program, another home visiting program, shows a cost saving nearing $30,000 per person as a result of increased educational attainment.[AT] These findings illustrate the potential importance of increased educational attainment to the mothers themselves, and to the public coffers, as well. Further educational attainment is being tracked in a follow-up study of these women.

Changes in the structure of the labor market have resulted in a rising demand and premium for skilled relative to unskilled workers. In 2011, adults with high school diplomas earned about $21,000 less than adults with a bachelor's degree. Even adults with some college, but no degree, earned 14% more than high school graduates.[83]

A complementary analysis using data from the Department of Elementary and Secondary Education (DESE) for a subsample of mothers who participated in the MHFE-2 evaluation reported that, relative to RIO mothers, HVS mothers' school attendance increased substantially postpartum. This suggests that the services and support provided by home visitors helped mothers to return to school and get back on track, which may have facilitated their later college attendance.[84] Likewise, a qualitative analysis of HVS women who had dropped out of school and did not return revealed that their inability to deal with various stressors, pregnancy-related and otherwise, were the main obstacles to their educational attainment.[85] Programs, including home visiting programs, that help mothers effectively deal with daily stress, as well as attend to their pregnancy-related needs, may provide the supports necessary to keep these mothers in school.

While the existing analysis showcases this impact on college attendance, subgroup analyses suggested that the rate of high school graduation was lower among Hispanic women who participated in HFM relative to Hispanic women in the control group. Further examination of the data revealed that Hispanic women in the HVS group actually started the study with the highest drop-out rates (27%), which likely accounts for the finding. While many of these women were able to re-enroll by T3, it is likely that their initial drop-out rates disadvantaged them.

[AT] For more details, see the Washington State Institute for Public Policy Benefit-cost results data available from http://www.wsipp.wa.gov/BenefitCost

Other evaluations carried out at similar time points to ours have also generally not found effects of home visiting on receipt of various public assistance programs and mothers' employment.[86] Given that our sample is composed of adolescent mothers, perhaps education should take priority over employment at this point, recognizing, of course, that in the long-term, employment (at the household-level) is imperative. Further, working outside of the home when the target children are very young may run counter to mothers' other goals around, for example, competent parenting. Regarding employment, it is also important to remember that a simple measurement of employment status without consideration of job quality and access to high-quality child care, as well as whether combined earnings significantly raise families above the poverty line are other critical considerations, particularly since most of the women in our sample would be working in jobs (at the time of the evaluation) that did not require college degrees.

The evaluation was limited in its ability to gauge mothers' income as a measure of economic well-being. Given the age of the mothers in the study, they likely had various sources of support in addition to their own income. Most of their financial needs may have been covered by their parents or partners, and these arrangements were probably both formal (i.e., if parent or partner is the head of the household) and informal (i.e., if support is occasional). When mothers were asked about their family annual income, the majority replied that they did not know.

Another way to assess financial vulnerability is to ask about receipt of government support (e.g., cash assistance, food stamps). However, because receipt of these benefits is conditional upon meeting the program's eligibility criteria (e.g., mothers' age, citizenship, cooperation with program's requirements) in addition to low-income status, *not* receiving the benefit does not automatically mean that the mother's income is above the agency's eligibility level and that she is, therefore, financially stable.

Our analysis did include two subjective measures of economic well-being: difficulties covering expenses and basic resources, neither of which was affected by HFM for the full sample (although there were some significant differences for some subgroups of mothers). These results should be interpreted with caution, however, given that the measures reflect whether mothers perceived themselves to have financial difficulties. Perceptions, of course, can be informed by the actual availability of resources, as well as by other factors, such as mothers' knowledge of other resources that exist, but are unattainable.

In sum, HFM had an impact on young mothers' college attendance, an increasingly important achievement for all young adults in the U.S. given the structure of the labor market and the increasing demand for skilled workers. Time will tell if this early success will yield better employment outcomes in the future. Given the strict time limits on cash assistance, the importance of these mothers finding employment in the future cannot be overstated. The present study took place while target children were still very young, and while the mothers themselves were still meeting their own educational objectives, which may have precluded other program impacts in this goal area. Educational attainment and financial stability are foundational for families' well-being, and if HVS mothers see their college attendance through to graduation, it will better position them in the labor market.

Reduction of Risky Behavior

A large body of research demonstrates that adolescence often is marked by increases in problem behavior following the onset of puberty, which can be attributed to the gap between biological and social maturity. This spike in problematic behaviors *typically* begins to decrease around 17 or 18 years of age. However, pre-existing problems may be accentuated for adolescents during times of transition, of which pregnancy and parenthood could be considered one extreme form.[87] Yet, in spite of these trends, HFM led to significantly fewer problematic behaviors, including severe risky behavior, drug use, and perpetration of intimate partner violence:

- 25% of HVS mothers engaged in three or more

risky behaviors in the past month vs. 36% of RIO.

- 39% of HVS mothers perpetrated intimate partner violence in the past year vs. 51% of RIO.
- 11% of 18- to 25-year-olds in the U.S. used marijuana in the past month, 28% in MA.[AU] 11% of HVS mothers did, 20% of RIO.
- 25% of HVS mothers used condoms vs. 18% of RIO.

While important for young women's health, as well as for their ability to be effective parents, the reductions in risky behavior are also critical given that the prefrontal cortex—the part of the brain responsible for critical planning, problem solving, and emotional regulation functions—is still developing during late adolescence and early adulthood.[AV] This means that it may be particularly challenging for adolescents to resist the impulse to engage in risky behaviors, at a time when the potential impacts of, for example, substance use, can have a particularly deleterious impact on brain development.

With the exception of condom use, the program had few impacts for the full sample on reproductive health outcomes related to birth and future pregnancy. This largely fits with other home visiting evaluations, which have generally not reported outcomes in this area.[88] The increases in condom use among HVS participants, however, could be interpreted as a decrease in risky behavior (unprotected sex) in addition to a finding related to reproductive health. From this standpoint, the finding on condom use aligns nicely with the other reported decreases in risky behavior and drug use. There was a lower likelihood of subsequent pregnancies or births among some subgroups of mothers, notably, older mothers, mothers who enrolled postpartum, and non-Hispanic Black mothers, but it is difficult to surmise what led to this impact for these specific groups of mothers.

[AU] US and MA data from the KIDS COUNT Data Center, available from http://datacenter.kidscount.org/

[AV] For more details, see http://www.nimh.nih.gov/health/publications/the-teen-brain-still-under-construction/teen-brain.pdf

Promoting health, well-being, and positive functioning

More condom use	• Main effect
Fewer subsequent pregnancies or births	• Subgroup effect for mothers who • were older at birth • enrolled postpartum • were non-Hispanic Black
Fewer risky behaviors in past month	• Main effect
Less marijuana use in past month	• Main effect
Less perpetuation of intimate partner violence	• Main effect
Less smoking in past month	• Subgroup effect for mothers who • were exposed to more trauma • had higher levels of depression • were non-Hispanic Black

According to the results summarized in this section, participation in HFM resulted in significant improvements in the positive functioning of young mothers. These findings seem unique relative to findings from other evaluations of home visiting programs, likely due to the developmental relevance of these outcomes for the young mothers in our sample and the ability of HFM to work effectively with adolescents. Mothers' ability to manage and rein in risky behaviors should have important effects on their own achievements in the future, as well as on their children's health and well-being.

No Direct Program Effects on Target Children in the Short-Term

The final point noted above raises the question of why impacts on children's outcomes at the end of evaluation period did not emerge. First, it is important to consider that the absence of effects in the outcomes considered in the present evaluation is consistent with most, if not all, other home visiting programs. Other studies have reported favorable program effects on children's cognitive outcomes,[89] an outcome not considered in the present study. Second, the lack of impacts on target children must be considered alongside the overall high levels of child health and well-being with the state of Massachusetts. All mothers, regardless of whether they

received home visits or not, were eligible for universal health coverage and insurance in Massachusetts, which may have provided more than sufficient support for very young children's health and well-being. To find program effects we need variability in outcomes, and there was not very much variability between children of mothers in the HVS and RIO groups on the some of the outcomes examined in the evaluation, particularly in terms of newborn health.

Due to the nature of the program, HFM will only ever have an indirect influence on children's outcomes. That is, HFM operates under the principle that parents should direct change in their children's growth and development and that the role of the home visitor is to facilitate this process by empowering, educating, and supporting parents, rather than working with children directly. Looking back to mothers' own program goals, child health and development appeared to be quite important—warranting the most numbers of goals set after educational attainment, job, and life skills. In the present study, we know that mothers were involved with HFM for 15 months, on average—with significant variability around this average—thereby curtailing the home visiting support when their children were very young, and for the most part, before the potentially challenging toddler years.

This is not to suggest that HFM did not, and will not, favorably affect children after the program ends, but what it does suggest is that we may need to look further to see what other early childhood programs and services mothers have since taken up for their children as a result of their participation in HFM, and how the full package of supports mothers have received since pregnancy has affected their children's well-being. A recent analysis of the MHFE-2 data found that children's attendance in formal child care settings was favorably linked to both their socio-emotional and language development at T3, when they were 24 months of age. While there was no difference in use of formal child care between HVS and RIO families, a better understanding of the role of HFM in facilitating use of child care, helping mothers gain access, or in promoting centers of high quality is important.[90] Perhaps the goal of home visiting vis-à-vis optimizing child development is to ensure that the "baton" gets passed, or shared, so that mothers become effective consumers and users of services for their children while receiving home visiting services and afterward.

Given the findings on reductions in negative parenting behaviors, including stress and risky behavior summarized earlier, it is not unreasonable to expect that favorable program effects on parents should be borne out in their children over time. Certainly, the most widely cited home visiting program effect focuses on an evaluation of NFP in upstate New York, some 15 years after the original study,[91] suggesting that future evaluation efforts should continue to include the target children as they develop and grow. As we collect more longitudinal data (i.e., from additional time points), our ability and power to detect these important impacts increases.

We did attempt to identify some of these pathways in the present study (see Chapter 8). We found some links between shorter-term outcomes measured at T2 and slightly longer-term outcomes measured at T3, such as child care usage at T2 and mothers' college attendance at T3, and social connections at T2 and risky behavior at T3. However, we did not find any evidence of program effects on these pathways.

Detecting program effects in this goal area is likely a work in progress, one that we will return to as new follow-up data become available. Armed with a better understanding of the areas in which HFM has an impact—parenting stress, college attendance, risky behavior—we can examine how these outcomes subsequently lead to impacts on children's outcomes in the future.

Conclusions on HFM Impacts

Program effects were modest, but are consistent and apparent in areas pertinent to the population of adolescent mothers, notably negative parenting, risky

behavior, and college attendance. While interesting nonetheless, these impacts are particularly relevant for the adolescent sample and could serve as critical gateways to other effects down the road.

Key findings

- No program impacts were observed on the likelihood of child maltreatment reports—substantiated or otherwise.
- Among the mothers with substantiated child maltreatment reports, mothers who received HFM services were more likely than those who did not to be named as perpetrator, suggesting that home visitors provided an important early warning for mothers at risk of abuse or neglect.
- Favorable program effects on aspects of parenting that could be considered precursors to maltreatment were observed. HVS mothers reported lower levels of parenting stress compared with RIO mothers, and maternal-reports of harsh punishment were lower among some subgroups of HVS mothers compared with RIO mothers.
- HVS mothers were 1.7 times more likely than RIO mothers to have completed at least one year of college, a finding of critical importance for an adolescent sample.
- Mothers who received home visits demonstrated significantly less risky behavior and substance use relative to their peers, representing an important developmental milestone for these young mothers, with potential long-term benefits.
- To date, no program effects were observed for target children, which could be due, in part, to overall high levels of good health and well-being for Massachusetts' children.
- Many of these findings were previously unreported in other evaluations of home visiting programs, suggesting that the present study is unique with its focus on adolescent mothers and observed effects in areas crucial to adolescents and young adults.

Given the particular focus of the present study on adolescents, understanding how service providers can effectively establish relationships with and support young people is key. Based on evidence from mentoring programs, other home visiting programs, and community programs for youth, adults who successfully work with adolescents:

- Help them build healthy and safe relationships, including defining boundaries within friendships and families or serving as a role model or mentor;
- Attend training and educate themselves on adolescents' developmental needs, and coping strategies for working with the attitudes and specific needs of adolescents;
- Collaborate with relevant services including schools, early intervention, child care centers, primary care, social services, and other local services;
- Provide youth with multiple domains of assistance and referrals, and serve as the point of contact for them;
- Provide opportunities for adolescents to feel efficacious and build skills; and
- Specifically for adolescent parents, help them to balance their parenting and family demands with normative adolescent life experiences, such as maintaining high school enrollment through graduation, and finding time and child care supports to complete homework or attend teen social events.

No one program can possibly be expected to address all of the challenges facing adolescent mothers. HFM must be viewed, then, as part of a wider system of support that is making significant contributions to some critical outcomes during a period of developmental transition.

CHAPTER THIRTEEN

Implications and Opportunities

The MHFE-2 team appreciates the generosity and clarity of purpose with which the Children's Trust invited us into its midst over these past six years. No corner of the program was out of bounds as Healthy Families Massachusetts (HFM) staff at all levels of its organization sought to understand whether the program was operating as intended, and whether it was achieving its laudable goals. In addition to the honesty and openness with which the HFM staff approached this evaluation, they also demonstrated remarkable patience. As is frequently observed, researchers and policymakers are strange bedfellows; both value timeliness, but operationalize the notion differently. To researchers, timeliness means producing reliable findings as expeditiously as possible; to policymakers, it means having good quality information at hand when key decisions are being made. In the life of MHFE-2, HFM often had to wait for results far past the moment when they might have been considered maximally useful in a given policy cycle. On the other hand, this patience allowed us to feel confident in the quality of the impact analysis reported in this evaluation report.

We also consider potential implications of these findings for the HFM program, other home visiting programs, home visiting policy, child and family policy more generally, and applied developmental theory. Here, admittedly, we are on more speculative ground, in part because there are more research questions to be answered and more analyses to be done. For brevity's sake, and because we have also integrated implications throughout Chapter 12, below we highlight selected implications that pertain directly to HFM—its own operations and its relationship to other organizations and agencies—and to future home visiting research. We offer these in the spirit of continuing a conversation—with the Children's

Trust, Healthy Families Massachusetts, and the broader field—about how we can each do our part, individually and collectively, to improve the lives of young families.

13.1 Implications for HFM program

These implications pertain to several key aspects of HFM: its goals; its operating standards, including eligibility and participation guidelines; and its approach to participant engagement.

Program Goals

HFM supports program goals in five areas of child and adolescent functioning: positive parenting, infant and toddler development, maternal health and well-being, educational attainment and employment, and family planning. In our view, this broad reach is commendable, since it reflects real, inextricably interconnected, core aspects of life within young families in a way that home visiting programs with a narrower scope simply do not

(e.g., those that only focus on preventing repeat births, or reducing maltreatment,). However, this breadth, and the choice of these particular goals, as opposed to others that might have been included, also creates challenges, both for the program and its evaluators.

There likely are trade-offs for families seeking to be successful across these goal areas. It may be that achievement in one area tempers or delays achievement in another. For example, if a young mother is focusing on being a good parent, she might postpone returning to school or securing employment. Indeed, might not her parenting suffer, or her child's well-being, if she doggedly pursues employment in the absence of quality child care and other necessary supports? A primary focus on maternal well-being might favorably affect child outcomes, or possibly the reverse. Or there may be a sequence of achievements involved, so that it would be highly unlikely to attain certain goals before others, in which case working on the latter would be time poorly spent. That is, until we see improvements in parenting, should we expect to see declines in maltreatment? Should we expect to see changes in child outcomes before we see improvements in parents' risky behaviors and parenting? And to complicate matters, these pathways of achievement might well look different across communities.

Should HFM establish a hierarchy of goals, indicating that some goals, or objectives in goal areas, are more important or need to be accomplished before others, and insist that programs reflect it? HFM considers itself, first and foremost, a positive parenting, maltreatment prevention program, so perhaps that should be, and already is, the most critical goal for participants. As these data and those of other preventive maltreatment home visiting programs have shown, however, preventing maltreatment—particularly neglect of infants and toddlers—with a voluntary program is difficult to achieve and to document, at least in the first few years of children's lives. Furthermore, the problem of neglect arises from many sources, not only, and some would argue not even primarily, the lack of parenting guidance, knowledge, and support, or intrapsychological limitations of the parents. It may be useful to consider bringing into bolder relief a number of the other goal areas in which HFM has demonstrated success.

It also may be that this particular roster of goals and objectives should be reexamined, pruned, revised, or expanded. Few mothers enrolled in HFM, for example, included family planning goals in their Individual Family Service Plans (IFSP); this was also true in the earlier evaluation, MHFE-1. While we understand the program's desire to reduce the number of rapid repeat pregnancies and births in this young sample, it may be that this goal might be better targeted to a subgroup of mothers whose circumstances appear more risky than those of other participants. Evaluators would necessarily count a second birth for a 20-year-old HFM participant as a failure, but there are many situations, even for these young mothers, in which this decision to complete a family once it is started is not a disastrous, or even an especially concerning, one. It appears that mothers are more active in pursuit of the goals they set for themselves, and the extra effort home visitors likely expend to help mothers see the value in this one might be better spent selectively—with those mothers whom the program sees as especially vulnerable.

In addition, there are goals and objectives that we now know can be achieved with relatively low program use, and others, perhaps, that likely need a longer duration of engagement to bear fruit, or a duration of program use that occurs at a slightly different period of time in the mother's or baby's development. This evaluation provides data on the rather truncated average length of participation for many families. In itself, this may not be a problem, in that even this foreshortened participation on the part of the mothers yielded positive effects in a range of domains. However, the expectation that, for example, infant and toddler development will be enhanced, or negative parenting practices foresworn, when many mothers cease their participation before there is an actual baby, or before that baby enters the often challenging toddler years, warrants further thought. Perhaps a more individualized approach to program goals, informed by more pragmatic anticipation

about mothers' probable tenure, would make sense. Alternatively, if these goals remain standard throughout the program, then further consideration of how to maintain participation is in order.

Program Operations

HFM encourages its home visitors to flexibly and creatively develop service plans for working with parents, and indeed, the vast majority of mothers noted their satisfaction with their home visitors, with the relationships that were established, and with the advice and support that were offered. The structural elements of HFM (e.g., eligibility and participation guidelines, program modality) are more exactly conceived and stringently monitored. Notably, HFM has demonstrated to the field that a complex, multipronged home visiting program can be implemented with fidelity, according to operating standards. This is no small feat, and we applaud the administrators, at the state and local levels, who document and monitor activities, and provide regular support and supervision to home visitors across the Commonwealth.

Individual participant fidelity ranged much more broadly, however, with only a few mothers using the program exactly as intended. The differences in usage between mothers represent some of the inherent challenges in running a universal program, and how to reconcile the need for a manageable set of eligibility and participation criteria for accountability purposes—the blunt instrument of policy—while crediting the variation across eligible families. Even indicators that are based on "evidence" from the field often are not exactly right for a particular place or individual. Furthermore, a program cannot control how individuals (who are not mandated to participate) actually use the program. By and large, public agencies apply either vague or "hyper specific" criteria, rather than thoughtful flexibility when designing programs. This is a challenge of public programs that cannot be dismissed in the present study.

Even acknowledging these program and policy parameters, however, it may still be possible to experiment with increasing flexibility among some of the structural indicators of program fidelity. Here we propose some adjustments to program implementation HFM may want to consider, in the following areas:

Revisit eligibility requirements in certain circumstances. A central assertion of this evaluation is that the transition to parenting for young mothers, nested as it is in the mothers' own development through adolescence to young adulthood, offers a unique context for program design and delivery. Again, given the particular set of gains HFM has affected, no doubt the program already wisely reflects some of these special elements. We suspect, however, that there are even more gains to be made by critically reviewing several of the program's current eligibility requirements through this "young mothers" lens. For example, new mothers must enroll before their babies turn one year old, but it may be that mothers who soundly and definitively rejected HFM initially, or were not residents of Massachusetts during their babies' first year, would be eager for, and greatly profit from, the program once their children are more active, rapidly developing language, and becoming more assertive themselves. This could happen when the babies become 18-month-old toddlers or even two-year-olds, and their mothers have matured as well. Might HFM consider a smaller initiative that includes those mothers, who would otherwise be excluded? Relatedly, although the vast majority of participants left the program before their children turned three years of age (the age limit for HFM), about 15% did so because their children graduated from the program. Graduation is something to be celebrated, and indeed HFM appropriately makes much of these young mothers' successes. On the other hand, these eager consumers of the program, some of them still teenagers, might well benefit from, and probably would make good use of, a modest amount of continuing support.

Preserve the home visitor–mother relationship in the context of participants' moves. Our data suggest that residential instability is a critical challenge for many young mothers, who then cannot, or choose not, to maintain regular HFM participation. Many HFM

home visitors already go to extraordinary lengths to keep these mothers enrolled. Might these efforts somehow be formalized, with HFM establishing a specialized arm of the program for these mothers, offering them the opportunity to drop in and out, perhaps use different forms of contact, even maintain initial home visitor continuity if they move out of the initial program's catchment area?

Focus less on initial engagement, and more on the re-engagement, of participants. We found that individuals were more likely to use services as intended during the early phases of program engagement than they were during the later phases, suggesting that home visitors efforts at initial engagement paid off. On the other hand, about 30% of the families in the home visiting group did not ultimately pick up the program altogether or only participated in a handful of home visits, suggesting that some home visitors invested greatly in engagement efforts that, even when they worked initially, did not result in the desired level of involvement over the longer term. Even among those mothers who were more fully engaged in the program, adhering to the visit schedule is sometimes challenging, both for "responsible" (e.g., an emergency medical visit for the baby) and more "adolescent-centric" (e.g., a better offer for something to do that afternoon) reasons. Those of us who have raised teenagers or been in regular contact with them know this periodic tendency to ignore the efforts of well-meaning adults around them. We know from our in-depth investigation of home visitor-mother relationships that the trust mothers develop in their home visitor generally matures over time, and that bumps in the road include these instances of non-communication. Some mothers speak of the investment that their home visitors make in them, how much they appreciate when home visitors "don't give up on" them. (This is true, of course, only for some mothers; others leave the program and simply want to be left alone.) We have recorded this willingness on the part of many home visitors to go back, repeatedly, to attempt to reengage mothers who have repeatedly missed visits or dropped out of sight. This makes great sense to us for those participants who have demonstrated interest in the program (as opposed to those who never really engaged in the first place). These two findings taken together—that home visitors invest a great deal of time attempting to find, enroll, and reach participants who may never be fully involved, and that even the most connected adolescents are likely to drop out of the services for a while—suggest that HFM may want to reconsider its emphasis on initial engagement. Perhaps it might experiment with relaxing a few of those standards related to initial engagement, thus freeing up more time for home visitors to work with families who have already demonstrated both willingness and ability to more fully engage.

Experiment with structural changes that may encourage longer participant engagement. Above we have begun the discussion of how HFM might better keep mothers engaged in the program, if a longer tenure than what has been documented here continues to be one of its core operational goals. There are many possible approaches, so we offer two as illustrative options:

- ***A more varied menu of service modalities.*** The HFM home visit, as the program's core service, has demonstrated its effectiveness in a number of goal areas, and should remain in its central position. At the same time, however, it might prove worthwhile to more formally endorse/enable wider use of other forms of communication, ubiquitous with today's youth, such as Skype, FaceTime, chatting, texting, and even email for maintaining contact and providing services. Securing participants free calling cards or facilitating access to tablets or laptops might allow for continued engagement of mothers who would otherwise discontinue services.

- ***Concerted effort to reduce home visitor turnover.*** Home visitor turnover is implicated in some mothers' decisions to cease program participation; in these cases it is the relationship with that particular home visitor, rather than with the local program, that is the key, and mothers report not wanting to work at reestablishing another one. Indeed, for some of these mothers learning how to develop and maintain a supportive, trusting relationship with an adult is a major accomplishment in itself, and the prospect of having to do it all again

when their home visitor leaves is too much to bear. Of course home visitors should be allowed the choice to leave their positions; we also note, however, the challenging (though obviously satisfying) nature of the job, its relatively low pay, and the relative lack of a career ladder within this field, and suggest that there may be steps yet untaken to stabilize the home visiting workforce.

13.2 Implications for HFM Within Communities and Across Sectors

Home visiting programs seeking to reduce maltreatment rarely find main effects in the short run, and this is also the case for HFM. In addition to the possibility that these other programs, and HFM, do not actually "work" in this domain, there are several other compelling explanations, including the possibility of a surveillance effect, the likelihood that the benefits of HFM accrue over time, and the possibility that a sufficient proportion of the nonparticipating families are receiving a combination of services that, together, approach the effectiveness of HFM. Longitudinal data are necessary to confirm or reject these hypotheses, and those will be available through the MHFE-2 Early Childhood (MHFE-2EC) project now underway.

However one accounts for HFM's role in preventing maltreatment, it is clear that child neglect is a stubborn, sturdy, more than worthy opponent, unlikely to be ameliorated by any single intervention. It is usually multidetermined, beyond the capacity of individual parents to wholly mitigate. It is not only a consequence of parenting stress or lack of child development knowledge or maternal depression, or even a combination of these individual-level factors. It also is associated with a paucity of economic and social resources, and frequently represents multiple system failures, both private and public—of family, friends, and neighbors; of community institutions and service networks, including churches and schools; and of broader public policies, such as those pertaining to housing and employment. HFM cannot be expected—nor should it expect—to solve this problem on its own, but as a well-tooled, well-received, effective home visiting program for young mothers, it can join forces with others in communities to make its mark felt more considerably. This is not a new recommendation—in fact it is a tired, old one. So the challenge here is to generate bold and innovative approaches across service systems; in our view, HFM is well up to that task. We offer the following thoughts, acknowledging that HFM already pursues many of these approaches.

Claim, and maintain, a "seat at the table." The potential cross-agency policy implications of this research are numerous, and beg for collaborations at the state and federal levels of government as well. We note the increasingly vocal chorus of policymakers, program managers, citizens, and youth themselves who believe that developing and maintaining positive relationships—both between peers and across ages, intimate and more "professional"—is a critical component of successful living for all teens and young adults. Initiatives of this nature in the fields of juvenile justice, domestic violence prevention, child welfare, and secondary education, to name a few, are evidence of this wise approach. Given its expertise with a diverse population of young mothers, HFM has much to contribute to this conversation.

Continue to advocate for funding, programming, and public policy change, particularly in those policy areas most salient to the HFM population. In addition, the success of HFM could be greatly enhanced by policy development in three arenas critical to these young families, namely housing, child care, and public support for college attendance. Residential instability is implicated in early exit from HFM, and in poorer attainment of program goals; it was also among the foremost concerns that mothers expressed to their home visitors. Outside of this program, frequent residential mobility is unfavorably associated with children's and adolescents' behavior and adjustment, as well as their academic outcomes,[92] and, it should be noted that, although relatively rare, frequent movers tend to be overrepresented among low-income families.[93] A housing initiative specific to young families that secures safe and stable housing for them would be a core piece of the support infrastructure these families need. Similarly,

making safe and affordable child care of good quality available to young mothers is a necessary element of this infrastructure; currently costs for infant-toddler care in Massachusetts are among the highest in the nation (indeed for center-based care, they are the highest).[94] Further, studies of the quality of family child care providers—the most common arrangement for children less than three years—remain few and far between.[95] Finally, is the issue of supporting college attendance for young mothers, particularly with a view towards enhancing their future employment prospects. Although college attendance is an approved education or training activity for women receiving Transitional Aid to Families with Dependent Children (TAFDC), DTA currently does not provide financial support for courses, making it difficult to see how young mothers can achieve an associate's, let alone a bachelor's, degree, without substantial subsidies or scholarships.

Admittedly, new public policy initiatives to benefit vulnerable children and adolescents are rarely popular, even less so in the current political climate. Yet it is unlikely that HFM participants and their peers will make the advances necessary to secure their own and their children's futures without a more coordinated, integrated, and yes, generous public investment in this hopeful, early developmental period of their lives—as infants, parents, and young families.

13.3 Implications for Future Research

We include here only an initial roster of possible future directions for research arising from the MHFE-2 findings.

1. Apropos to program goals, we need to explore some of the pathways and dependencies between outcomes to better understand if the achievement of some outcomes precludes others and if some outcomes are precursors to others. Pursuing this line of inquiry will enable us to determine whether any of the significant program impacts summarized in this report, such as parenting stress, college attendance, or risky behavior—outcomes we know are improved by HFM—facilitate improved child outcomes at later time points.

2. A complementary set of analyses should explore further a more person-centered analysis of goal achievement to look at which mothers met goals in which areas—whether, for example, certain mothers achieved goals across the five HFM goal areas and whether some met none—and who these mothers are, based on their background characteristics. This type of analysis enables us to better understand differences in the backgrounds and experiences between women who achieve mostly favorable outcomes across goal areas, those who achieve favorable outcomes only in particular goal areas, and those who achieve few or no favorable outcomes. It could inform targeting and recruitment strategies, as well as, perhaps, informing a strategy of setting priorities for different women receiving the program. A community-centered approach might also be taken, identifying communities by the number and types of goals achieved.

3. The young women in the sample started the study with a range of educational aspirations, some of which were altered by their pregnancies and subsequent births. Future analyses will take a closer look at mothers' educational aspirations and attainment across the course of the study, including how becoming a mother affected their educational trajectories. Maternal educational attainment is a key to future labor market success, and one of the strongest predictors of child health and well-being. Thus, it is critical to have a clear understanding of mothers' educational trajectories and what helps to keep mothers on track or derail them, and how HFM fits into the picture.

4. We did not investigate fully racial/ethnic variation in HFM utilization, experiences in the program, and the achievement of outcomes. This was due, in part, to the use of rather general racial/ethnic categories for analytic purposes. While sample sizes for more specific racial/ethnic groupings were too small for use in advanced statistical models, further examination reveals that within the existing racial/ethnic categories there is substantial variation. For example, the non-Hispanic Black grouping includes Cape Verdeans, Haitians, Afro-Caribbeans, and African Americans, each of whom

have very different immigration patterns and experiences in the country. Further, a fifth of the young women in the sample were born outside the continental US. Adding another layer, these racially and ethnically diverse women live in different communities or neighborhoods—some with sizable groups of residents with similar racial/ethnic backgrounds, and others in neighborhoods in which they are clearly the minority. These important nuances have implications for how HFM is received, used, and metabolized. Next steps for research should include a more detailed look at the intersection between race/ethnicity, place of birth, and neighborhood context, and how HFM fits within that matrix.

5. Regarding residential instability, some moves may be quite small or local, and do not affect life's routines, while others require significant efforts to "start over," and reenroll in important services, including HFM. Understanding more fully the consequences of frequent moves, the differences between significant moves and others, and how the varieties of household composition—who lives with the mother and baby—affect the experiences of moving, are critical to understanding program participation and the achievement of outcomes.

6. While the present study made significant headway into unpacking the home visitor-mother relationship, further study of the how the continuity of the home visitor affects the home visitor-mother dyad and its impact on outcomes would provide much needed information to inform future workforce planning, including incentives to keep home visitors on board.

7. Certainly, mothers have other important relationships in their lives, notably with their spouses and partners, which also need further investigation, particularly vis-à-vis whether these relationships support or hinder the achievement of mothers' objectives.

8. The elements of home visiting practice that reflect cultural competence have not been well-researched in the field, nor did we plumb this issue as deeply as is possible with our data. A fruitful line of investigation would be to explore if, how, and for whom ethnic-, language-, or culturally based connections between home visitors and mothers may have bearing on the nature of the relationship between them. Some early preliminary analyses suggested some tentative differences in the nature of advice elicited among home visitor-mother dyads who were ethnically matched compared to those who were not. Further, the larger questions of how cultural competence is demonstrated by home visitors and at the program level are worth pursuing in future analysis.

9. Our study design excluded some small—but important—subgroups of the HFM population, who may represent the most vulnerable groups that HFM serves. Future analyses could use alternate data source to examine how very young mothers, non-English or -Spanish speaking mothers, young mothers with severe disabilities, as well as young fathers, are faring. It is important that these more marginal groups are not forgotten within the wider picture.

10. In order to better understand the intersection between HFM and other services and supports available to families within communities, future research needs to explore service referral patterns for HVS mothers, as well as all participants' use of other services and how this complements or duplicates HFM services. Mapping out participants' use of these extra-HFM services might help explain the lack of program—that is, HFM—effects per se in a given goal area, if it is determined that successful mothers within the non-HFM group were receiving combinations of useful community services. Further, seeing how HFM use is related to the use of other services would enable further thought regarding how a state could think about the accessibility and availability of services.

11. The role of child care in the lives of these families becomes increasingly critical as the children age and mothers attempt to return to work or school. Further examination of the use of child care by this population of young mothers, and how their community's resources and practices and their own experiences (e.g., educational trajectories, relative residential stability, experiences of

domestic violence) affect their choices of child care, is an important element of this landscape.

Of course, the future directions for research are boundless, and undoubtedly there are other areas worthy of pursuit. This list represents a starting point based on the findings in the report—and the questions the findings raised.

13.4 Final Thoughts

At its heart, the Five-Tiered Approach to Evaluation is a developmental and contextual one, assuming that programs follow their own developmental courses shaped, as are their clients, by the real contexts in which they operate. Indeed, in the six years since we began collecting these data, countless changes to the program and its context have occurred: HFM, and HFA, have adjusted several of their program practices; state, and local budgets for programs serving children and families have both expanded and constricted; leadership at the local HFM-implementing agencies has changed; teenage pregnancy rates have decreased across the state; homelessness has become a more visible and critical problem for this population; and the gap between wealthy and poor has steadily increased.

The national home visiting context has seen great changes as well. In 2010, the Maternal, Infant, and Early Childhood Home Visiting Program was enacted, resulting in massive expansion of home visiting throughout the country in subsequent years, but as of this writing, the future of these programs is uncertain, as reauthorization and funding decisions hang in the balance of a largely unenthusiastic and deadlocked Congress. In this climate, the word "evidence" has great currency, and we hope that our findings that HFM was effective in several domains that are especially meaningful for this young population will add substantively, and meaningfully, to a thoughtful discussion about the merits of home visiting. Likewise, we recognize that a lack of main effects in key areas—namely, maltreatment and child outcomes—will (and should) be part of the conversation.

That being said, it would be a mistake to interpret the findings reported in this document as the "final word." A randomized, controlled trial—a Tier Five evaluation—tells us definitively how a particular program is functioning with a particular population during a particular period of time. But for those results to be truly useful, they must be contextualized, questioned, and revisited. To this end, the next phase of MHFE-2 analyses will focus on further examination and understanding of the impact analyses conducted to date.

Results from this evaluation suggest that HFM is able, in some critical ways, to help a teenage parent population navigate what can be a fairly tough time of transition. In this regard, HFM is a quintessentially preventive program, working with populations on the cusp—infants moving through early development, new families in the early stages of their formation, and young parents working to establish themselves as adults and as caregivers—in contexts that often are extremely challenging. As acknowledged above, the idea that one home visiting program would be sufficient to "fix" the problems these families encounter represents overreaching to some considerable extent. And yet, as part of a more cohesive community strategy to help young families, home visiting has the potential to be a powerful family support tool. It is hoped that results from this and other home visiting evaluations will further this critical conversation.

APPENDIX ONE

Five-Tiered Approach to Evaluation

Tier	Purposes of Evaluation	Types of Evaluation Activities
TIER ONE: NEEDS ASSESSMENT	• To document the size and nature of a public problem • To determine unmet need for services in a community • To propose program and policy options to meet needs • To set a data baseline from which later progress can be measured • To broaden the base of support for a proposed program • Review existing community, county, and state data • Determine additional data needed to describe problem and potential service users • Conduct "environmental scan" of available resources • Identify resource gaps and unmet need • Set goals and objectives for intervention • Recommend one program model from range of options	• Review existing community, county, and state data • Determine additional data needed to describe problem and potential service users • Conduct "environmental scan" of available resources • Identify resource gaps and unmet need • Set goals and objectives for intervention • Recommend one program model from range of options
TIER TWO: MONITORING AND ACCOUNTABILITY	• To monitor program performance • To meet demands for accountability • To build a constituency • To aid in program planning and decision making • To provide a groundwork for later evaluation activities	• Determine needs and capacities for data collection and management • Develop clear and consistent and procedures for collecting essential data elements • Gather and analyze data to describe program along dimensions of clients, services, staff, and costs

Tier	Purposes of Evaluation	Types of Evaluation Activities
TIER THREE: QUALITY REVIEW AND PROGRAM CLARIFICATION	• To develop a more detailed picture of the program as it is being implemented • To assess the quality and consistency of the intervention • To provide information to staff for program improvement	• Review monitoring data • Expand on program description using information about participants' views • Compare program with standards and expectations • Examine participants' perceptions about effects of program • Clarify program goals and design
TIER FOUR: ACHIEVING OUTCOMES	• To determine what changes, if any, have occurred among beneficiaries • To attribute changes to the program • To provide information to staff for program improvement	• Choose short-term objectives to be examined • Choose appropriate research design, given constraints and capacities • Determine measurable indicators of success for outcome objectives • Collect and analyze information about effects on beneficiaries
TIER FIVE: ESTABLISHING IMPACT	• To contribute to knowledge development in the field • To produce evidence of differential effectiveness of treatments • To identify models worthy of replication	• Decide on impact objectives based on results of Tier 4 evaluations efforts • Choose appropriately rigorous research design and comparison groups • Identify techniques and tools to measure effects in treatment and comparison groups • Analyze information to identify program impacts

APPENDIX TWO

Measures

Below we describe the measures used in the final report. Measures are organized by the Five-Tiered Approach (FTA) to evaluation (see Section A1.1). These measures are summarized in Table A2.1, and then described in more detail according to their presentation in the report. Specifically, we review measures that were used when conducting Tier Two evaluation activities, including maternal and community characteristics. Then, we review measures from Tier Three evaluation activities, which focused on describing HFM program operations. Finally, we review those measures that were used in Tier Four and Five evaluation activities, including outcomes, mediators (i.e., measures used for the pathway analyses), and moderators (i.e., measures used for subgroup analyses).

Table A2.1 **Summary of Measures Used in the Final Report**

Analytic Area	Construct	Measure
Measures used in Tier Two Analyses		
Maternal and Community Characteristics	Demographic Characteristics	• Maternal Age at Child's Birth (Years) • Maternal Age at Enrollment (Years) • Maternal Race and Ethnicity • Mother's Preferred Language • Mother's Place of Birth • Mother Born in Massachusetts • Target Child's Sex • Plurality (Singleton vs Multiples) • Father of Baby Age at Enrollment • Community Cluster
	Maternal Well-Being	• Mother Parenting at Enrollment • Maternal Depression T1 • Post-Traumatic Stress Disorder (PTSD) T1 • Parental Distress T2 • Social Support T2 • Mother's own History of Child Abuse and Neglect (DCF) - Before Enrollment - Ever as a Child
	Maternal Employment and Education	• Mother is Employed (T1, T2) • Mother is in School (T1, T2)
	Financial Resources	• Difficulty Covering Expenses (T1, T2) • Received Cash Benefits (DTA) - Before Enrollment - After Enrollment • Received Food/ Nutritional Benefits (DTA) - Before Enrollment - After Enrollment
	Care Arrangements	• Hours Per Week TC Spent in the Care of Family Members T2 • Hours Per Week TC Spent in Formal Child Care T2 • Hours Per Week TC Spent in the Care of Others T2

Table A2.1 **Summary of Measures Used in the Final Report**

Analytic Area	Construct	Measure
Maternal and Community Characteristics (cont.)	Living Arrangements	• Number of Residences in Past Year (T1, T2) • Mother Cohabitates with Father of Baby (T1, T2) • Mother Lives with an Adult Relative/Guardian (T1, T2) • Living Arrangements (T1, T2, T3, Qualitative Data)
	Measures used in Tier Three Analyses	
Program Operations	Utilization	• Duration (Number of Days Actively Enrolled in HFM) • Number of Home Visits Received • Number of Groups Attended • Number of Secondary Activities - Parties Involved - Initiator of the Activity - Modality of the Activity - Whether the Parties Involved Verbally Connected - Content of the Activity • Individual Family Service Plan (IFSP) Goals - IFSP Goal Sessions - IFSP Goals Set - IFSP Goals Met - Proportion of IFSP Goals Met - IFSP in Goal Area 1 - IFSP in Goal Area 2 - IFSP in Goal Area 3 - IFSP in Goal Area 4 - IFSP in Goal Area 5 • Utilization Profiles
	Home-Visitor Mother Relationship	• Valence (T2) - Major and Minor Disconnects - Help Preferred - Help Received - Home Visitor and Relationship Qualities • Role Designation (T2) • Home Visitor–Mother Relationship Profile (T2) • Change (T3) - Comfort - Content - Closeness - Spontaneity - Trust • Reasons for Continuation (T2, T3) • Reasons for Discontinuation (T2, T3)
	Fidelity	• Program-Level Fidelity • Individual-Level Fidelity

Table A2.1 **Summary of Measures Used in the Final Report**

Analytic Area	Construct	Measure
Measures used in Tier Four and Analyses		
Outcomes	Goal 1: Prevent Child Abuse and Neglect by Supporting Positive, Effective Parenting	• Child Maltreatment (DCF) - Any Reports were made since Enrollment - At Least One Report was Substantiated - Perpetrator Identity • Parenting Stress (T2, T3) - Parental Distress - Dysfunctional Interaction - Difficult Child • Parenting and Child Rearing Attitudes (T3) • Conflict Tactics Scale (T2, T3; Discipline Strategies and Aggression Toward the Child) • Maternal Emotional Availability (T2, T3) • Maternal Mind-Mindedness (T2, T3)
	Goal 2: Achieve Optimal Health, Growth, and Development in Infancy and Early Childhood	• English Language and Communication Skills (T3) • Social-Emotional/Behavioral Problems and Competencies (T3) • Healthy Birth (DTA) • Child Responsiveness (T2, T3)
	Goal 3: Encourage Educational Attainment, Job, and Life Skills	• Education Status (T2, T3) - Mother Finished High School or GED - Mother Finished at Least One Year of College • Mother is Currently Employed (T2, T3) • Economic Hardship (T2, T3) - Level of Financial Difficulties - Adequacy of Basic Resources
	Goal 4: Prevent Repeat Pregnancies During the Teen Years	• Repeat Pregnancy (T3) • Repeat Birth (T3) • Use of Birth Control/Protection (T2, T3) - Mother Used Condoms - Mother Used Hormonal Birth Control
	Goal 5: Promote Parental Health and Well-Being	• Mother Received Mental Health Services after Pregnancy (T2, T3) • Personal Mastery (T3) • Youth Risk Behavior (T3) - Mother Engaged in Three or More Risky Behaviors - Mother Consumed Five or More Drinks of Alcohol in a Row within a Couple of Hours - Mother Smokes Frequently/Daily - Mother Used Drugs - Mother Used Marijuana • Intimate Partner Violence (T2, T3) - Self as Perpetrator - Partner as Perpetrator

Table A2.1 **Summary of Measures Used in the Final Report**

Analytic Area	Construct	Measure
Measures used in Tier Four and Analyses		
Mediators		• Hours Per Week TC Spent in Formal Child Care (T2) • Maternal Emotional Availability (T2) • Maternal Mind-Mindedness (T2) • Parental Discipline (T2) • Parental Distress (T2) • Social Support (T2)
Subgroups (Moderators)		• Adequacy of Basic Resources • Community Cluster • Intimate Partner Violence (T2, T3) • Level of Financial Difficulties • Maternal Age at Child's Birth • Maternal Depression • Maternal Race and Ethnicity • Mother Cohabitates with Father of the Baby • Mother's Living Arrangement includes an Adult Relative/Guardian • Mother's Own History of Child Abuse and Neglect (DCF) • Mother Parenting at Enrollment • Number of Residences in Past Year • Relationship Status with Father of Baby • Social Support (T2) • Trauma Exposure and Post-Traumatic Stress Disorder
Program Operations		• Home Visits • Secondary Activities • Groups • Home Visitor – Mother Relationship Profiles • Individual-level Fidelity • Program-level Fidelity
Control Variables		• Maternal Age (T1) • Target Child's Age (T1) • Maternal Race and Ethnicity • Mother Was Born in the U.S. • Mother Moved at Least Once in Past Year (T1) • Number of Public Programs Mother Received since Pregnancy (T1) • Maternal Level of Depressive Symptoms (T1) • Level of Financial Difficulties • Target Child's Sex

A2.1 Tiers Two and Three: Describing Mothers' Characteristics and Program Operations

The aims of Tier Two and Three analyses were to characterize program participants (Chapter 3) and program operations (Chapter 4), as well as the ways in which the two areas are interrelated (Chapters 5 and 6). To conduct these analyses we incorporated a variety of measures, which are described below in more detail, beginning with maternal and community characteristics.

A2.1.1 Maternal and Community Characteristics

Below we describe the measures used to assess maternal and community characteristics, organized by overarching areas, including demographic characteristics and well-being, maternal employment and education, financial well-being, and living arrangements. We used primarily time-invariant and T1 variables; however, in some instances, T2 variables were also used. These exceptions are noted throughout.

Demographic Characteristics and Well-Being

A variety of measures were used to characterize mothers' demographic characteristics and well-being. They are described in more detail below, in alphabetical order.

Community Cluster. Using participants' addresses at enrollment, we obtained 2010 Census information on their geographic environments at the block group level (i.e., median household income, population density, and ethnic composition). These demographic indicators were then used to characterize the different types of communities in which participants lived at enrollment in the study. Three community clusters were identified: 1 = moderate income residents (median household income approximately $60,000), predominantly of European descent; 2 = Low to moderate income residents (median household income approximately $40,000), ethnically diverse population; and 3 = Low income (median household income approximately $33,000), predominantly ethnic minority residents.

Father of Baby Age at Enrollment. We calculated the target child's father's age at enrollment (in years) by comparing his age during the T1 phone interview (reported by the mother) and the date mothers enrolled in the study.

Maternal Age at Child's Birth. The mother's age at the target child's birth (in years) was calculated by comparing the mother's date of birth to the child's date of birth.

Maternal Age at Enrollment. The mother's age at enrollment (in years) was calculated by comparing the mother's date of birth to the date she enrolled into the study.

Maternal Depression (T1, T2). We assessed depression using the Center for Epidemiological Studies Depression Scale (CES-D).[96] Using a 4-point Likert scale (0 = not at all, 3 = a lot), respondents indicated how frequently they experienced a particular depressive symptom (e.g., "I felt sad.") in the last week. An overall scale score was created by summing the 20 items (possible range = 0–60). Using conventions established in the literature, we also created a dichotomous variable to identify participants who met the threshold for clinically significant symptoms (16 or higher on the CES-D).[97]

Maternal Race and Ethnicity. Participants were asked to specify their racial and ethnic groups. Participants chose from eight racial groups (e.g., Black or African American, White, East Asian) and also specified whether they were Hispanic or non-Hispanic. Based on these two indicators, we formed a variable that described participants as non-Hispanic White, Hispanic, non-Hispanic Black, or non-Hispanic other. Hispanic participants could be any race or combination of races.

Mother Born in Massachusetts. Mothers were asked about their place of birth during the T1 phone interview. Mothers' responses were recoded to indicate whether they were 1 = born in Massachusetts or 0 = born elsewhere.

Mother's own History of Child Abuse and Neglect (DCF). We used data from the Department of Children and Families (DCF) to create a dichotomous variable that

indicated whether mothers were listed as victims of substantiated reports of physical abuse, neglect, or sexual abuse in Massachusetts. Mothers who were not born in Massachusetts received missing values on this measure, and were thus excluded from analyses. We created two dichotomous variables; the first indicated whether a mother experienced maltreatment at any point or never experienced maltreatment (1 = experienced; 0 = never). For baseline equivalency tests between the treatment and control groups, the dichotomous variable indicated whether a mother experienced maltreatment *before enrollment* or not.

Mother Parenting at Enrollment. We computed the time (days) elapsed between mother's date of enrollment into HFM and child's date of birth to create a dichotomous variable, where 1 = mother was parenting at enrollment and 0 = mother was pregnant at enrollment.

Mother's Place of Birth. Mothers were asked about their place of birth during the T1 phone interview. Their answers were then coded into one of the following categories: United States, United States Territory (Puerto Rico), or Outside of United States.

Mother's Preferred Language. Mothers were asked to specify the language they preferred speaking. Based on their responses, we formed a categorical variable that described mothers' preferred language as English-only, English and Other (e.g., Spanish, Portuguese), Spanish-only, or Other.

Parental Distress (T2). We used the Parental Distress (PD) subscale of the Parenting Stress Index Short Form (PSI-SF) to examine the extent to which the mother is experiencing stress in her role as a parent.[98] Specifically, PD measures the sense of parenting competence, stresses associated with restrictions on a parent's life, conflict with child's other parent, social support, and depression. Mothers indicated the degree to which they agreed with 12 statements (e.g., "I often have the feeling that I cannot handle things very well," "I feel trapped by my responsibilities as a parent") using a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Scores are calculated by summing the 12 items that correspond to each subscale (possible range 12–36). Higher score indicated higher distress. Parental distress scores at or above the score of 36 indicated clinical levels of distress. According to the authors of this measure, mothers experiencing clinical level of distress might benefit from interventions.

Plurality (DPH). We used records from Department of Public Health (DPH) to create a dichotomous variable that indicated whether the target child was a singleton ("0") or had a twin ("1").

Social Support (T2). To assess social support, including support at school and in the larger community, we included 21 questions from the measure of Positive Youth Development (PYD) in the phone interview.[99] The PYD is a self-report questionnaire designed to assess several dimensions (e.g., competence, connection) of positive youth development.[100] Connection is defined as positive bonds with people and institutions that are reflected in bidirectional exchanges between the individual and peers, family, school, and community in which both parties contribute to the relationship. We used 21 items from the Connection subscale to assess perceived connection in the following areas: (1) family (six items; e.g., "My parents give me help and support when I need it."), (2) school (seven items; e.g., "I get a lot of encouragement at my school."), (3) peers (four items; e.g., "My friends care about me."), and (4) community (five items; e.g., "Adults in my city or town make me feel important."). Each subscale and the overall score could range from 0 to 100, with higher scores indicating a greater degree of perceived connection (support).

Target Child's Sex. Mothers reported whether the target child was a girl ("0") or a boy ("1").

Trauma Exposure and Post-Traumatic Stress Disorder (T1). We used the adolescent version of the University of California Los Angeles Post Traumatic Stress Disorder Reaction Index for the Diagnostic and Statistical Manual of Mental Disorders IV (PTSD-RI) to assess trauma and PTSD symptomatology. [101] The items of the

PTSD-RI are aligned with DSM-IV criteria and can provide preliminary PTSD diagnostic information. Mothers were first asked to indicate whether they had been exposed to 13 discrete trauma experiences (e.g., natural disasters, domestic violence, community violence). The scale also allows participants to indicate exposure to a different experience they considered frightening, dangerous, or violent. These responses were summed to create an overall indicator of trauma exposure (possible range = 0 to 14).

If at least one traumatic event was endorsed by the mother, she was asked to rate the frequency of PTSD symptoms on a 5-point Likert scale (0 = none to 4 = most of the time) over the past 30 days. Items assessed the following three clusters of PTSD symptoms: (a) re-experiencing (e.g., "I have upsetting thoughts, pictures, or sounds of what happened come into my mind when I do not want them to."); (b) avoidance (e.g., "I try not to talk about, think about, or have feelings about what happened."); and (c) increased arousal symptoms (e.g., "I watch out for danger or things that I am afraid of."). A categorical variable was then created, indicating whether participants met criteria for full, partial, or no PTSD diagnosis. Criteria for PTSD included (a) having experienced a traumatic event which caused an intense response (e.g., fear, helplessness), and (b) endorsing at least one symptom from all three symptom clusters (full) or at least one cluster (partial).

Maternal Employment and Education

We analyzed two binary indicators of education and employment status, self-reported by mothers during the phone interview.

Mother is Employed (T1, T2). Mothers who were employed were coded as 1. Mothers who were not employed were coded as 0.

Mother is in School (T1, T2). Mothers who were in school (broadly defined as being enrolled in any educational program (e.g., high school, GED program, training program, college) were coded as 1. Mothers who were not in school were coded as 0.

Financial Resources

We analyzed two indicators of financial resources, which included self-report data from mothers, as well as administrative data from the Massachusetts Department of Transitional Assistance (DTA).

Difficulty Covering Expenses (T1, T2). During the phone interview mothers were asked to rate the degree of difficulty they experienced in covering expenses on a 4-point Likert scale (1 = no difficulties, 2 = very few difficulties, 3 = some difficulties, and 4 = major difficulties).

Mother Received Cash Benefits (DTA). Using data from the Department of Transitional Assistance (DTA) we examined mothers' engagement with cash assistance (specifically, the Transitional Aid to Families with Dependent Children [TAFDC]). We used only those records for which mothers were listed as grantees (i.e., mother was the head of her account). A dichotomous variable was created, in which mothers were coded as 1 if they were listed in the DTA data as having received TAFDC benefits. Mothers who had no such transactions were coded as 0. For baseline equivalency tests that compare treatment and control groups, we only considered those DTA transactions that happened prior to enrollment; for other analyses, we considered transactions that happened after enrollment. This distinction was noted throughout.

Mother Received Food/Nutritional Benefits (DTA). Using data from the DTA we examined mothers' receipt of food assistance (currently known as the Supplemental Nutrition Assistance Program [SNAP]). We used only those records for which mothers were listed as grantees (i.e., mother was the head of her account). A dichotomous variable was created, in which mothers were coded as 1 if they were listed in DTA data as having received SNAP benefits. Mothers who had no such transactions were coded as 0. For baseline equivalency tests that compare treatment and control groups, we

only considered those DTA transactions that happened prior to enrollment; for other analyses, we considered transactions that happened after enrollment. This distinction was noted throughout.

Care Arrangements

During the phone interview, mothers were asked to indicate how many hours per week the child spent in the care of others (e.g., father of the child, child's grandparents). We then created three composite scores, described below.

Hours Per Week Target Child Spent in the Care of Others (T2). A measure was created to reflect the total number of hours that the target child spent in the care of any non-maternal individuals or entities (e.g., family members, formal child care, babysitter, friend). Accordingly, if the mother reported not having any child care support the child received a score of zero hours.

Hours Per Week Target Child Spent in the Care of Family Members (T2). A measure was created to reflect the total number of hours the target child spent in the care of all family members (e.g., father of the child, child's grandparents). Accordingly, if the mother reported not having any child care support from family members, the child received a score of 0 hours.

Hours Per Week Target Child Spent in Formal Child Care (T2). A measure was created to reflect the total number of hours that the target child spent in formal care (e.g., family child care provider, child care center, Early Head Start, or child care at mother's school). Accordingly, if the mother reported not having any formal child care support the child received a score of 0 hours.

Living Arrangements

We used three quantitative measures, as well as a variety of qualitative data, to characterize the nature of mothers' living arrangements, including aspects of residential mobility and members of the household.

Mother Cohabitates with Father of Baby (T1, T2). Mothers were asked whether the father of the target child currently lived with them (1 = yes, 0 = no).

Mother Lives with an Adult Relative/Guardian (T1, T2). Mothers responded to an open-ended question about their living arrangements. Using these responses, we created a dichotomous variable, where 1 = mothers indicated that at least one household member was an adult relative or legal guardian (e.g., parent, aunt, or a non-relative legal guardian). All other living arrangements were coded as 0.

Number of Residences in Past Year (T1, T2). Mothers were asked to indicate the number of places in which they lived in the past year. This information was collapsed into a dichotomous variable, where 0 = mother reported living in one residence and 1 = mother reported living in more than one residence.

Mothers' Living Arrangements (T1, T2, T3). During the T1 in-depth, in person interview, participants were asked to provide a timeline of their living arrangements (each residence where they physically lived, and with whom they lived) from birth until the year prior to their enrollment in HFM. These data were categorized by time period of the mother's life (e.g., childhood, pregnancy). During each subsequent in-depth, in-person interview (i.e., T2 and T3), mothers were asked to recount their living arrangements in the past year, since the previous interview was conducted. In this substudy, we divided mother's living arrangements into two time periods of interest for analysis: *childhood* (i.e., mothers' living arrangements from their birth until one year prior to their pregnancies), and ***post enrollment*** (i.e., mothers' living arrangements in the year following, and two years following, enrollment). The creation of these categories allowed us to consider the possible effects of childhood residential stability/instability on living arrangements after enrollment, the possible influence of living arrangements on level of engagement in HFM, and the ways in which some home visitors attempted to address issues related to mothers' residential stability/instability.

A2.1.2 Program Operations

In this report we used a variety of measures related to program operations, in an effort to provide a comprehensive understanding of mothers' experiences in HFM. To this end, we utilized two main sources of data. First, we used the PDS (the data system used by HFM home visitors to record information about all aspects of participants' service utilization) to measure aspects of program utilization and fidelity. We also used data from the in-depth, in-person qualitative interviews to examine the home visitor–mother relationship. The specific measures that we created with these data are described in more detail in the paragraphs that follow.

Utilization (PDS)

We used several measures of program utilization, drawn from data on the Participant Data System (PDS). Discrete indicators used to describe mothers' utilization include *duration* (number of days actively enrolled in HFM), number of *home visits* received; number of *groups* attended, and number of *secondary activities* (i.e., any non-visit activities conducted by the home visitor either with, or on behalf of, the participant).

In addition, a team coded the home visitor notes to characterize various aspects of the secondary activities, according to *parties involved* (e.g., home visitor and mother, home visitor and a family member or friend), *initiator of the activity* (e.g., home visitor, mother), *modality of the activity* (e.g., phone call, text, note or mailing), *verbal connection*, and the *content* of the activity (e.g., scheduling; resources, information, or referral).

Furthermore, data from the PDS were used to characterize mothers' Individual Family Service Plan (IFSP) goals. These were goals that the mothers established with their home visitors, with an expectation that the mother would focus on achieving these goals as part of her involvement in HFM. Once mothers achieved their initial IFSP goals, they had the opportunity to develop new IFSP goals with their home visitors. Data provided information about the specific IFSP goal (e.g., "Learn ways to calm a crying baby"), the goal area to which the specific goal corresponded, and whether the goal was met.

IFSP goals were categorized by home visitors according to the corresponding HFM goal areas, as follows: (1) Supporting parenting and nurturing home environment; (2) Health, growth and development of child; (3) Educational attainment, job, and life skills; (4) Prevention of repeat pregnancy; and (5) Parent health and wellness. We aggregated the data from the PDS to derive the following variables: (a) total number of IFSP goal-setting sessions; (b) total number of IFSP goals mother set; (c) number of IFSP goals set, in the goal area of supporting parenting and nurturing home environment; (d) number of IFSP goals set in the goal area of health, growth, and development of child; (e) number of IFSP goals set in the goal area of educational attainment, job, and life skills; (f) number of IFSP goals set in the goal area of prevention of repeat pregnancy; (g) number of IFSP goals set in the goal area of parent health and wellness; (h) total number of IFSP goals met; and (i) proportion of IFSP goals met to total number of goals set.

Finally, we created a categorical measure of utilization profiles, which grouped participants with similar program utilization patterns. Four profiles were identified, including (a) High Overall Usage, Low Secondary Activities; (b) Low User; (c) High Overall Usage, High Secondary Activities; and, (d) Moderate User. (For more information on how these four groups were identified, see Section 4.1.5)

Home Visitor–Mother Relationship

The home visitor – mother relationship was assessed in a variety of ways, including *valence* (major and minor disconnects, help, home visitor and relationship characteristics), *role designation, home visitor – mother relationship profiles, change, reasons for continuation,* and *reasons for discontinuation.*

Relationship Valence (T2). Valence is a term used to describe the mother's assessment of the quality of her relationship with the home visitor, and of the home

visiting program. Valence was initially measured through participants' self-report of relationship quality using an open-ended question from the in-depth, in-person interview (i.e., "How well do you get along with your home visitor?").

Major Disconnects (T2). A disconnect was coded as *major* if at least one of the following was true: (a) the disagreement/difference between mother and home visitor caused strain or distress in the relationship, or led to a disconnection between them, in the long or short term; (b) the mother and home visitor did not come to see eye-to-eye on a disagreement or difference; or (c) the mother used a tone to describe the disagreement that suggested the mother blamed the home visitor or considered the home visitor to be the source of the disagreement/difference; the mother "didn't like," expressed dissatisfaction about, or was hurt by something the home visitor did; or the mother was dismissive of the home visitor's suggestions, ideas, etc.

Minor Disconnects (T2). A disconnect was coded as *minor* if at least one of the following was true: (a) the mother and home visitor were able to resolve the disagreement/difference; (b) the mother indicated that she did not regard the difference to be important; (c) the way the mother described the disagreement/difference was without emotional charge (e.g., he explained each side's point of view neutrally, she may have downplayed it or not elaborated on the disagreement); or (d) home visitor was not blamed for the disagreement/difference.

Help (T2). The type of assistance that participants report to receive from their home visitors may take various forms. For instance, home visitors can provide information, emotional support, and advice. Alternatively, participants might state having had help working towards their goals and/or improving their relationships with friends, family and romantic partners. In other cases, help involves referral to social services and programs needed by the participants. In addition to being asked about the type of help provided by home visitors, participants were also asked what type of help they most preferred and what type of help they actually received most. In some analyses we considered *help mismatch*, which represents instances when the mother's most preferred type of help differed from the most received type of help.

Home Visitor and Relationship Qualities (T2). Open coding resulted in various ways of describing qualities of both the home visitor and the relationship between the home visitor and mother, including: personal enjoyment of other (i.e., the mother's perception that she and the home visitor enjoyed one another's company), home visitor respect of participant (i.e., the mother's perception that the home visitor treated her with respect), approachability (i.e., the mother's sense of ease talking to home visitor, comfort asking her questions, etc.), similarity (i.e., the mother's perception that there are similarities between her behavior and personality and that of the HV that helps her feel connected to her home visitor), caring, and, reciprocity (i.e., the mother reported that the home visitor shared personal things about herself with the mother).

Role Designation (T2). Role was measured two ways in the research interview. First, mothers responded to an open-ended question (i.e., "What type of role do you feel she plays in your life?"). Second, mothers responded to a closed-ended question. Possible categories included *teacher, nurse, social worker, therapist, parent figure or older relative, friend*, or *other*. We coded both the open- and closed-ended questions as friend, family member, or professional. It is important to note that participants' responses to the open- and closed-ended questions did not always match (e.g., participants may have described their home visitor as a friend in the open-ended question, but as a family member in the closed-ended question).

Home Visitor – Mother Relationship Profile (T2). Using cluster analysis we used four factors to create these profiles: (a) the closed-ended choice for home visitor role designation (professional, friend, or family member); (b) the participant's self-report of relationship valence (good or not good); (c) the difference of positive to negative codes pertaining to home visitor attributes and/or relationship characteristics (with negative values

indicating more negative home visitor or relationship qualities); and (d) the number of major and minor disconnect codes.

Four suitable profiles emerged. Profile 1 represents the most negative depiction of the home visitor–mother relationship. Within this profile, almost three quarters of respondents characterize the home visitor's role as professional. In contrast, the remaining three profiles represent positive profiles. These positive profiles can be differentiated by the home visitor role designations (Profile 2 = *professional* home visitors, Profile 3 = *friend* home visitors, and Profile 4 = *family member* home visitors).

Change (T3). Open coding resulted in various ways of describing how the home visitor–mother relationship changed over time. Five dimensions of change emerged, including *Comfort* (i.e., instances when the mother felt at ease with the home visitor); *content* (i.e., all aspects of exchanges in the home visit, including but not limited to the HFM curriculum); *closeness* (i.e., growing personal bonds between home visitor and the participant); *spontaneity* (i.e., an expansion of topics into other realms of young mother's life beyond those outlined by the program, and a sense that the nature of interactions between the pair was not bound by a curriculum); and *trust* (i.e., used to describe mother's confidence in the professional expertise of her home visitor).

Reasons for Continuation (T2, T3). This construct captures participants reported reasons for continuing their enrollment in HFM, regardless of the length of enrollment. Motivations for continuation, according to mothers, included having *received help* (e.g., with parenting, child development, or maternal well-being, or home visits being something to look forward to); HFM was a *good program* (i.e., they liked the program or found it helpful, or saw no reason to discontinue participation); they *liked their home visitors* (i.e., enjoyed their company, felt comfortable with them, or found them helpful); they felt the program had *potential to help them in the future*, even if it hadn't yet; the mother *needing help* (e.g., having limited knowledge as a new parent); and program intervention (e.g., the home visitor encouraging the mother to continue her participation when the mother was considering discontinuing).

Reasons for Discontinuation (T2, T3). This construct reflects the participant's explanations for terminating her enrollment in HFM included those that can be attributed to circumstances of the participant's life, those that can be attributed to characteristics of the program, those that can be attributed to the home visitor, and those that can be attributed to both the home visitor and the participant.

Reasons that could be attributed to the participant included the participant's *schedule* (i.e., mother was too busy to participate in the program); the participant *moving* (i.e., circumstances related to change in residence such as moving out of the program area); and *personal issues* (i.e., circumstances in mother's life are interfering with her availability or ability to be in the program [issues could be with family members, boyfriend/FOB, current living arrangements, health, transportation, some other type of inconvenience perceived by the participant about the visits]).

Reasons that could be attributed to HFM program included *irrelevance* (i.e., the participant felt that she would not benefit from the program's services either because she was receiving support from other sources, the curriculum was not of interest to her, or there was a mismatch between her and the home visitor) and *program policies and funding* (i.e., mother or baby aged out, mother found it too difficult to re-enroll in new program after moving, mother's case was closed because of lack of contact for a period of time, or program site closed due to lack of funding).

Reasons that could be attributed to the home visitor included *turnover* (i.e., mother's home visitor was changed and mother did not wish to continue with new home visitor) and *behavior* (i.e., mother did not like something about the home visitor, her style, her conduct, her level of preparedness to meet the mother's

needs, or her personal characteristics).

Finally, reasons for discontinuation that could be attributed to both the home visitor and the participant describe situations in which the home visitor and mother lost contact, and it was not possible to determine who was responsible for that.

Fidelity (PDS)

We examined two measures of program fidelity. First, we examined *program*-level fidelity, which assessed the degree to which programs adhered to the HFM program model. Second, we assessed *individual*-level fidelity, which measured the degree to which participants experienced the program as intended by the HFM model.

Program-Level Fidelity. Program-level fidelity assessed the degree to which programs operated as intended by the HFM model, in relation to HFM indicators. Fidelity scores were based on HFM performance indicators (see Table 10, Section 4.3). Data were derived from the HFM Participant Data System (PDS). Data for each indicator were available by fiscal year (FY08–FY12) for all individuals who enrolled in HFM (including parents who were not part of the HFM evaluation). With these data we first calculated annual program-level fidelity scores for each of the 26 program sites (18 MHFE-2 evaluation sites and eight non-evaluation sites) for each of the four fiscal years (2008 through 2012). After obtaining an average program-level score for each of the four fiscal years, we created a final, single measure of program-level fidelity by averaging the four fiscal year fidelity measures. Mothers who enrolled in more than one program were assigned a program-level fidelity score that corresponded to the program in which they were enrolled the longest.

Individual-Level Fidelity. Individual-level fidelity scores reflected each MHFE-2 participant's utilization of services, in relation to the HFM indicators. To calculate a total individual-fidelity score, we first created a dichotomous variable to indicate whether the mother met each program indicator (e.g., [for Indicator 1] 1 = yes, mother was referred prenatally; 0 = no, mother was referred postpartum). Then, a total score was created by dividing the number of indicators that were met by the total number of program indicators. Thus, possible scores ranged from 0 (indicating the mother did not meet any program indicators) to 1 (indicating the mother met all program indicators). The rate of missingness on program indicator data was low, so scores were calculated for mothers regardless of their missing data. Of the 433 mothers assigned to HVS, 85% had data on each of the 11 program indicators, 12% were missing data on just one program indicator, and 3% were missing two to three program indicators.

Additionally, we created two individual-level fidelity subscales; one subscale included program indicators related to *initial exposure* to the program (e.g., HFM program made first contact with the participant within ten days from the referral), and the other subscale included those indicators related to *overall exposure* to the program (e.g., participant received 75% of her visits according to her service level). These scores were calculated similarly to the total individual-fidelity score (by dividing the number of program indicators met by the total number of program indicators); the scores could range from 0 to 1.

A2.2 Tiers Four and Five: Outcome Analyses

Next, we describe the measures that we used when conducting evaluation activities for Tiers Four and Five, including measures pertaining to *outcomes, mediators* (i.e., measures used for the pathway analyses), *moderators* (i.e., measures used for subgroup analyses), *program fidelity*, and *statistical controls* (i.e., measures used to hold auxiliary influences equal in order to focus on substantive interests).

A2.2.1 Outcomes

Below we describe the measures used to assess program impacts, organized by the five goal areas.

Goal 1: Prevent Child Abuse and Neglect by Supporting Positive, Effective Parenting

Outcomes for Goal 1 included child maltreatment, parenting stress, parenting and child rearing attitudes,

mothers' discipline strategies and aggression towards the child, maternal emotional availability, and maternal mind-mindedness. Each measure is described in more detail in the paragraphs that follow.

Child Maltreatment (DCF). We used records obtained from the Department of Children and Families (DCF) to summarize information pertaining to the victimization of the target child (i.e., the first born child of participants). We constructed the following three variables:

Whether any Reports were Made Since Enrollment. A dichotomous variable to represent whether any report (i.e., allegation of abuse or neglect) was on file, regardless of whether it was substantiated or not (0 = no report on file, 1 = at least one report on file).

Whether at Least One Report was Substantiated. A dichotomous variable to represent whether at least one report on file was substantiated (i.e., there was sufficient evidence to warrant DCF intervention after investigation of child maltreatment; 1 = at least one report was substantiated, 0 = no substantiated report on file).

Perpetrator Identity. A categorical variable to differentiate the perpetrator of substantiated reports (1 = mother, alone or in combination with other perpetrator, 2 = other perpetrator only, and 0 = no substantiated reports on file).

Parenting Stress (T2, T3). We used several subscales of the Parenting Stress Index Short Form (PSI-SF) to examine the extent to which the mothers experienced stress in their role as parents.[102] Mothers indicated the degree to which they agreed with statements (e.g., "I feel trapped by my responsibilities as a parent," "My child rarely does things for me that make me feel good") using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Each subscale consisted of 12 items and was scored by adding the items, resulting in sum scores which could range from 12 to 60. A higher score indicates higher stress on all subscales.

Parental Distress. Measures the sense of parenting competence, stresses associated with restrictions on a parent's life, conflict with child's other parent, social support, and depression.

Dysfunctional Interaction. Assesses the extent to which the mother believes that her child does not meet her expectations and their interactions are not satisfying. High scores in this sub-scale indicate that the mother may see the child as a disappointment, feels rejected or alienated by/from the child, or has not properly bonded with the child.

Difficult Child. Assesses how easy or difficult the mother perceives her child to be.

According to the authors of the PSI-SF, scores above a certain threshold (clinical cutoff) signal that mothers may experience clinical levels of stress and might benefit from interventions. These thresholds are as follows: a score of 36 or higher on Parental Distress and Difficult Child subscales, and a score of 30 or higher on Parent-Child Dysfunctional Interaction (P-CDI) subscale. Meeting criteria for clinically significant scores on each subscale may also be used as a flag for high risk of child abuse.

Parenting and Child Rearing Attitudes (T3). We used the Adult-Adolescent Parenting Inventory (AAPI-2) to assess parenting and child rearing attitudes.[103] Mothers indicated how much they agreed (0 = Strongly Agree, 4 = Strongly Disagree) with statements about inappropriate parental expectations (e.g., "Strict discipline is the best way to raise children"), parental lack of empathic awareness of children's needs (e.g., "Children have a responsibility to please their parents"), strong belief in the use and value of corporal punishment (e.g., "Spanking teaches children right from wrong"), role reversal ("A good child will comfort both parents after they have argued"), and oppression of child power and autonomy ("Parents who encourage their children to talk to them only end up listening to complaints"). Three subscales were calculated by summing the corresponding items Inappropriate expectations (seven items), Lack

of Empathy (10 items), and Beliefs about Corporal Punishment (11 items). Higher scores indicate more positive parenting attitudes and child rearing.

Conflict Tactics Scale (T2, T3). We used the Conflict Tactics Scale – Parent-Child (CTS-PC) to assess mothers' discipline strategies and aggression toward the child.[104] We examined two subscales: Non-Violent Discipline and Corporal Punishment ("Ordinary"). The Non-Violent Discipline subscale consisted of four items (e.g., "You put your child in 'time out'"), and assessed positive (non-abusive) discipline methods. The Corporal Punishment ("Ordinary") subscale assessed the degree to which parents use spanking, slapping, or shaking, and had three items (e.g., "You spanked your child on the bottom with your bare hand"). In accordance with the coding manual, if the child was younger than two years, the item, "You shook your child," was excluded from this subscale (per authors' instructions, because this behavior indicated severe corporal punishment). Respondents indicated how often they engaged in specific behaviors in the past year. Past year prevalence scores were calculated as a dichotomous variable, where 0 = behaviors did not occur in the past year and 1= at least one behavior endorsed as having occurred in the past year.

Maternal Emotional Availability (T2, T3). We used the Sensitivity subscale from the Emotional Availability Scales to assess maternal behaviors toward her child.[105] The EA is an observational measure collected during the in-person interviews from a subset of mothers who consented to being video recorded. Mothers were first asked to play with their infants as they might typically do (free play, five minutes). Next, the dyads were presented with a five-minute task that would be challenging for the child of the target child's age to complete on his or her own (a teaching task, five minutes). The filmed observations were coded by a team of trained coders. Maternal sensitivity assessed mothers' attunement to the child's emotional cues; accurate perceptions of the children's cognitions, emotions, and behaviors; and shared positive emotional exchanges with the children. Sensitivity scores range from 1 (highly insensitive) to 9 (highly sensitive).

Maternal Mind-Mindedness (T2, T3). We used maternal mind-mindedness scales (MM) to assess mothers' proclivity to treat their young child as an individual with a mind, rather than merely an entity with needs that must be satisfied.[106] MM could be assessed in two ways: by coding videos of mother–child free-play interactions (*behavioral* MM) and by coding mothers' responses to an interview question "Can you describe [child's name] for me?" (*representational* MM)[107]. Behavioral MM is more appropriate for assessing MM with infants in the first year of life, while representational MM is more commonly used to assess individuals' MM in relation to older children.[108] We assessed behavioral MM at T2 and T3, and representational MM at T3 only. For both measures, maternal verbal statements were analyzed for mind-related comments. A mind-related comment was defined as one that used an explicit internal state term to describe what the infant may be thinking, experiencing, or feeling (e.g., "She is clever," "He likes animals"). Behavioral MM coding also considered how the comments mapped onto the child's behavior, which allowed for further classification of mind-related comments into appropriate (attuned) or non-attuned. MM scores were expressed as a proportion of mind-related comments to the total number of comments produced by the mother during the interaction (interview), in order to control for differences in verbosity. Higher scores reflect higher maternal MM (i.e., mothers made a higher number of mind-minded comments relative to total comments during the task).

Goal 2: Achieve Optimal Health, Growth, and Development in Infancy and Early Childhood

In this section we describe outcomes related to Goal 2, including English language development, social and behavioral problems and competencies, child's health at birth, and child responsiveness. Each is described in more detail in the paragraphs that follow.

English Language and Communication Skills (T3). We used the short forms of The MacArthur-Bates

Communicative Development Inventories (MB-CDI) to assess children's language development.[109] The MB-CDI was available in both English and Spanish and includes three levels that were based on child's age (however; only the first two levels were available in Spanish). Each level asked parents to report whether the child said (i.e., produced) a list of words. Two proportion scores, one for English speakers and one for Spanish speakers, were calculated by summing the total number of words the child said and then dividing this number by the total number of non-missing items on the scale. Higher scores on the MB-CDI indicate that the child was able to produce more words in that language. For this report we only used English language proportion scores because the number of children with Spanish language proportion scores was too small to analyze.

Social-Emotional/Behavioral Problems and Competencies (T3). We used the Brief Infant-Toddler Social and Emotional Assessment (BITSEA) to assess children's social-emotional and behavioral problems and competencies.[110] Mothers were asked to indicate how true various statements were for their child using a 3-point Likert scale (0 = not true/rarely, 1= somewhat true/sometimes, 2=very true/often). A problem score was created by summing 31 items that indicated problematic behavior (e.g., "Cries or has tantrums until he or she is exhausted"); higher scores indicate greater levels of socio-emotional or behavioral problems (possible range = 0–62). A competence score was created by summing 11 items that indicated positive, age-appropriate behaviors (e.g., "Shows pleasure when he or she succeeds [for example, claps for self]"). Lower scores indicate a possible deficit/delay in competence (possible range = 0–22).

Healthy Birth (DPH). Data on gestational age, birth weight, and five-minute Apgar score (health index for newborn children ranging from 0 to 10, with 10 being the healthiest) were obtained from the Department of Public Health (DPH). DPH collected these data at mother's discharge from the hospital using the Electronic Birth Certificate form. We used these individual indicators to construct a composite healthy birth variable. The birth was considered a healthy birth if the child was not born low birth weight (>2,500 grams), was delivered full term (> 37 months), and received a high Apgar score (9 and above). A binary variable was then created, where 1 = all three conditions were met and 0 = at least one condition was not met.

Child Responsiveness (T2, T3). Child responsiveness during the Emotional Availability (EA) task was assessed using observational data collected during the T2 and T3 in-person interviews from a subset of mothers who consented to being video recorded. Mothers were asked to play with their infants as they might typically do (free play, five minutes) and then were presented with a task that would be challenging for the child of the target child's age to complete on his or her own (a teaching task, five minutes). The videos were analyzed using the EA scales.[111] The filmed observations were coded for child's responsiveness to the mother, as reflected by the child's eagerness to engage with the mother or clear signs of pleasure in interaction as opposed to behavioral withdrawal or negative affect or behavior. Responsiveness scores ranged from 1 (clearly nonoptimal in responsiveness/nonresponsive) to 7 (optimal in responsiveness). Thus, higher scores indicate more appropriate and positive child responsiveness.

Goal 3: Encourage Educational Attainment, Job, and Life Skills

Next we describe outcomes related to Goal 3, including education status, whether the mother is currently employed, and economic hardship.

Education Status (T2, T3). We analyzed two binary indicators of education status, self-reported by mothers during the phone interview:

Whether Mother Finished High School or GED. Mothers who finished high school or a GED program were coded as 1. Mothers who had not finished high school or GED (because they were still in school or dropped out) were coded as 0.

Whether Mother Finished at Least One Year of College. Questions about current education status and highest level of completed education were used to determine whether mothers finished at least one year of college (0 = no college or less than one year of college completed, 1 = one or more years of college completed).

Whether Mother is Currently Employed (T2, T3). Employment status was self-reported by mothers during the phone interview (1 = currently employed, 0 = not currently employed).

Economic Hardship (T2, T3). We analyzed two indicators of economic hardship, self-reported by mothers during the phone interview:

Level of Financial Difficulties. Mothers were asked to rate the degree of difficulty they experienced in covering their expenses. A binary variable was created, where 0 = no or very few difficulties, 1 = some or major difficulties.

Adequacy of Basic Resources. We used 14 items from the Family Resources Scale (FRS)[112] that pertained to the adequacy of the most basic economic needs (e.g., food for 2 meals a day, house or apartment, money to buy necessities). Mothers were asked to choose the response that best described how well each need was met on a consistent basis in the family (responses ranged from 0 = not at all enough to 4 = almost always enough). A mean score was calculated and rescaled to range from 0 (all resources inadequate) to 100 (all resources adequate).

Goal 4: Prevent Repeat Pregnancies During the Teen Years

Here we describe outcomes related to Goal 4, including measures of repeat pregnancy, repeat birth, and the mother's use of birth control/protection.

Repeat Pregnancy (T3). During the phone interview, mothers indicated whether they were pregnant again or had another birth after the target child (i.e., the focus child for the MHFE-2 evaluation). A binary variable was created (0 = no repeat pregnancy, 1 = repeat pregnancy).

Repeat Birth (T3). During the phone interview, mothers indicated whether they had another baby after target child (i.e., the focus child for the MHFE-2 evaluation). A binary variable was created (0 = no repeat birth, 1 = repeat birth).

Use of Birth Control/Protection (T2, T3). We analyzed two binary indicators of birth control/protection use, self-reported by mothers during the phone interview:

Whether Mother Used Condoms. If mothers reported using condoms as a method of birth control/protection they were coded as 1. Mothers who listed only other methods or no method were coded as 0.

Whether Mother Used Hormonal Birth Control. If mothers reported using hormonal birth control methods (e.g., oral contraceptives, patches, injections, implants) as a method of birth control/protection they were coded as 1. Mothers who listed only other methods or no method were coded as 0.

Goal 5: Promote Parental Health and Well-Being

Finally, we describe measures used to assess Goal 5 outcomes, including mental health service receipt, personal mastery, several aspects of risky behavior, and intimate partner violence.

Mother Received Mental Health Services After Pregnancy (T2, T3). During the phone interview, mothers reported on whether they had received mental health services since becoming pregnant. Mothers were coded as 1 if they reported having received mental health services and 0 if they did not.

Personal Mastery (T3). We used the Pearlin Mastery Scale (PMS) to assess mothers' sense of mastery.[113] Mastery is defined as "the extent to which people see themselves as being in control of the forces that importantly affect their lives."[114] Mothers were asked to indicate how much they agreed with seven items (e.g., "What happens to me

in the future mostly depends on me.") using a 5-point Likert scale: 0 = strongly agree, 4 = strongly disagree. A sum score was constructed by adding the responses from each item. A range of 0 to 28 is possible, with higher values corresponding to higher mastery.

Youth Risk Behavior (T3). We assessed mothers' engagement in risky behaviors using items from the Youth Risk Behavior Surveillance System (YRBS).[115] The items were developed by the Centers for Disease Control and Prevention (CDC) and are administered annually as part of a national school-based survey. We constructed five indicators from this measure, described below.

Whether Mother Engaged in Three or More Risky Behaviors. Mothers were asked to indicate whether they engaged in 12 risky behaviors including in the past 30 days (a) rode with a driver who had been drinking alcohol, (b) carried a weapon, (c) had been in a physical fight, (d) smoked at least one cigarette every day, (e) had five or more drinks of alcohol in a row within a "couple of hours;" at least once in lifetime had used (f) marijuana, (g) cocaine, (h) steroids, (i) inhalants, (j) other drugs, or (k) a needle to inject drugs; and during last intercourse (l) engaged in unprotected sex. Answer options differed depending on the question and ranged on various scales (e.g., from 0 days to all 30 days; from 0 times to 40 or more times). Dichotomous variables were created for each item, according to the risk cutoffs listed on the CDC website and then summed.[116] Mothers were coded as 1 if they reported engaging in at least 3 risk behaviors on this list. Mothers who reported engaging in into 0–2 behaviors were coded as 0.

Whether Mother Consumed Five or More Drinks of Alcohol in a Row within a Couple of Hours (Past Month). A dichotomous variable was created where mothers were coded as 1 if they reported having five or more drinks of alcohol in a row within a couple of hours at least once in the past 30 days. Mothers who did not report engaging in this behavior were coded as 0.

Whether Mother Smoked Frequently/Daily (Past Month). A dichotomous variable was created where mothers were coded as 1 if they smoked one day and 0 if they did not smoke in the past month.

Whether Mother Used Drugs (Ever). A dichotomous variable was created where mothers were coded as 1 if they reported using at least one drug from a provided list of drugs, including cocaine, inhalants, steroids, and/or other drugs, such as LSD, ecstasy, heroin, at least once in their lifetime. Mothers who did not report engaging in this behavior were coded as 0.

Whether Mother Used Marijuana (Past Month). A dichotomous variable was created where mothers were coded as 1 if they reported having smoked marijuana at least once in the past month. Mothers who did not report engaging in this behavior were coded as 0.

Intimate Partner Violence (T2, T3). We used the revised, short form Conflict Tactics Scale – Partner (CTS2S) to assess the extent to which partners engage in psychological or physical attacks on each other.[117] The CTS2S consists of 20 items, which describe specific acts perpetrated by the respondent and by the partner (e.g., "I insulted or swore or shouted or yelled at my partner," "My partner pushed, shoved, or slapped me"). In order to measure total exposure to violence, we asked participants to think about all romantic partners in the past year. We counted the number of items participants reported as having occurred at least once in the past year separately for self-perpetrated and partner-perpetrated acts (possible range on each variable was 0 to 8, with higher counts indicating higher number of reported violent acts). We then created the following dichotomous variables:

Self as Perpetrator. Mothers who endorsed at least two self-perpetrated acts were coded as 1, and mothers who reported fewer acts were coded as 0.

Partner as Perpetrator. Mothers who endorsed at least two partner-perpetrated acts were coded as 1, and mothers who reported fewer acts were coded as 0.

A2.2.2 Mediators

To ensure that mediators preceded the outcome, only models with Time 3 outcomes and Time 2 mediators were tested. Each goal area had its own set of mediators. For a list of the mediators outlined separately for each goal area, see Table 30 in Chapter 8. We describe instruments we used to assess mediators in alphabetical order, below.

Hours Per Week Target Child Spent In Formal Child Care (T2)
See Section A2.1.1.

Maternal Emotional Availability (T2)
We used two subscales (Sensitivity and Non-Hostility) of the Emotional Availability Scales (EA), to assess maternal behaviors toward her child.[118] See Section A2.2.1 for a full description of Maternal Sensitivity during the Teaching Task. In addition to maternal sensitivity, mediation models also examined non-hostility. Non-hostility measured the degree to which mothers' behaviors were free of demeaning comments, impatience, anger, and frightening, harsh, or threatening behavior. Scores ranged from 1 ("markedly and overtly hostile") to 5 ("non-hostile"). Higher scores on both the sensitivity and non-hostility subscales indicated more evidence of mothers' positive emotional availability.

Maternal Mind-Mindedness (T2)
See Section A2.2.1 for a complete description of this measure.

Parental Discipline (T2)
We used the Conflict Tactics Scale – Parent-Child (CTS-PC) to assess mother's self-reported discipline and aggression towards the child.[119] We used one of the subscales, Non-Violent Discipline (four items, e.g., "You put your child in 'time out'"), to assess positive (non-abusive) discipline methods (See Section A2.2.1, for details). Additionally, we calculated a score for Serious Abuse or Neglect, which was proposed by the authors of the evaluation of Healthy Families New York as an additional way to score the CTS-PC.[120] Serious Abuse or Neglect was a proxy measure of "official" child abuse and neglect (i.e., comparable to behaviors leading to substantiated CPS reports); it incorporated 11 most serious items of the CTS-PC (e.g., "You beat your child up [hit him or her over and over as hard as you could]"). Respondents indicated how often they engaged in specific behaviors in the past year using a 7-point Likert scale (0 = None; 1 = Once; 2 = Twice; 3 = 3 – 5 times; 4 = 6 – 10 times; 5 = 11 – -20 times; 6 = More than 20 times; 7 = Not in the past year, but it happened before). Chronicity scores were created by summing the items.

Parental Distress (T2)
See Section A2.2.1 for a complete description of the measure.

Social Support (T2)
See Section A2.1.1 for a complete description of the measure.

A2.2.3 Subgroups (Moderators)

A common set of moderators was analyzed across each goal area. These are described first. We also analyzed additional moderators, when appropriate, that pertained to specific goal areas. These moderators are described separately by goal area. All moderators were assessed during the T1 phone interview, unless otherwise noted.

Adequacy of Basic Resources
See Section A2.1.1 for a complete description of this measure.

Community Cluster
See Section A2.1.1 for a complete description of this measure.

Intimate Partner Violence (T2, T3)
We used the revised, short form Conflict Tactics Scale – Partner (CTS2S) to assess the extent to which partners engage in psychological or physical attacks on each other.[121] See Section A2.2.1 for details on the CTS2S measure. We counted the number of items participants

reported as having occurred at least once in the past year (both self-perpetrated and partner-perpetrated; possible range was 0 to 16, with higher counts indicating higher number of reported violent acts).

Level of Financial Difficulties
See Section A2.1.1 for a complete description of the measure.

Maternal Age at Child's Birth
See Section A2.1.1 for a complete description of the measure.

Maternal Depression
See Section A2.1.1 for a complete description of the measure.

Maternal Race and Ethnicity
See Section A2.1.1 for a complete description of the measure.

Mother Cohabitates with Father of Baby
See Section A2.1.1 for a complete description of the measure.

Mother's Living Arrangement Includes an Adult Relative/Guardian
See Section A2.1.1 for a complete description of the measure.

Mother Parenting at Enrollment
See Section A2.1.1 for a complete description of the measure.

Mother's own History of Child Abuse and Neglect (DCF)
See Section A2.1.1 for a complete description of the measure.

Number of Residences in Past Year
See Section A2.1.1 for a complete description of the measure.

Relationship Status with Father of Baby
Mothers described their current relationship status by choosing from eight possible options. From their answers, we derived a dichotomous variable where 1 = the mother was committed, engaged, or married to the father and 0 = mother is single, dating the father of the target child, or in any type of relationship with another man.

Social Support (T2)
See Section A2.1.1 for a complete description of the measure.

Trauma Exposure and Post-Traumatic Stress Disorder (T2)
See Section A2.1.1 for a complete description of the measure.

A2.2.4 Program Operations

Program Utilization (Home Visits, Secondary Activities, and Groups)
See Section A2.1.2 for a detailed description of those measures used to characterize program utilization, including home visits, secondary activities, and groups.

Home Visitor–Mother Relationship
See Section A2.1.2 for a detailed description of those measures used to characterize the home visitor–mother relationship profiles.

Individual- and Program-Level Fidelity
See Section A2.1.2 for a detailed description of individual- and program-level fidelity.

A2.2.5 Control Variables

A standard set of control variables were used in all outcome related analyses. They included maternal age at the T1 phone interview (in years); target child's age at the T1 phone interview (in months); maternal race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, non-Hispanic other); whether the mother was born in the US; whether the mother moved at least once in past year; a total count of how many public programs the mother received since pregnancy (including CashAssistance (TAFDC), Food/Nutritional

Assistance (SNAP), WIC, SSI, Teen Living Program/ Shelter, Housing vouchers, Section 8 Housing/Public Housing, Child care vouchers, or other public assistance programs); maternal level of depressive symptoms (a continuous score from the CES-D); and level of financial difficulties (0 = no or very few difficulties, 1 = some or major difficulties). Analyses related to child health and well-being (HFM Goal 2) also controlled for the target child's sex.

APPENDIX THREE

Publications, Presentations, and Grants

A3.1 Published Papers and Reports

Fiscal Year 2014 (FY14)

Bartlett, J. D., Raskin, M., Kotake, C., Nearing, K. D., & Easterbrooks, M. A. (2014). An ecological analysis of infant neglect by adolescent mothers. *Child Abuse & Neglect*, 38(4), 723–734.

Easterbrooks, M. A., Bartlett, J. D., Raskin, M., Goldberg, J., Contreras, M. M., Kotake, C., Chaudhuri, J. H., & Jacobs, F. H. (2013). Limiting home visiting effects: Maternal depression as a moderator of child maltreatment. *Pediatrics*, 132, S126–S133.

Easterbrooks, M. A., Raskin, M., & McBrian, S. F. (in press). Father involvement and toddlers' behavioral regulation: Evidence from a high social risk sample. *Fathering: A Journal of Research, Theory, and Practice*.

FY13

Bartlett, J. D., & Easterbrooks, M. A. (2012). Links between physical abuse in childhood and child neglect among adolescent mothers. *Children and Youth Services Review*, 34, 2164–2169.

Bartlett, J. D., & Easterbrooks, M. A. (under review). Infant neglect and discontinuity in intergenerational cycles of maltreatment.

Easterbrooks, M. A., Bartlett, J. D., Beeghly, M., & Thompson, R. A. (2012). Social and emotional development in infancy. In R.M. Lerner, M.A. Easterbrooks, & J. Mistry (Eds.), *Handbook of psychology: Vol. 6. Developmental psychology (2nd ed.)*. Editor-in-Chief: I. B. Weiner. Hoboken, NJ: Wiley.

FY11 – FY12

Easterbrooks, M. A., Chaudhuri, J. H., Bartlett, J. D., & Copeman, A. (2011). Resilience in parenting among young mothers: Family and ecological risks and opportunities. *Children and Youth Services Review*, 33, 42–50.

Easterbrooks, M. A., Jacobs, F. H., Bartlett, J. D., Goldberg, J., Contreras, M. M., Kotake, C., Raskin, M., & Chaudhuri, J. H. (2012). *Initial findings from a randomized, controlled trial of Healthy Families Massachusetts: Early program impacts on young mothers' parenting*. Report to the Pew Center on the States. Washington, DC.

FY10

Diez, V. & Mistry, J. (2010). Early childbearing and educational attainment among mainland Puerto Rican teens. *Journal of Adolescent Research*, 25(5), 690–715.

Goldberg, J., Jacobs, F. H., Mistry, J., Easterbrooks, M. A., Davis, C.R., & Vashcehnko, M. (2009). *Massachusetts Healthy Families Evaluation-2: A randomized, controlled trial of a statewide home visiting program for young parents. Annual data report to the Massachusetts Children's Trust Fund, Fiscal Year 2009.* Medford, MA: Tufts University.

FY09

Chaudhuri, J. H., Easterbrooks, M. A. & Davis, C. R. (2009). The relation between emotional availability and parenting style: Cultural and economic factors in a diverse sample of young mothers. *Parenting: Science and Practice*, 9(3), 277–299.

Driscoll, J. R. & Easterbrooks, M.A. (2007). Young mothers' play with their toddlers: Individual

variability as a function of psychosocial factors. *Infant and Child Development*, 16 (6), 649–670.

Easterbrooks, M. A., Barrett, L. R., Brady, A. E., & Davis, C. R. (2007). Complexities in research on fathering: Illustrations from the Tufts study of young fathers. *Applied Developmental Science*, 11(4), 214–220.

Jacobs, F & Goldberg, J. (2008). Evaluating contemporary social programs: Challenges and opportunities. In M.E. Kenney, L.E. Reese, A.M. Horne, & P. Orpinas (Eds.), *Handbook of Prevention: Promoting Health and Social Justice*. Washington, DC: American Psychological Association.

Mistry, J. M., Jacobs, F., Goldberg, J., Easterbrooks, M. A., Davis, C. R., & Jimenez, I. (2007). *A longitudinal study of repeat births in a sample of adolescent mothers: Follow-up results from the Massachusetts Healthy Families Evaluation. Medford, MA: Tufts University.*

Mistry, J., Jacobs, F., & Jacobs, L. (2009). Cultural relevance as program-to-community alignment. *Journal of Community Psychology*, 37(4), 487–504.

Riley, S., Brady, A., Goldberg, J., Jacobs, F., & Easterbrooks, A. (2008). Once the door closes: Understanding the parent–provider relationship. *Children and Youth Services Review*, 30(5), 597–612.

A3.2 Presentations and Testimony

FY14

Bumgarner, E., Raskin, M., Easterbrooks, A., Kotake, C., Bartlett, J., Chaudhuri, J., Jacobs, F., & Goldberg, J. (2014, April). Early Childhood Interventions to Prevent Child Maltreatment: New Evidence from 2 Randomized Longitudinal Studies. National Conference on Child Abuse and Neglect, New Orleans, LA.

Contreras, M. M., Chaudhuri, J. H., & Easterbrooks, M. A. (2013, October). Discriminations, maternal depression, and child emotional regulation: Challenges for home visiting research. Presented at the meetings of the Diversity Challenge Conference, Boston College.

Easterbrooks, M. A., Crossman, M. K., Caruso, A., & Raskin, M. (2014, June). Maternal trauma exposure moderates links between mind-mindedness and toddlers' behavior problems. Paper to be presented at the meetings of the World Association for Infant Mental Health, Edinburgh, Scotland.

Easterbrooks, M. A., Kotake. C., Raskin, M., & Bumgarner, E. (2014, June). Fathers' contributions to trajectories of maternal depression during infancy. Paper presented at the meetings of the World Association for Infant Mental Health, Edinburgh, Scotland.

Goldberg, J., Bumgarner, E., & Jacobs, F. (2014, January). Measuring fidelity in the Healthy Families Massachusetts home visiting program. Poster presented at The Pew National Home Visiting Summit, Washington, DC.

Greenstone, J.H., Jacobs, F.H., Coskun, L., Bumgarner, E., & Streimer, R. (2014, April). Building relationships with families to prevent child maltreatment: Exploring the relationship between workers and families in a home visiting program. National Conference on Child Abuse and Neglect, New Orleans, LA.

Jacobs, F.H., Greenstone, J.H., Coskun, L., Bumgarner, E., & Streimer, R. (2013, November). Working together in the home: Using the multi-layered relationships between home visitors and families to enhance services. A View from All Sides Conference, Children's Trust, Marlborough, MA.

Lamoreau, R., Easterbrooks, M. A., & Raskin, M. (2013, August). The impact of home visitation on maternal health and infant birth outcomes. Poster presented at the 2013 Tufts Summer Scholars Research Symposium, Medford, MA.

Stelmach, N., Chaudhuri, J., & Easterbrooks, M. A. (2013, October). Lasting effects of Intimate Partner Violence on child emotion regulation and executive functioning. Poster presented at the meetings of the New England Psychological Association, Bridgeport, CT.

FY13

Easterbrooks, M. A., Miranda-Julian, C., Raskin, M., & Chaudhuri, J (2013, April). The psychosocial context of mind-mindedness among adolescent mothers at high social risk. Paper presented at the meetings of the Society for Research in Child Development, Seattle, WA.

Bartlett, J. D., & Easterbrooks, M. A. (2013, April). Intergenerational cycles of neglect among young mothers. Poster presented at the meetings of the Society for Research in Child Development, Seattle.

Crossman, M., Easterbrooks, A., & Carusso, A. (2013, April). "What do you think you are doing?": Examining the relationship between maternal cognitive constructs and children's development in an at-risk population. Poster presentation at the 2013 Biennial Meeting of the Society for Research in Child Development, Seattle, WA.

Easterbrooks, M. A., Raskin, M., & McBrian, S. F. (2013, April). Fathers' influence on toddlers' behavior regulation: Evidence from a high social risk sample. Paper presented at the meetings of the Society for Research in Child Development, Seattle, WA.

Kotake, C., & Easterbrooks, M. A. (2013, April). Beyond ethnicity: A closer look at the role of culture and socioeconomic contexts in understanding young mothers' parenting. Poster presented at the meetings of the Society for Research in Child Development, Seattle, WA.

FY11 – FY12

Bartlett, J. D., & Easterbrooks, M. A. (2011, December). Young mothers and discontinuities in intergenerational cycles of child maltreatment. Poster session presented at ZERO TO THREE: 26th National Training Institute (NTI), Washington, DC.

Bartlett, J. D., Easterbrooks, M. A., & Miranda-Julian, C. (2010). Identifying resilient pathways among young mothers. Paper presented at the biennial symposium of the National Association of Social Workers, Massachusetts Chapter, Framingham, MA.

Chaudhuri, J. H., Contreras, M. M., Goldberg, J., & Mistry, J. (2012). Understanding minority status in neighborhood context. Poster presented at the themed meeting for Positive Development for Minority Youth of the Society for Research in Child Development, Tampa, FL.

Easterbrooks, M.A., Bartlett, J.D., & Miranda-Julian, C. (2010, June). Resilience in parenting among young mothers with a history of child maltreatment. Paper presented at the Pathways to Resilience Conference, Halifax, NS, Canada.

Prescott, J. E., Jacobs, F. H., & Goldberg, J. (2011). A friend, but not exactly: An exploration of the home visitor/client relationship. Poster to be presented at the 2011 Biennial Meeting of the Society for Research in Child Development, Montreal, CA.

Shapiro, S., DeVos, E., Bartlett, J.D., Teel, M.K., Holmes, M., & Rider, S. (2011, June). The QIC-EC projects: Building protective factors, promoting optimal development, and reducing risk for maltreatment. Presented at the Strengthening Families 2011 Leadership Summit, Crystal City, VA.

FY10

Bartlett, J. D. (2009, September). Distinguishing neglect in maltreatment research: Findings from a Massachusetts evaluation of a prevention program for young mothers. Presented at the UC Davis National Child Abuse and Neglect Conference, Sacramento, CA.

Bartlett, J. D., & Easterbrooks, M. A. (2010, March). When ghosts and angels meet: Childhood contributions to neglect by very young mothers. Poster session presented at the 13th Biennial Meeting of the Society for Research on Adolescence, Philadelphia, PA.

Bartlett, J. D., Miranda-Julian, C., & Easterbrooks, M.A. (2010, April). Identifying resilient pathways among young mothers. Presented at the NASW Massachusetts Chapter Symposium 2010, Boston, MA.

Easterbrooks, M. A., Bartlett, J. D., & Miranda-Julian, C. (2010, June). Resilience in parenting among young mothers with a history of childhood maltreatment. Presented at the Pathways to Resilience II Conferences: The Social Ecology of Resilience, Halifax, Nova Scotia, Canada.

Jacobs, F., & Goldberg, J. (September, 2009). The Massachusetts Healthy Families Evaluation: A multilevel investigation of a home visiting program for young parents. Presentation to Rep. Kay Khan, State Representative for the 11th Middlesex District; House Chair of the Joint Committee on Children, Families and Persons with Disabilities. Massachusetts State Legislature, Boston, MA.

FY09

Bartlett, J.D., & Easterbrooks, M.A. (2009, April). Who's not minding the child and why? Correlates of child neglect among the children of young mothers. Poster session presented at the Biennial Meeting of the Society for Research in Child Development, Denver, CO.

Davis, C. R., Miranda-Julian, C., Goldberg, J., & Easterbrooks, M. A. (2008, March). Resilient functioning across competing developmental demands of young mothers. Poster session presented at the annual meeting of the Society for Research on Adolescence, Chicago, IL.

Diez, V. & Mistry, J. (2009). Motherhood in the borderlands: Trajectories into adulthood among Puerto Rican teen mothers on the mainland. Paper presented at the Biennial Conference of the Society for Research in Child Development, April 1st – Apr. 4th, 2009, Denver, CO

Jacobs, F. (2008, July). Working together: Integrating home visiting research, practice, and policies. Keynote address: First National Research Conference on Child and Family Programs and Policies, Bridgewater, MA.

Jacobs, F., Mistry, J., Easterbrooks, A., & Goldberg, J. (2009, September). The Massachusetts Healthy Families Evaluation: A multilevel investigation of a home visiting program for young parents. Presentation to Rep. Kay Khan, State Representative for the 11th Middlesex District; House Chair of the Joint Committee on Children, Families and Persons with Disabilities. Massachusetts State Legislature, Boston, MA.

Miranda-Julian, C., Davis, C. R., & Easterbrooks, M. A. Grandmother caregiving support among a sample of adolescent mothers. (2009, August). Poster session presented at the annual conference of the American Psychological Association, Toronto, Canada.

Tan, E. T., Davis, C. R., Easterbrooks, M. A., & Goldberg, W. A. (2009, March) Young fathers' involvement: Individual and contextual antecedents. Poster session presented at the biannual meeting of the Society for Research in Child Development, Denver, CO.

A3.3 Student Papers

FY14

Contreras, M. M. (2014). When and how adolescent childbearing intersects high school: Modeling continuous and discontinuous trajectories of school attendance. Unpublished doctoral qualifying paper, Eliot-Pearson Department of Child Development, Tufts University, Medford, MA.

Katz, R. C. (2014). Child care as a protective factor: Investigating the impact of child care in an at-risk sample. Unpublished master's thesis, Eliot-Pearson Department of Child Development, Tufts University, Medford, MA.

FY13

Gutierrez, A. S. (2013). Making a match: Understanding the role of 'ethnic match' in provider-client relationships in a home visiting program. Unpublished master's thesis, Eliot-Pearson Department of Child Development, Tufts University, Medford, MA.

Kotake, C. (2013). The role of parenting and partner relationships for understanding the impact of maternal depression on the children of adolescent mothers. Unpublished qualifying paper, Eliot-Pearson Department of Child Development, Tufts University,

Medford, MA.

Kotake, C. (2013). A closer look at the role of culture and socioeconomic contexts in understanding young mothers' parenting. Unpublished qualifying paper, Eliot-Pearson Department of Child Development, Tufts University, Medford, MA.

FY11 – FY12

Bartlett, J. D. (2012). Young mothers, infant neglect, and discontinuities in intergenerational cycles of maltreatment. Unpublished doctoral dissertation, Eliot-Pearson Department of Child Development, Tufts University, Medford, MA.

Greenstone, J. (2012). "I'm pregnant and getting my high school diploma": How educational attainment scripts contribute to secondary educational resilience among adolescent mothers. Unpublished doctoral dissertation, Eliot-Pearson Department of Child Development, Tufts University, Medford, MA.

Kotake, C. (n.d.). Beyond ethnicity: A closer look at the role of culture and socioeconomic contexts in understanding young mothers' parenting attitudes and behaviors. Unpublished qualifying paper, Eliot-Pearson Department of Child Development, Tufts University, Medford, MA.

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A3.4 Student Grants

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Kotake, C. (2013). The role of parenting and ecological factors in breaking the link between depression and child maltreatment among adolescent mothers. Doctoral fellowship awarded by the Doris Duke Fellowships for the Promotion of Child Well-Being—seeking innovations to prevent child abuse and neglect.

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