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## Adapting Current Strategies to Implement Evidence-based Prevention Programs for Paraprofessional Home Visiting

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### Abstract

This paper describes a strategy for using evidence-based interventions (EBI) that does not require replication and fidelity.

Eight parents, identified as positive role models, conducted home visits for 101 low-income Latina and Korean pregnant women. The home visitors, called Mentor Mothers (MM), were trained in 10 of the practice elements common to 80% of child-focused EBI and how to apply these skills to support mothers in obesity prevention, to increase the duration of breastfeeding and to reduce depression. MM reported the content and skills utilized on each home visit on mobile phones.

Each MM made on average 153 home visits ( $SD=173.3$ ), with 28 of these visits being phone contacts. Body Mass Index (BMI) at six months was significantly associated with the frequency of MM focused on coping with depression ( $r=.24$ ), but was not related to practice elements used by MM. The duration of breastfeeding was significantly related to the frequency with which MM focused on the topic of breastfeeding ( $r=.28$ ) and parenting ( $r=0.3$ ), and MMs' use of attending ( $r=.24$ ) and relaxation ( $r=.27$ ). Depression was significantly correlated with the frequency of

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Compliance with Ethical Standards

Disclosure of Potential Conflicts of Interest

The authors disclose that they have no conflict of interest.

Ethical Approval

The Institutional Review Boards of University of California Los Angeles (UCLA), Stellenbosch University, and Emory University approved the study. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

addressing depression ( $r=.27$ ), but not to practice elements. MM did use different strategies in the first 150 visits compared to their last 150 visits, reflecting data-informed supervision.

Evidence synthesized from EBI was used as a novel training method, with real time monitoring and data informed supervision provides evidence of iterative quality improvements in MMs' behaviors over time, as well as a way for linking implementation processes to outcomes.

## Keywords

paraprofessional; perinatal home visiting; maternal child health

## Introduction

Broad uptake of preventive evidence-based interventions (EBI) is needed in order to support low income mothers to effectively care for their children, especially in the first 1000 days of life (Black et al., 2008). One of the most efficacious EBI to date, perinatal nurse home visiting, has been shown to improve children's developmental, social, and behavioral outcomes into early adulthood (Olds, Henderson, Tatelbaum, & Chamberlin, 1988; Olds et al., 2014; Olds et al., 2002). This EBI's strong efficacy data has resulted in \$400 million allocated annually to diffuse nurse home visiting. Yet, 28 years after being demonstrated efficacious, only 22,000 of a potential 1.6 million low income mothers in the U.S. (1.4%) receive this program (Nurse-Family Partnership, 2014). The program costs \$4100 per family [in 2011 dollars; U.S. Department of Health and Human Services (2012)], leading many communities to experiment with less expensive delivery strategies to achieve similar outcomes (<http://www.acf.hhs.gov>).

Replacing nurses with paraprofessionals has been the primary strategy utilized to reduce costs. There have been eight EBI in the United States tested with paraprofessional home visitors and 200 counties in the United States are currently diffusing perinatal home visiting with paraprofessionals (<http://www.mdrc.org>). Compared with nurse home visitors, community paraprofessionals serving as home visitors may have the advantages of being: 1) less expensive than nurses and available in greater numbers; 2) less stigmatizing; 3) available as network hubs to link neighborhood peers; and 4) an achievable role model for new mothers. Each of the paraprofessional EBI programs has been evaluated and has a manual that is to be replicated with fidelity in order to achieve efficacy (i.e., the current scientific standard for diffusing EBI, Flay et al., 2005). Yet, none of these programs has been as successful as the original nurse intervention (Olds et al., 2014).

This team has evaluated perinatal home visiting by paraprofessional in South Africa and found substantial and significant benefits associated with the home visiting for up to five years (le Roux et al., 2013; Rotheram-Borus et al., 2014a; Tomlinson et al., 2015). Our team's approach varied from existing scientific standards to *replicate the manual of an EBI with fidelity* (Flay et al., 2005) in four ways:

1. Implementing a strategy of selecting positive peer deviants (Berggren, Alvarez, Genece, Amadee-Gedeon, & Henry, 1984; Marsh, Schroeder, Dearden, Sternin,

& Sternin, 2004) from the community as the paraprofessional home visitors, called Mentor Mothers (MM).

2. Training MM to understand and apply a cognitive-behavioral orientation to change a limited number of behaviors of community mothers (HIV-related tasks, alcohol use, and nutrition behaviors) in a set routine at each meeting. For each targeted outcome, MM helped to frame the issue, provide a small amount of information to improve health literacy, but primarily to build skills, provide social support, and address the barriers that would stop implementation of the target behavior (Rotheram-Borus, Swendeman, & Becker, 2014b).
3. Monitoring implementation of the home visiting with mobile phones and MMs' ratings of the content addressed at the visit (Tomlinson et al., 2009).
4. Providing data-informed supervision to iteratively improve the quality of MMs' interventions over time.

With these innovations, significant benefits were observed in a cluster randomized controlled trial (RCT) for mothers receiving home visits by MM in the first three years of life (Tomlinson et al., in revision). Benefits occurred for both mothers living with HIV (50% improvement in tasks to prevent perinatal HIV transmission, longer duration of breastfeeding and a single feeding method; higher condom use and partner HIV testing, heavier and longer infants in the first 6 months, fewer child hospitalizations) and mothers in the same neighborhoods without HIV (less alcohol use and abuse during pregnancy, less maternal depression at three years post-birth, less alcohol use and abuse at five years, children who are better behaved and with better language skills at three and better behaved at five years). These strategies have also been used with families living with HIV (Rotheram-Borus et al., 2012a) and young people living with HIV (Rotheram-Borus et al., 2004).

These components are highly similar to an approach successfully applied with community mental health providers (Chorpita, Daleiden, & Collins, 2014). The PracticeWise team has efficiently summarized the common practice elements and components of more than 800 of the existing EBI for children and families' mental health in an easily-usable resource tool. The EBI are coded and available for each EBI by the specific age, gender, ethnic, and symptom clusters targeted by each EBI, as well as documenting the expected outcomes achieved by the specific EBI ([www.PracticeWise.com](http://www.PracticeWise.com)). This resource allows creation of more generic protocols for adapting psychotherapeutic interventions- a strategy which does not rely on replicating a manual with fidelity, but of utilizing the information from the existing EBI in a systematic manner. A novel intervention system grounded in this research synthesis, the Managing and Adapting Practice system [MAP; (Chorpita et al., 2014)], was effective in several large scale system implementations (e.g., Southam-Gerow et al., 2014) and a modular protocol created with this architecture was found in a rigorous RCT to perform better than standard manualized treatments and usual care (Weisz et al., 2012), and in a second RCT to perform better than community implemented EBIs (Chorpita et al., in press). Similar to the South African MM, the MAP intervention uses a routine sequence of activities each session; shows providers how to organize their interventions into a course of

treatment over time; and uses data-informed supervision in order to shape provider behaviors to optimize patient outcomes.

The addition of utilizing the PracticeWise team's practice elements (or skills), which are common to all EBI, is a significant and important addition to the model used for home visiting in South Africa. The PracticeWise team collaborated and trained the MM in this study in the common practice elements, creating a much more concrete model of how a cognitive-behavioral theoretical approach can be taught, especially to paraprofessionals. Supervision can then be informed and supervisors can shape MMs' behaviors to utilize the full range of practice elements shown to be efficacious in previous mental health EBI. The processes within home visits can then be concretely linked to outcomes.

Pregnant and new mothers experience different challenges, depending on their culture, ethnicity, income, setting, local infectious and non-communicable diseases. This study was mounted with pregnant mothers in the Pico Union neighborhood of Los Angeles County in California, a neighborhood with predominantly Latina (85%) and Korean families (15%). These mothers are challenged to reduce to their pre-pregnancy weight: following child birth, most women retain an additional 25 lbs. for at least six months following childbirth (Gunderson, 2009). In addition, the duration of breastfeeding, which could facilitate maternal weight reduction as well as improve child outcomes, was short – about 75% discontinue breastfeeding before mothers were discharged from baby-friendly hospitals (Fielding, Harding, & Rodriguez, 2013). Finally, maternal depression among low income women is common and repeatedly linked to negative outcomes for both mothers and children (Tomlinson et al., 2015). Therefore, returning to the pre-pregnancy Body Mass Index, breastfeeding and depression, were the primary outcome goals for pregnant women in this community. As reflected in our training model (see Figure 1) each home visitor had to be trained in how to maintain a healthy weight, how to breastfeed successfully, and how to cope with depression. The home visitors were also provided the manual for one of the existing EBI for paraprofessional home visitors, the Partners for a Healthy Baby ([http://www.cpeip.fsu.edu/resourcefiles/resourcefile\\_132.pdf](http://www.cpeip.fsu.edu/resourcefiles/resourcefile_132.pdf)). This program provides good supportive materials and demonstration scripts and activities for home visiting. However, MM were not asked to replicate this program.

Thus, this paper describes an alternative strategy for mounting paraprofessional home visiting programs and examines how the content covered in each session and the practice elements utilized relate to the targeted outcomes of the duration of breastfeeding and Body Mass Index (BMI) over the first six months of life.

## Methods

### Community

All study activities were reviewed and approved by the Institutional Review Board at the sponsoring institution prior to study recruitment. Pico-Union / Koreatown is a low-income community that is home to a largely immigrant population who are 85% Latino (mostly Salvadoran) and 15% are Korean/Korean-American. This neighborhood is the second most densely populated area of the U.S. — 21,642 people per square mile compared to 7,877 per

sq. mile as the national average. It has the nation's highest TB rate and second highest rate of unwanted teen pregnancy. While most of the children are American-born citizens, 50% of the parents are undocumented – the neighborhood with the second highest rate of undocumented persons in Los Angeles. The area's poverty rate is 46%, twice that of Los Angeles County as a whole. In addition, the families of 100% of school-age children have incomes below 200% of the federal poverty level. Crime rates and unemployment are high. Dropout rates of 60 – 70% dramatically exceed the state average, with a four-year graduation rate of 30%. More than 50% of the residents lack a high school diploma, and many have no more than a third grade education. One third of households have one parent. There are five clinics serving residents in the Pico-Union area, although families frequently seek services in different neighborhoods.

### **Mentor Mothers (MM)**

We selected MM who are positive role models themselves as home visitors (le Roux et al., 2011; Marsh et al., 2004). Labeled *positive peer deviants*, this strategy has been utilized globally for selecting community members who can serve as peer support advocates (Berggren et al., 1984). Interviews, analog simulation tasks to evaluate relationship skills (Goodman & Dooley, 1976), and observations by supervisors in training are aimed at selecting paraprofessionals with good social skills who are positive role models. In this analog task, mothers disclosed a real problem from their life to a peer, and each potential MM had an opportunity to serve as a supporter to another peer. Those that were appropriately responsive to others, and had good problem solving skills during the task, as well as performed well during the first week of training, were selected as MM. Not until training has ended and there is a substantial period to observe the MMs' interaction with peers, response to supervisors, and ability to demonstrate good skills in roleplaying and novel problem solving situations, is the applicant certified as a Mentor Mother. In South Africa, a middle income country, these selection procedures result in about 50% of potential staff who have passed an interview screening being eliminated from the team (le Roux, Rotheram-Borus, Stein, & Tomlinson, 2014).

Using these screening strategies, we identified 12 parents from a local K-12<sup>th</sup> grade school who were bilingual in Spanish, Korean, or both languages, and appeared to have good social skills on the simulation task and during the training period; eight of these parents were certified as MM.

**Sample of pregnant women in the study**—Pregnant women (n=202) were recruited from five clinics by an assessment team: The Women's and Infant Children's Program, The Theresa Clinic, Clinica de la Mujer, and two additional private local clinics. Pregnant women were recruited when attending an antenatal visit and invited to participate in the program. After signing consent to participate, an interviewer spent about one hour conducting an intake assessment. Half of the pregnant women were randomized to the home visiting intervention (n=102) and half to the control condition (n=100); this report focuses on the women in the home visiting condition and the strategies used by the MM during their home visits.

**Home visiting intervention**—Training was conducted over one month and then MM were provided ongoing supervision on a weekly basis. The PracticeWise trainers conducted the first week of training, focusing on the common practice elements of EBI (Chorpita & Daleiden, 2009). Following this training, supervisors from UCLA then trained the MM over three weeks in the specific strategies of behavior change outlined in Figure 1: a model of behavior change, information about unhealthy eating and exercise typical of pregnant women and the importance of breastfeeding, and how to cope with depression. MM learned that mothers change slowly over time, in relationships, by taking small steps, given opportunities and rewards. The manual of Partners for a Health Baby was used as a demonstration model of how to apply cognitive-behavioral theory of change and address perinatal issues. The manual was reviewed in detail and practiced each session, rehearsing each of the practice elements to support pregnant and new mothers to maintain a healthy weight, breastfeed post-birth, and remain optimistic daily. MM were trained to address and remove the environmental barriers to the desired behavior (e.g., access to vegetables if obesity is the target); frame the issue; have specific information that needed to be applied to a child's or family's daily life; taught skills and practiced implementation both in the intervention settings and in real life; and to build social support for the newly acquired behavior (Rotheram-Borus et al., 2010). Each MM was trained to be supportive, engaging, and to address problems or crises, which were most important to the mother, as well as focusing on the targeted outcomes. For each meeting, MM were taught to follow a routine sequence of activities: first, to always identify compliments/successes that the mother had experienced the past week; to then set a goal for the meeting; to identify the barriers and strategies for implementing the goal in the mother's life and to roleplay how the goal could be achieved; the meeting would end with a goal for the next week and recognizing an aspect of the MM-mother visit which the mother enjoyed.

MM were expected to visit mothers four times during pregnancy and at least eight times through six months post-birth. MM visited the home about once every two weeks, to support ongoing management of nutrition and exercise. MMs helped mothers-to-be prepare for breastfeeding and explored the father's attitudes toward breastfeeding. Post-birth, the MMs helped the new mothers plan how to lose their baby weight by about six months post-birth and to continue exclusively breastfeeding for six months. Each visit focused on a specific health outcome using the practice elements or strategies acquired during training.

MM reported the content and skills used in each session on a mobile phone. The location was routinely recorded by the phones' GPS, but the duration of each meeting required MM to login in real time when the visit started and stopped. The duration of the visits appeared unreliable and is not discussed in this report.

## Outcomes

Age, immigration status, education, income, partner relationships, number of children and pregnancies were self-reported.

**Body Mass Index (BMI).** was calculated from measuring height and repeated weight measurements two weeks post birth, and six months later. These measurements were transformed into BMI scores based on the tables of the World Health Organization.

**Duration of breastfeeding in months** was reported.

**Edinburg Perinatal Depression Scale (EPDS).** The EPDS is a 10 item scale which is rated on a 4-point rank order. Items were summed (Cox, Holden, & Sagovsky, 1987); a score over 13 was considered “likely depressed.”

## Results

### Pregnant women

At recruitment, during their pregnancy, the mothers-to-be were an average age of 27.9 (SD=6.1) years old, with 81.5% Spanish speakers. Only 19.8% of the pregnant women had graduated from high school. Almost one quarter (23%) were single while the rest were married or had a live-in partner. Only 48% of families had a regular source of income and 51% were on public assistance. More than 90% had incomes less than \$2,000 a month, with 53% having less than \$1,000 a month income. About half the babies were planned and 23% of mothers went hungry at least one day in the last week. Only 33% had Body Mass Index of 25 or less (in the normal range) prior to pregnancy, based on mothers’ self-reports. About one-third were obese prior to pregnancy, and another third overweight. About 30% of mothers-to-be were depressed, based on the EPDS. About 1/4 of the women used alcohol while pregnant, and a 12% of mothers had a previous low birth weight baby (< 2500 grams). Almost all women had been tested for HIV (94%). Unlike many middle class families, most mothers in Pico Union area had family meals during the last week. None of the demographic variables were related to BMI, breastfeeding outcomes, or depression.

### Delivery of home visits

Among the eight MM certified to conduct home visits at the end of training, 84% of the home visits were completed by four MM. A total of 1431 home visits were conducted, an average of 153.5 home visits (SD=173.3, range 16–578) and 28 telephone contacts (SD=29.8, range 16–194) per MM. Each mother received an average of 14.9 visits/telephone calls (SD=9).

Figure 2 summarizes the content of the home visits as reported by the MM: parenting/child development, habits of daily living (food, exercise, and sleep to achieve a healthy weight), depression, breastfeeding, risk, medical adherence, or a crisis (intimate partner violence; eviction). Daily habits and breastfeeding were the most frequently addressed topics.

Table 1 summarizes the correlations between the frequencies of each content area discussed with the three primary outcomes: BMI at six months, controlling for the pre-pregnancy BMI; the duration of breastfeeding in months; and the depression scale score. A lower BMI at 6 months post-birth, was significantly associated with more frequent MM discussions about depression ( $r=0.24$ ,  $p < .05$ ). As can be seen, longer breastfeeding was associated with the frequency with which MM addressed breastfeeding ( $r= .28$ ,  $p < .01$ ). Surprisingly, the more MM discussed parenting ( $r= .29$ ,  $p < .01$ ), the shorter the duration of breastfeeding. Depression at six months was significantly correlated with MMs’ discussion of depression ( $r= .27$ ,  $p < .01$ ) and tended to be correlated with addressing crises situations ( $r= .21$ ,  $p < .06$ ).



Figure 3 summarizes the frequency that each of practice elements (skills) was used by the MM. Attending, goal setting praise/rewards and relaxing were the most commonly used strategies by the MM. Table 2 summarizes the correlations between the frequencies with which these skills were used during home visits and the targeted outcomes. BMI at six months (controlling for pre-pregnancy BMI) tended to be related to modeling ( $r = .21, p < .10$ ) and relaxation exercises ( $r = .20, p < .10$ ). The duration of breastfeeding was significantly associated with increased attending ( $r = .24, p < .05$ ) and relaxation exercises ( $r = .27, p < .05$ ) and tended to be related to problem solving skills ( $r = .20, p < .06$ ). Depression at 6 months was uncorrelated with the practice elements used by MM.

In addition to overall patterns in the frequency and type of visits (in person or phone), the content, and strategies used by MM was monitored and reviewed twice monthly with each MM. The content that supervisors expect MM to cover is that of the targeted outcome: daily habits to manage BMI, breastfeeding and depression. In the case of one MM, 32% of her first 150 home visits conducted focused on daily habits, with this rising to 43% during her last 150 home visits. Breastfeeding was addressed on 29% of the first 150 home visits and 35% during the last 150 home visits. This profile reflects a MM following the protocol of addressing the behaviors targeted in the intervention. An example of the practice elements used by one MM is provided on Figures 4a and 4b. The practice elements covered by this MM on her first 150 visits is on Figure 4a and her final 150 visits were reviewed separately to show differences as a result of feedback on Figure 4b. In the first 150 visits, this MM used a variety of practice elements, but not the full range of potential practice elements. After feedback was provided, however, the use of several practice elements increased, and some key strategies that were initially under-utilized became more frequent (e.g. praise, problem solving, relaxation, and skill building). These data provided the evidence for supervisors to shape the behaviors of the MM slowly over time to increasingly vary the practice elements used to achieve outcomes. Supervisors reviewed the data from recent home visits with MM each week, as well as monitoring the frequency of visits and whether all mothers were being contacted. The ratio of home visits to telephone contacts, and the number of no-show appointments (providing a time-location stamp to verify that the home visitor went to the home) were also critical to shaping effective MM over time.

The total number of home visits was not significantly related to the content ( $r = .17$ ) or the practice elements ( $r = .12$ ) used by MM.

## Discussion

A national evaluation of paraprofessional home visiting in the U.S. has been ongoing since 2012 (the MIHOPE Project). In the last five years, 10 states have authorized funding streams to reimburse paraprofessionals within health care settings ([www.statereforum.org](http://www.statereforum.org)) and some of these states have extend the reimbursement to home visits (<http://www.pewtrusts.org/en/projects/home-visiting-campaign/research-and-analysis>). Prior to the Affordable Care Act, more than 200 counties were implementing paraprofessional home visiting programs. To establish and maintain high quality paraprofessional home visiting, there will need to be certification programs to standardize a minimum level of training and a well-established strategy for iteratively improving the quality of the care delivered by home visitors.

This paper contributes to the documentation for novel strategies to diffuse EBI among paraprofessional home visitors. The components of the model – selection, training, and monitoring over time – a model which aims to increase flexibility from replicating a manual with fidelity. Partners for a Healthy Baby is the EBI which we used as the primary demonstration model of the content to be delivered to mothers. Yet in addition to having a manual as a demonstration model, this article describes how MM were trained and supervised, and the content area and the practice elements used by each MM during the visits are charted over time to promote iterative quality improvement.

First, we selected MM by identifying positive role models. Having good social skills likely facilitates engagement between pregnant mothers and the MM (Winslow, Bonds, Wolchik, Sandler, & Braver, 2009) and motivates behavior change. Rather than having to train social skills, we aimed to have MM who began their jobs with good skills. We did not include any MM in this study who were not socially skilled, so we cannot comment on the degree to which the social skills of the MM were critical to the success of their work. However, it is important to note that only two-thirds of the MM who entered training were considered acceptable at the end of a month's training and that only half of those were productive MM whose skills appeared to improve over time. This rate is highly similar to the acceptability rates of the MM of the Philani Nutrition Programme in South Africa, which has been training home visitors for more than 25 years (le Roux et al., 2011). The selection of the positive role models emerged from our experience working with the Philani Programme. Paraprofessional home visiting programs should recognize that they must over-recruit potential home visitors and eliminate those whose social, administrative, or intervention-related competencies are lacking.

Second, the real-time monitoring of the delivery of MMs' visits on mobile phones provides information on the frequency of home visits, the content and the practice elements employed. The deep penetration of mobile phones globally, as well as among every social class in the U.S. (Smith, 2013) has opened doors for routine monitoring of both professional and paraprofessional implementation of social interventions. Almost all MM, regardless of socioeconomic status, ethnicity, region or neighborhood are likely to be familiar with mobile phones and be able to use these phones with little training. Phones are also much less likely to be stolen and are cheaper than laptops or tablets. There is a large secondary market which can allow communities or agencies to buy large numbers of phones and diffuse these phones at low cost to their staff.

Phones also yield summaries of individual MM's implementation strategies used at each home visit and on each phone contact. These summaries are key to providing data-informed supervision. Supervisors attempted to have MM implement each of the practice elements with each of the pregnant women on their caseload. Having a range of strategies and skills to utilize on home visits is critical and, over the long term, will help to build the competencies of home visitors. As can be seen from the illustration of the skills used by one MM in Figure 4, the frequency with which the skills were used on the first 150 visits differed from those used on the last 150 home visits. There remained skills which the MM were most likely not skilled in delivering, as they were underutilized (e.g., response cost). These records help to identify which skills should be the focus of supervision.

Surprisingly, the relationship between the frequency of use of different practice elements was only significantly tied to the duration of breastfeeding. Supporting relaxation and attending to the mothers' concerns were significantly related to the duration of breastfeeding. This type of specificity begins to identify how training of paraprofessionals includes both generic skills and targeted skills necessary to achieve specific outcomes. Mothers who cannot relax will get plugged milk ducts, increasing the challenge of maintaining breastfeeding. There appears to be a practical reason for breastfeeding and relaxation to be related.

Third, the content of each visit is recorded and can be linked to outcomes. It is important to notice that crises, which are especially common among families coping with poverty, were common. New mothers were being evicted, victims of partner violence, and deportation of family members. Delivery of manualized EBI requires not letting everyday events interfere with the delivery of the EBI. In our implementation, this was not the approach. We encouraged MM to support the mother to problem solve her crises, using the practice elements and problem solving strategies taught in training. Without knowing where a mother is going to live in the next week, it is difficult to simply encourage her to exercise. Life priorities (survival) must be taken into account to increase the success of EBI for families coping with many stressors. The frequency with which the content area is addressed is directly and significantly related to outcomes. The duration of breastfeeding is related to the frequency of discussing breastfeeding. Reduced depression is related to the frequency of MM discussing depression. Body Mass Index was not, however, significantly related to discussions of daily habits. Discussions of depression were related to BMI. Again, being able to share feedback with MM that their actions during visits influence mothers' outcomes is critical. Both the correlational data and the demonstration of how MM's behavior changes over time is useful data shaping intervention delivery.

### **Summary.**

We provide an example of how researchers and providers must begin to experiment with introducing flexibility into the delivery of EBI. Especially with the relatively small sample in this study, we need much more experimentation as to whether and how this model might work. There needs to be a robust strategy, or strategies, in order to broadly implement our existing portfolios of EBI in every family in every community.

How we will achieve this goal is less clear. When the fidelity of EBI is monitored during diffusion programs, the implementation typically fails to meet current scientific standards. Substantial data demonstrates that EBI are not replicated with fidelity, regardless of the topic: mental health treatments (Drake et al., 2001), HIV prevention (Eke, Neumann, Wilkes, & Jones, 2006; Galbraith et al., 2009), substance abuse prevention (Miller, Sorensen, Selzer, & Brigham, 2006), obesity prevention (Anderson et al., 2009), smoking (Durlak & DuPre, 2008), best practices in primary health care (Kilbourne, Neumann, Pincus, Bauer, & Stall, 2007) and perinatal home visiting (Sweet & Appelbaum, 2004). Regardless of the targeted domain, fidelity to a manual has been problematic (Slaughter, Hill, & Snelgrove-Clarke, 2015). The typically short duration of training (one week; (Witkin, 2013)) could be responsible for these failures.

There have been a series of implementation studies demonstrating why EBI need to be adapted for populations, delivery contexts, intervention strategies, and organizational settings (Cohen et al., 2008; Kendall & Beidas, 2007). Focusing on maintaining fidelity often reduces the consumers' engagement with the change agent (Sandler, Schoenfelder, Wolchik, & MacKinnon, 2011) and engagement in EBI is often low. Almost no programs anticipate how to deal with daily crises (le Roux et al., 2013), and research is emerging that this failure negatively impacts outcomes (Leslie et al., 2015). Concerns about how broad diffusion can be feasibly implemented has led to calls for flexibility in standards, novel models of synthesizing evidence, and iterative quality improvement in the DNA of each behavioral EBI (Aarons et al., 2012; Kazdin & Blase, 2011; Rotheram-Borus, Swendeman, & Chorpita, 2012b). This study provides one example of how to experiment with existing standards, but utilize knowledge from existing EBI.

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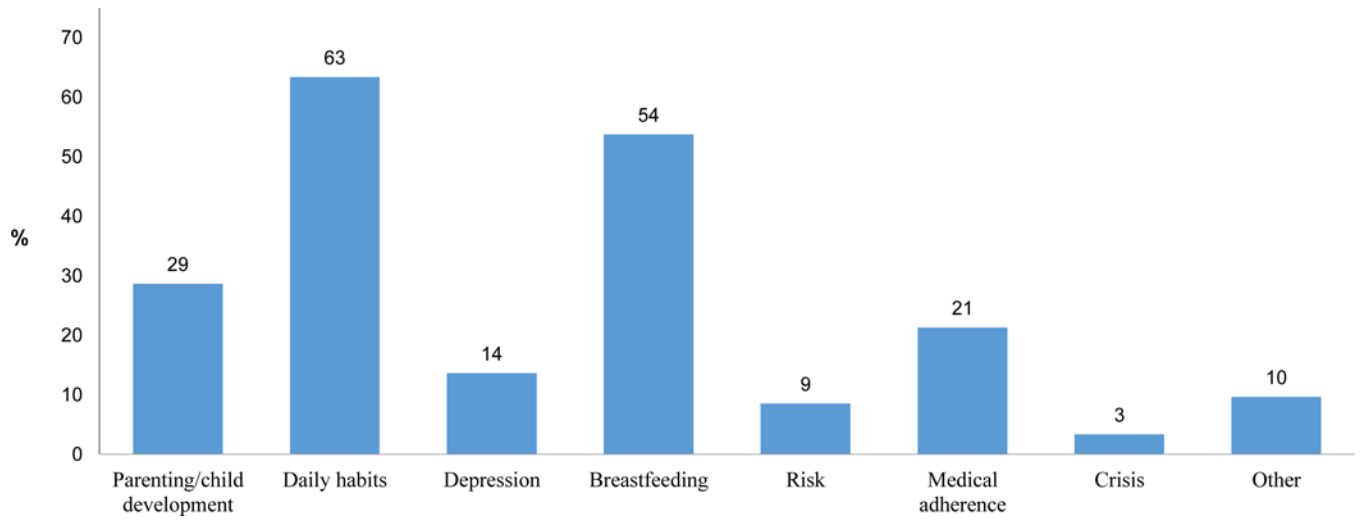
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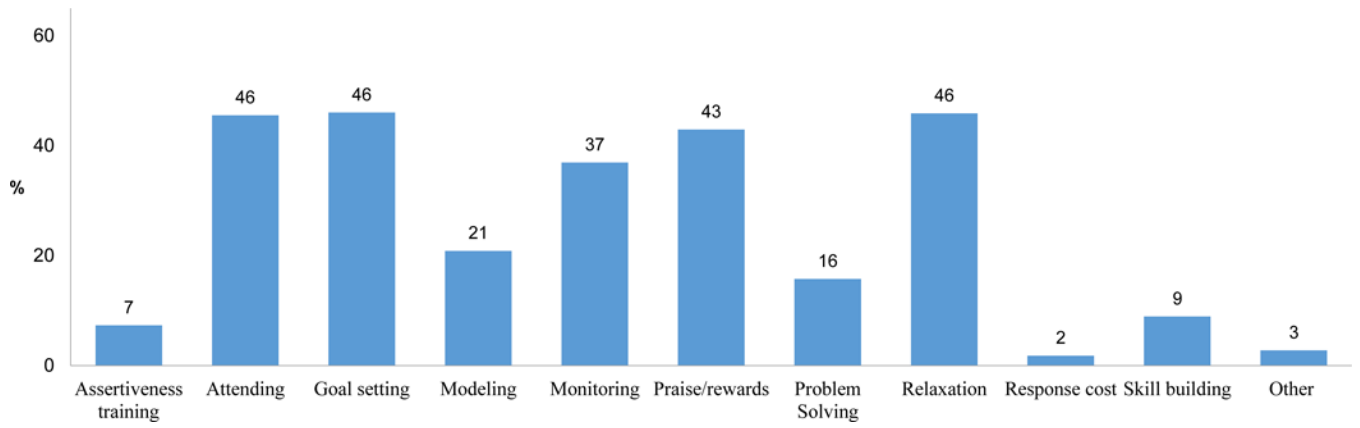
Cultural Competence	Adaptation to Local Context, Language, Income, and Region of Target Population and Setting		
Address Specific Content Domains	<u>Common Factors</u>		<u>Domains</u>
	Frame issue		Duration of Breastfeeding
	Inform & apply	→	Body Mass Index
	Build skills		Coping with Depression
	Build social support		
	Address barriers		
Universal Foundations	<u>Theory of Change</u>		<u>Practice Elements</u>
	Slowly	Engagement	Maintenance
	Over time	Monitoring	Modeling
	With small steps	Praise	Relaxation
	In relationship with	Set goals	Response cost
	opportunities and rewards	Problem solving	Rewards
		Assertiveness	Skill building
		Attending	Self-monitoring

**Figure 1.** A generic framework for diffusing existing evidence-based intervention programs without replicating a manual with fidelity.





**Figure 2.**  
The frequency with which each content area is discussed during Mentor Mother home visits (n=1431)



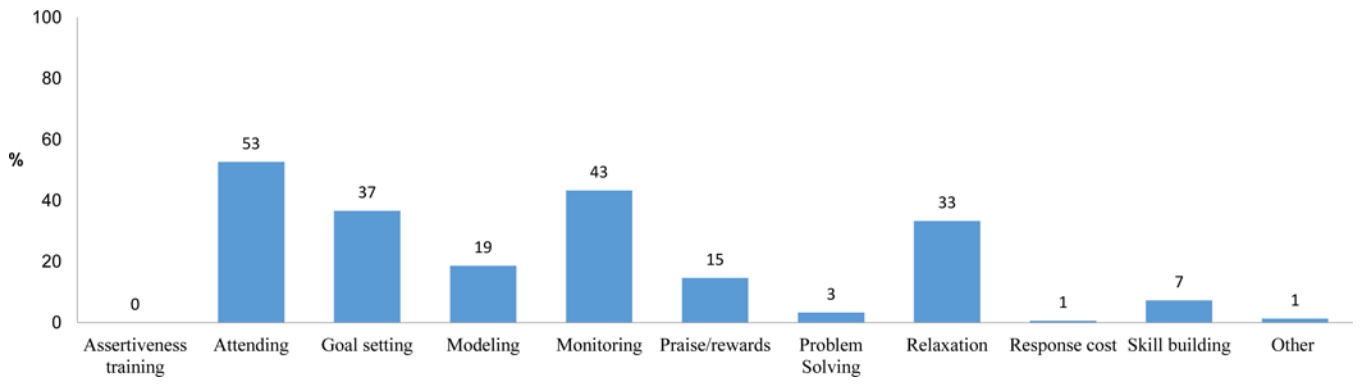
**Figure 3.** Practice elements (skills) utilized during Mentor Mother home visits (n=1431)

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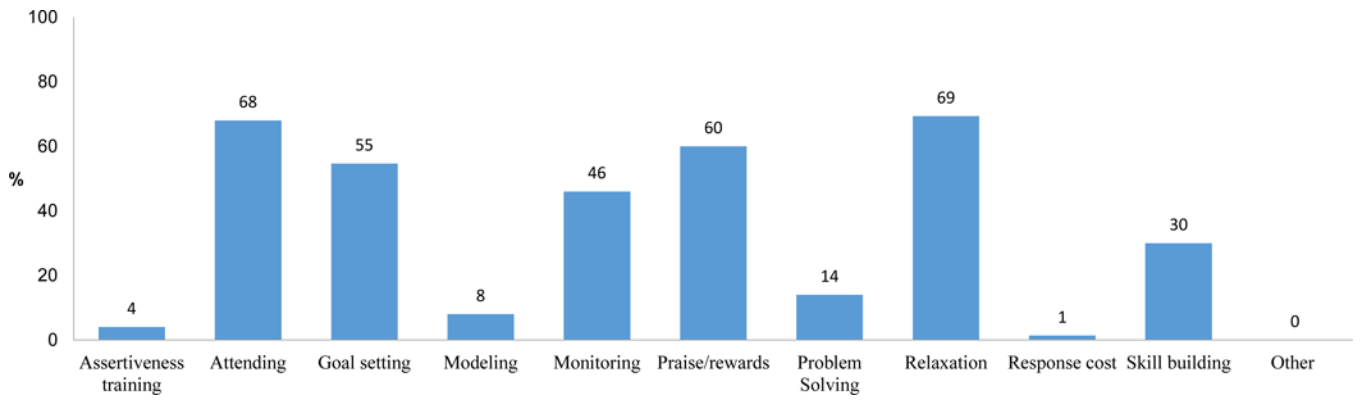
**Figure 4a.**  
One Mentor Mother’s Use of Practice Elements during her visits: Summary of Practice Elements during the first 150 Home Visits

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**Figure 4b.**  
One Mentor Mother’s Use of Practice Elements during her visits: Summary of Practice Elements during the last 150 Home Visits

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**Table 1.**

Relationship between content targeted by the Mentor Mother and the Duration of Breastfeeding and Body Mass Index (BMI) at six months post-birth, controlling for BMI prior to pregnancy

	Body Mass Index (N=80)	Duration of Breastfeeding (N=77)	Depression (N=80)
Parenting	.17	-.29**	.01
Daily Habits	.16	.20 <sup>†</sup>	.07
Depression	.24*	-.07	.27**
Breastfeeding	.17	.28**	0.0
Risk Reduction	.13	-.10	.17
Medical Adherence	.08	.09	.07
Crisis	.16	-.12	.21 <sup>†</sup>

<sup>†</sup>  
p< .10;

\*  
p< .05;

\*\*  
p< .01

**Table 2.**

Relationship between the practice skills targeted by the Mentor Mothers during visits and telephone calls with the targeted outcomes of the Duration of Breastfeeding and Body Mass Index (BMI) at 6 months, controlling for BMI prior to pregnancy.

	Body Mass Index (N=80)	Duration of Breastfeeding (N=77)	Depression (N=80)
Assertiveness	.06	-.14	-.12
Attending	.18	.24*	.05
Goal Setting	.17	-.01	.07
Modeling	.21 <sup>†</sup>	.16	.12
Monitoring	.15	.07	.08
Praise	.16	.10	.05
Relaxation	.21 <sup>†</sup>	.27*	.02
Response Cost	.14	.10	.09
Problem Solving	.09	.20 <sup>†</sup>	.13

<sup>†</sup>  
p< .10;

\*  
p< .05;

\*\*  
p< .01