FINAL REPORT: Increasing Retention in Home Visitation (R40MC06632)
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I. Introduction

A. Nature of the research problem: Premature dropout and diminished adherence to protocols in home visiting programs is a pervasive problem. It occurs in numerous programs that differ in model, approach, and populations served [5]. Premature dropout reduces cost-effectiveness, wastes limited resources, and limits program impact given findings demonstrating a positive association between improved outcomes and duration of program participation [10]. Indeed, the compelling body of evidence linking retention to outcomes prompted Brooks-Gunn and colleagues [2] to note that "Program dosage…is linked to child outcomes, even after controlling for demographic characteristics of the family." These findings suggest that program quantity (or amount of services) is important above and beyond some family characteristics that are associated with the extent of services that families receive." Importantly, attrition is primarily a problem of the real world application of prevention programs, and is minimally observed in controlled settings. Therefore, research focused on promoting retention must occur within the context of effectiveness, rather than efficacy, research strategies and samples.

B. Purpose, scope, and methods of the investigation: We conducted a randomized clinical trial of Motivational Interviewing (MI) to enhance retention and promote program adherence in home visitation, a widely used approach to child abuse prevention. MI is a client-centered strategy that focuses specifically on increasing motivation and commitment to change. MI was evaluated in two models of home visitation: Nurse-Family Partnership (NFP) [14] and Healthy Families America (HFA) [4]. Specifically, in this multisite randomized design, 196 at-risk, first-time mothers were randomly assigned to MI or Typical Home Visitation (THV) conditions within each of four agencies (divided equally between NFP and HFA models) in Every Child Succeeds, a community-based home visitation program. Half of the home visitors in each agency were trained in MI procedures, and intervention fidelity was monitored. Effectiveness of the intervention was examined through measurement of retention, adherence, and outcomes over an 18 month period. In addition, the study sought to identify predictors of retention and early dropout and document reasons for why mothers leave programs early.

C. Nature of the findings: Aim 1: To determine if MI increases retention and promotes adherence in comparison to home visitation as it is typically provided. Hypothesis 1a. Mothers in the MI condition will be retained longer over the course of services than those in the THV condition. Hypothesis 1b. Mothers in the MI condition will demonstrate increased adherence as reflected by increased number of home visits. Hypothesis 1c. The relationship between group status (MI vs. THV) and retention/adherence will be mediated by increased motivation.

Aim 2: To identify mediators of retention and adherence. Hypothesis 2a. Mothers who are retained longer and demonstrate increased adherence will have higher levels of motivation than those who drop out or demonstrate decreased adherence. Hypothesis 2b. Mothers who are retained longer and demonstrate increased adherence will have greater rapport and a stronger alliance with home visitors than those who drop out or demonstrate decreased adherence.

Aim 3: To determine if mothers in the MI condition demonstrate better outcomes than those in the THV condition. Hypothesis 3a. Mothers and children in the MI condition will have better outcomes than mothers in the THV condition on indices reflecting parenting, development, psychopathology, and social support.

II. Review of the Literature

Contributors to early dropout and decreased adherence include characteristics of mothers, home visitors/providers, and ecological factors. Multiple maternal characteristics have been implicated in disengagement. Most importantly, disengagement occurs primarily because mothers choose to discontinue services. In Every Child Succeeds, 75.3% of mothers who discontinue services prematurely leave because they directly refused continued visits or passively indicated their disinterest (i.e., not being home for scheduled visits). Discontinuation of services reflects diminished maternal motivation and commitment to program goals. Ammerman et al. [1] found that mothers with low levels of support and high needs were more likely to remain engaged in services, suggesting that mothers with higher levels of social support and resources may be less motivated to sustain participation in child abuse prevention programs. Consistent with this finding, Stevens et al. [17] found that depressed mothers received more telephone contact than their non-depressed counterparts over the first 6 months of home visitation services. Interestingly and in contrast, these variables are predictive of attrition in clinic-based services, underscoring the unique issues associated with engagement and retention in home-based prevention programs.

Maternal life circumstances, including frequent family crises and academic and work responsibilities [5] can interfere with service delivery because of the time requirements of home visitation. Even if mothers have time for their appointments, the lack of privacy in the home may preclude discussion of sensitive topics [7] or other family members may block access of

the home visitor into the home [4]. While barriers to home visitation engagement have been examined, less is known about what facilitates initiation and continuation of these services. Korfmacher [8] reported that many mothers reported joining because they needed tangible assistance (e.g., free diapers) or because other people had pressured them into these prevention programs. Stevens et al. [16] found that mothers cited tangible assistance, psychoeducation, and nonjudgmental support as three key reasons for participation.

Motivational Interviewing (MI) [11] has emerged as a promising intervention to increase retention and promote adherence. It is argued that full participation in and obtaining optimal benefits from interventions occur only when individuals are motivated to change their behavior. This is best achieved when both clinician and client are working in concert on goal achievement. The clinician recognizes the client's state of readiness and tailors interventions to match that readiness. Increased motivation is believed to promote early engagement, and lead to sustained participation and retention. MI is a set of approaches that are both client centered and directive, and focus on guiding persons toward maximizing commitment and motivation. These approaches consist of use of open-ended questions, reflective listening, affirmations, and summarization [12]. Use of these approaches support clients to assess their own goals and voice the argument for change, thus engaging in "change talk." When the client provides the reasons for change, resistance is decreased, and engagement and motivation are enhanced. MI is culturally sensitive, and seeks to increase motivation within the framework of clients' beliefs, attitudes, and values.

III. Study Design and Methods

A. Study design: A randomized, multisite clinical trial design was used in which newly enrolled mothers, within each of 4 ECS agencies, were assigned to one of two intervention conditions (MI vs. Typical Home Visitation (THV)). Within each agency, home visitors and their supervisors were equally divided (also through random assignment) into MI and THV providers. MI and THV assignments were made in two NFP agencies and two HFA agencies. Random assignments were made in blocks of 8 at the point at which they were referred to ECS. As some of these mothers were unreachable prior to scheduling of the first home visit, the MI and THV sample sizes are uneven. Mothers were assessed in the home within one week following the first home visit, and again at 9 and 18 months post-enrollment.

Over the course of recruitment, 357 of assigned mothers had their first home visit and were offered the study. There were no differences on demographics between those who did or did not agree to join the study. Of these, 196 agreed and to participate and had assignments to MI (n=92) or THV (n=104). Two mothers lost custody of their children and two mothers were incarcerated during the study. They were included in the intent to treat analyses although they did not receive follow-up assessments. Eight mothers dropped out of the study prior to the 18 month assessment, yielding a very high retention rate of 95.8% inclusive of all participants.

The therapeutic style of Motivational Interviewing (MI) is defined by four principles [12]. We have adapted these guidelines to fit the objectives of home visitation. The first principle, express empathy, involves acceptance of the mother, nonjudgmental listening, and recognition that ambivalence to change is normal. Communications that imply home visitor superiority, are critical, or aggressively push mothers toward a specific choice, are avoided. Developing discrepancy consists of elucidating differences between the mother's behavior and what is needed to achieve desired goals. The home visitor proceeds gently and patiently in highlighting these differences. Roll with resistance describes refraining from directly confronting mothers, and taking advantage of and acknowledging those times in which mothers consider actions that are consistent with achieving desired goals. Mothers and not home visitors should provide action plans focused on behavior change. Finally, support self-efficacy refers to reinforcing the mother's efforts to develop self-confidence and a sense of empowerment. Fostering hope is an essential ingredient to enhancing motivation. MI was implemented in two ways. First, six home visits were devoted to discussing issues related to motivation and achieving desired goals. And second, home visitors used the therapeutic style described above at other times when motivation issues arise. Motivational Visits occurred during the first two home visits and at 4, 8, 12, and 16 months following enrollment. These visits focused primarily on goal-setting and examination of motivational issues. Subsequent Motivational Visits were Recommitment Visits, during which there was a renewed dedication to work towards the same goals, goals were altered or modified, or motivation was re-examined and adjusted accordingly.

MI Training: It is generally acknowledged that mastery and effective use of MI requires careful training [12,13] and we provided an intensive training regimen. Initial training (Year 1) consisted of two separate three hour, group training sessions conducted over two weeks. Taught by Janice Dyehouse, Ph.D. (University of Cincinnati College of Nursing), the primary goal of training was acquisition of client-centered therapeutic skills through didactic presentation of rationale, modeling of therapeutic techniques, role-playing between home visitors, and critique and feedback. Following training, home visitors

practiced with 2-3 clients at their agencies and received between 4-8 hours of individual coaching from Dr. Dyehouse at their agencies. Home visitors received assigned subjects following documentation of competency using the 6 criteria from the MISC: Overall Spirit of MI, percent of MI consistent responses, percent of complex reflections, ratio of reflections to questions, percent of open questions, and percent Talk Time by home visitor. Responses were judged competent if the Overall Spirit of MI score was 5 on a 7 point scale, if 95% of the time MI consistent responses were used, the ratio of reflections to questions was at least 3 reflections to every one question, complex reflections were used 3 or more times, more open questions were used than closed, and home visitors talked 45% of the time or less. Years 2 and 3 included a 3 hour booster group training followed by 2-4 hours of individual coaching. Dr. Dyehouse was available to MI-trained home visitors throughout the trial for consultation as needed.

THV Training: THV home visitors received an attention control condition that was designed to be engaging, meaningful, and valued, although it was unrelated to MI skills or retention. Specifically, they received The Path, a popular self-actualization and professional goal-setting workshop based on the writings of Laurie Beth Jones. Delivered by a certified Path Workshop Facilitator (Robin Boue), it consisted of a 3 hour workshop in Year 1 and a follow-up 3 hour meeting in Year 2. Path Training consisted of introspection, interactive exercises, melding work and life choices, and personal fulfillment.

B. Population studied: Subjects were recruited through Every Child Succeeds (ECS), a regional, home visitation-based, child abuse prevention program serving demographically at-risk, first-time, mothers and their children in the seven counties that comprise the greater Cincinnati/Northern Kentucky area. It provides regular home visitation services to pregnant and new mothers for three years. The average age of enrolled mothers is 20.11 years with 35.2% age 18 years or younger. Sixty-seven percent are Caucasian and 31% are African-American. Ninety-two percent of mothers are unmarried and 60% have incomes of $15,000 or less. Most are socially isolated (84%) and the vast majority (86%) report frequent and multiple crises.

C. Sample selection: The sample mirrored mothers typical of both ECS and home visiting programs generally. Inclusion criteria required that mothers be at least 16 years of age, and the range of age was 16.1-42.6 years (mean=21.3, SD=4.0). 14.3% of mothers were <18 years of age. Mothers had an average 11.9 (SD=1.8) years of education. Mothers without a high school diploma or GED comprised 34.2% of the sample, 57.2% had a high school diploma or GED, and 7.6% had an associate's or bachelor's degree. Caucasians made up 79.6% of the sample, 16.3% were African American, 0.5% were Asian American, and 3.6% were biracial. In terms of ethnicity, 1.0% were Latina and 10.7% were Appalachian. The sample was low income as demonstrated by 85.7% with annual household incomes <$20,000. 84.7% were single, never married, and 11.2% were married at enrollment. Prenatal enrollees comprised 81.1% of the sample.

D. Instruments used: Measures were selected based on primary aims of the study, and documentation of outcomes that are common in home visiting programs. These are listed in Table 1 along with source of data and domain measured.

Table 1. Measures and domains.

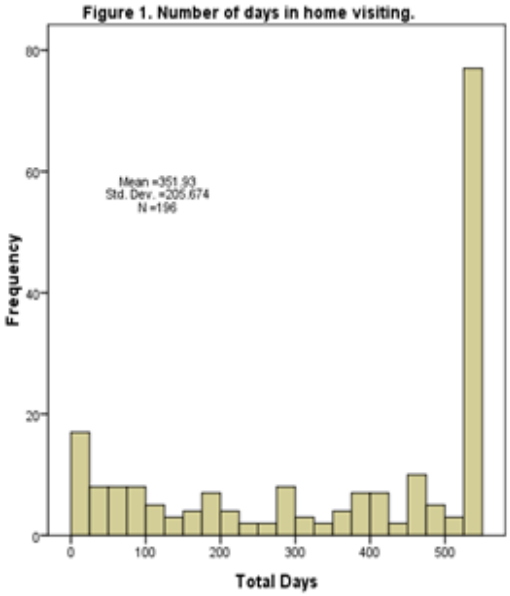
Measures	Domain	Source
Dropped out <18 months	retention	o
# days in program	retention	o
# home visits	program adherence	o
Adult-Adolescent Parenting Inventory	parenting attitudes	s
Beck Depression Inventory-II	maternal depression	s
HOME Inventory	home environment	i/o
Brief Symptom Inventory	maternal psychopathology	s
Personal Beliefs	locus of control	s
Childhood Trauma Inventory*	maternal abuse history	s
Parenting Stress Index-Short Form	parenting stress	s
Ages and Stages Questionnaire, 2nd ed.	child development	i
Interpersonal Support Evaluation List	social support	s
Social Network Index	social network	s
Motivation Inventory	readiness to change	s
Alliance Inventory	working alliance	s
**baseline only*	*O=observed; i=interview; s=maternal self-report*	

E. Statistical techniques employed: Retention was analyzed using chi-square and ANCOVAs. Maternal and child outcomes were analyzed using mixed-models with time and group (MI vs. THV or retention subgroups comparisons) as fixed effects. Hierarchical regression was used to develop models for predicting retention. Dissatisfaction in unretained mothers was analyzed descriptively and using chi-square and ANOVA statistics.

IV. Detailed Findings

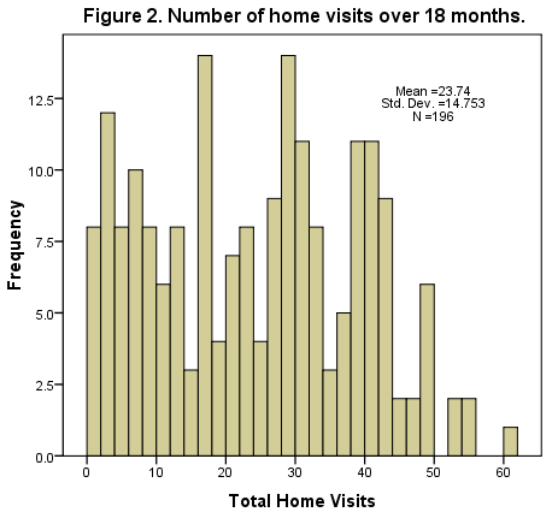
Retention and Adherence: Clinical Trial Results

For the sample as a whole, number of days in the program is presented in Figure 1 (retention) and number of home visits received is in Figure 2 (adherence). Overall, 50% of mothers were retained through 18 months of home visiting. When broken down by point of dropout, 9.7% dropped out within 30 days reflecting inadequate engagement. An additional 17.3% dropped out between 31-180 days, and 15.3% left between 181-365 days.



Prior to conducting group comparisons, MI and THV groups were contrasted on demographics. No group differences (p>.05) were found on maternal age, maternal race, maternal education, marital status, living arrangements, birth status (prenatal vs. postnatal enrollment), family income, or baby's gender. No differences were found between NFP and HFA models except on prenatal enrollment, an expected relationship given that 100% of NFP mothers joined prenatally as per model requirements in contrast to 67.6% in HFA mothers. Results indicated no significant group difference between MI and THV groups on maternal retention at 18 months (MI=53.3% vs. THV=47.1%, X^2 (1)=0.7, p>.05). Breakdown by timing of attrition (0-30 days, 31-180 days, 181-365 days, >366 days) yielded similarly non-significant findings. Mothers in the MI condition had more days in home visiting (361.2 vs. 341.6) and more home visits (24.0 vs. 23.5) than THV mothers although these differences were statistically non-significant (p>.05).

Subsequent mixed model analyses compared group (MI vs. THV) over time (baseline vs. 9 months vs. 18 months) on outcome variables (Table 1) with maternal age as a covariate. Results indicated that one variable (Home Inventory-Learning Materials) trended (p=.098) in the direction of favoring the MI condition in a group x time interaction. All other group x time interactions were non-significant. There were a number of statistically significant (p<.05) main effects for time showing improvements from baseline to 18 months—AAPI (Expectations, Family Roles, Power Independence), BDI-II, Home Inventory (Total and all subscales), PSI-SF (Parent-Child Dysfunctional Interaction), Motivation Inventory, ASQ-3 (Gross Motor), and SNI (High Contact Roles, Embedded Networks). Both Communication and Problem-Solving (ASQ-3) showed a small but statistically significant decrease over time (p<.05).



Predictors of Retention and Adherence

Examination of demographic predictors of retention revealed associations between maternal age and education and likelihood of dropout. Mothers who left prior to 18 months were younger (21.8 vs. 20.8 years, p=.079) and had fewer years of education (12.2 vs. 11.6 years, p<.05) than those who were retained. These relationships remained when retention was broken out into smaller intervals. A regression model was constructed to identify predictors of number of days in home visiting and number of home visits received combining salient demographics and theoretically relevant maternal variables. For number of home visits, a 3-step regression was conducted: step 1—maternal age, step 2—CTQ Total (child maltreatment history), BDI-II (depression), ISEL Total (social support), and step 3—baseline Alliance, baseline Motivation Inventory. The final model was statistically significant ($F(6, 169)=3.4$, p<.01) and yielded a final R^2=.08. Specifically, maternal age was

significant at all stages of the model, yielding a final β=.23, p<.01. In the full model, working alliance was statistically significant (β=.22, p<.01) and baseline motivation approached (p=.086) but did not reach statistical significance (β=-.14). Regarding the latter, lower levels of motivation were related to increased number of home visits. A regression using the same model for number of days revealed identical patterns of findings with almost the same strengths of relationships.

Dissatisfaction in Premature Dropouts

In order to determine potential reasons for why unretained mothers dropped out of home visiting, those who dropped out completed the Reasons for Continuation-Discontinuation Survey (RCDS). The RCDS consisted of 45 items reflecting aspects of home visiting that constitute reasons for why mothers would remain or leave the program. Each item (e.g., "I felt the home visitor wanted to come over too often") was endorsed on a four point scale indicating degree of agreement (strongly disagree, somewhat disagree, somewhat agree, strong agree). The RCDS was organized into 7 thematic sections: Logistical Barriers, Invasiveness, Confusion about Program, Pressure to Participate, Satisfaction with Maternal Needs, Home Visitor Mismatch, and Unmet Needs. Data were analyzed in several ways. First, a total score was derived reflecting overall level of dissatisfaction. Second, a score was determined for each scale. And third, individual items were analyzed as both a 4-point range and dichotomized as dissatisfied vs. satisfied. These were examined descriptively, and then relative to number of home visits received.

Results indicated that unretained mothers endorsed multiple areas of dissatisfaction. Specifically, mothers endorsed a mean of 9.3 (SD=4.9) items of dissatisfaction, ranging from 1-26. Table 2 shows the 10 most endorsed and 10 least endorsed items. Unretained mothers were then divided into two groups based on a median split of number of home visits received

Table 2. 10 most/least endorsed items from RCDS.

	Dissatisfaction Item	Percentage
10 most endorsed	HV did not help me get things I needed (e.g., diapers)	79.8%
	Had not heard of home visiting program	52.1%
	HV and friends/family gave conflicting advice	44.7%
	Hard to find times to meet because of work	40.4%
	Didn't know what HV would teach me about baby when enrolled	36.2%
	Was doing fine without HV help	39.4%
	Didn't know how HV would help when enrolled	36.2%
	HV did not give emotional support	31.9%
	HV didn't give me good ideas about how to take care of myself	31.9%
	Needed HV to provide more support and encouragement	30.9%
10 least endorsed	HV gave too much advice	6.4%
	HV looked down on me	6.4%
	Didn't get along with HV	5.3%
	Health professional told me I had to join program	5.3%
	HV was too pushy	5.3%
	Neighbor nosy about HV coming to home	5.3%
	Family said I had to see HV	3.2%
	Family wouldn't let HV in home	2.1%
	Hard to meet with HV because of friends	2.1%
	HV left and didn't like new HV	1.1%
	Health care worker said I had to keep seeing HV	1.1%
	Afraid HV would report me to child protective services	1.1%

(median=12). A one-way ANOVA (more vs. fewer home visits) revealed that those who dropped out after receiving more home visits had higher dissatisfaction levels in the area of Unmet Needs (F=7.3, p<.01). These include items such as "my home visitor gave me the emotional support I needed," and "my home visitor answered my questions about my baby." No group differences were found for the total score or other scales. At the individual item level, statistically significant differences between groups (p<.05) were found on 2 items: my phone got disconnected and my home visitor could not reach me (lower visits=30.2% vs. higher visits=12.2%), and I didn't need any more support or encouragement from my home visitor (lower visits=11.3% vs. higher visits=36.6%), Statistical trends (p<.10) were found on 5 items: I didn't think my home visitor could teach me anything new (lower visits=11.3% vs. higher visits=24.4%), my home visitor didn't help me get

things I needed, like diapers (lower visits=86.8% vs. higher visits=70.7%), my home visitor did not give me the emotional support I needed (lower visits=39.6% vs. higher visits=22.0%), my home visitor did not really care about me (lower visits=30.2% vs. higher visits=14.6%), and my home visitor judged me (lower visits=32.1% vs. higher visits=17.1%).

V. Discussion and Interpretation of Findings

A. Conclusions drawn from findings: Our study confirmed the high rates of attrition in home visiting programs [6]. Half of mothers who joined the program left prior to 18 months of service. They left at different times, and no single interval emerged as one where the risk for dropout was substantially greater. There was also considerable variability in number of home visits received. Regression models identified a combination young maternal age and increased working alliance between mother and home visitor as the strongest predictors of retention. Level of motivation was also identified as potentially important, although in an unexpected direction. Increased motivation to make changes in one's life was linked with premature dropout. This finding is consistent with research suggesting that mothers with lower levels of psychological resources do best in home visiting programs, as motivation may be a reflection of increased rather than compromised psychological resources. The lack of differences between MI and THV groups on retention and outcomes was unexpected. However, it is important that research in the past few years has drawn attention to the difficulty many service providers have in learning MI, and the extensive training and support that is needed [13]. As a result, our findings should be seen as not as a reason to abandon MI, but to build more substantial training and support infrastructures to increase the likelihood that such an approach will work in home visiting.

This is the first study to systematically query mothers who prematurely drop out from home visiting on possible reasons for their decision. Findings indicated that unretained mothers typically have multiple areas in which they are dissatisfied. Importantly, no single reason or group of reasons predominated. The cluster of dissatisfactions appears to be idiosyncratic to each mother, and few items or groups of items differentiated mothers who dropped out at different points in the program. As a result, efforts to increase retention in home visiting need to be focused at the individual family level, tailoring them to the unique issues facing the mother. Having said this, several broad themes emerged that have implications for home visiting. Most striking is what was not endorsed. Despite documented concerns by home visitors that establishing and maintaining a trusting relationship is a particularly fragile process, few mothers indicated that they were concerned that home visitors were intrusive, pushy, or hard to get along with. Almost none of the mothers expressed concerns that home visitors would report them to child protective services. When home visitors were changed, mothers infrequently stated that they left the program because they did not like the new home visitor. In contrast, mothers much more often endorsed dissatisfaction with having unmet needs, confusion about what participation entailed, and logistical barriers to scheduling and keeping appointments. These concerns appeared to be most associated with mothers who had 12 or fewer visits. Taken together, these findings suggest that mothers who leave home visiting early have concerns and challenges that are potentially resolvable. It is recommended that, in order to enhance engagement and retention, home visiting programs (1) put more time and effort into educating mothers about home visiting and what is expected, (2) work to resolve logistical barriers early in the service, and (3) periodically and systematically assess maternal views of whether or not needs are being addressed.

B. Explanation of study limitations: This study had a number of strengths. First, the N=196 makes it one of the larger clinical trials in home visiting, and the largest to examine strategies to improve retention and program adherence. Second, MI was examined in two national models of home visiting, thereby enhancing generalizability and deviating from the typical practice in the research literature to work with one model only. Third, an attention control group was used in contrast to the more typical "treatment as usual" type of control condition. This approach controls for the positive halo effect that may confound clinical trials and bias the design in favor of the intervention condition. Fourth, MI was examined in a real-world program, thereby enhancing external validity. Fifth, the level of training and support provided to home visitors in the MI condition was extensive and well beyond what is typically provided in home visiting programs. And fifth, the sample retention rate of 95.8% is very high and strengthens internal validity considerably. There are also limitations to the study. Although the N=196 is a relatively large compared to most studies in the field, a larger sample size would have provided increased statistical power. Second, 54.9% of approached mothers declined to participate in the study. Such rates are common in prevention trials, and there was no systematic bias detected in comparisons between those who agreed or did not agree to participate. However, a higher acceptance rate is desirable. Third, although mothers were followed through the first 18 months of home visiting, it would have been instructive to have a longer follow up period. It is possible that group differences would have emerged over a longer period of time both in and beyond participation in the home visiting program. Fourth, although ECS is typical of many home visiting programs and two national models were examined, findings may not generalize to other populations and home visiting models. And fifth, although training and support of MI home visitors was

extensive, it is likely that home visitors require more extensive training and closer monitoring. Recent research [15] suggests that MI skills are difficult to learn (particularly for those not trained in core therapeutic skills), require more intensive training (about 26 hours) than what was used in this study (which in turn is significantly greater than what is being used currently by home visiting programs around the country), dissipate quickly without frequent booster training, and require closer monitoring to detect and correct drift.

C. Comparison with findings of other studies: In terms of using MI to improve retention and program adherence in home visiting, this is the first empirical study and clinical trial in this area. It is noteworthy that there have been no published studies of strategies to improve retention in home visiting, yet home visiting programs are quickly adopting MI as an approach to address this problem. MI has been found to improve retention in clinical populations [12], and it is possible that its impact is lessened in prevention settings. Likewise, recent research has underscored the considerable effort that needs to be devoted to training and support for MI skills to be learned and mastered, especially in care providers who do not have a foundation in counseling or related disciplines. Our findings suggest that home visitors fall into this category, and will require more intensive training than they are currently receiving and more intensive training than what was provided in this study. Ours is also the first study to identify reasons for dissatisfaction among mothers who leave home visiting prematurely. They provide a framework for redesigning home visiting programs to better assess and subsequently address issues and challenges that may precipitate program attrition. Finally, findings on predictors of retention and attrition underscore the importance of maternal age and strength of working alliance between mother and home visitor in determining retention. Although working alliance has long been assumed to be important in retention, and research in psychotherapy has identified this construct as an important predictor, this is the first study to show that strength of alliance at the start of home visiting predicts premature dropout.

D. Possible application of findings to actual MCH health care delivery situations: Findings from this study have several implications for MCH health care delivery. The sizable literature on the effectiveness of MI generally is such that is premature to abandon it as an approach in home visiting. Rather, our findings highlight the need for intensive training and close monitoring of home visitors. Currently, training models around the country are inadequate in this area, and do not meet the standards used in our study much less where we advocate that they be in the future. Accordingly, we recommend that MCH health care delivery providers construct substantive infrastructures for training and support when training home visitors (or others) in MI skills. Our findings also highlight the importance of addressing logistical challenges and optimizing working alliance between mothers and home visitors early in the service. Both had implications for early dropout. Young mothers were most likely to leave home visiting prematurely, and this is consistent with other research that highlights the difficulty in engaging and retaining this population in service. Because this is a population that is more likely to benefit from home visiting services, there is a need for creative approaches to address this issue. Finally, we recommend that MCH health delivery practitioners systematically and regularly query mothers as to whether or not their needs are being met. As these were the most frequently cited areas of dissatisfaction in mothers who left services, identifying concerns early and addressing them in a timely manner is likely to improve retention.

F. Policy implications: Findings suggest that the scaling up of MI trainings for home visiting programs is likely to be inadequate and premature. Research from the MI field, in conjunction with findings from this study, indicate that training and support needs to be significantly more intensive than current models. Policy needs to be adjusted to acknowledge and adequately fund infrastructures that facilitate comprehensive and thorough MI training efforts. In addition, home visitor training should incorporate strategies to assess for and respond to family needs in a more responsive manner [6], building strong working alliances early in services, and structuring services in such a way as to minimize logistical barriers.

G. Suggestions for further research: MI warrants further research as a promising approach to improving retention and program adherence. Future studies should provide even more extensive training of home visitors and monitoring of implementation. During the course of the study, research in MI [15] revealed the extensive training and support needs required by non-counseling providers. Also, research in home visiting documented the inflexible way in which many home visitors respond to client needs [18]. Both of these research findings should be taken into account in the next generation of RCTs on MI and home visiting. Future research should also expand study to other home visiting models and populations to determine if there are differential findings and document the extent of generalizability. A longer follow up (>18 months) would be instructive by following retention though a longer period of service and in examining longer term impacts of interventions. Finally, future research should build upon the range and areas of dissatisfaction among mothers who leave prematurely through the design of novel efforts to improve retention.

VI. List of products

Presentations:
Ammerman, R.T., Melson, B., Putnam, F.W., & Van Ginkel, J.B. (2007, August). Matching to race in home visitation and working alliance. Paper presented at the annual conference of the American Psychological Association, San Francisco.

Ammerman, R.T., & Nance, S.Y. Motivational interviewing in home visitation: Preliminary results from a clinical trial. Workshop presented at the Prevent Child Abuse America National Conference, Milwaukee, May 19, 2008.

Ammerman, R.T., Putnam, F.W., Teeters, A.R., Bosse, N.R., Noll, J., & Van Ginkel, J.B. (May, 2009). Maternal depression and parenting in home visitation. Poster presented at the annual meeting of the Pediatric Academic Society, Baltimore.

Articles:
Ammerman, R.T., Shenk, C.E., Teeters, A.R., Noll, J.G., Putnam, F.W., & Van Ginkel, J.B. Impact of depression and childhood trauma in mothers receiving home visitation. Under review—Developmental Psychology.

Dissertations:
Teeters, A.R. Effects of Childhood Maltreatment History on Maternal Sensitivity to Infant Facial Expressions of Emotion. Dissertation for Doctor of Psychology degree, Xavier University. Expected defense: June, 2011.

VI. References

1. Ammerman RT, Stevens J, Putnam FW, Altaye M, Hulsmann JE, Lehmkuhl HB, Monroe JC, Gannon TA, Van Ginkel JB. Predictors of early engagement in home visitation. J Fam Violence 2006; 21: 74-85.
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