

---

## EXAMINING LONG-TERM EFFECTS OF AN INFANT MENTAL HEALTH HOME-BASED EARLY HEAD START PROGRAM ON FAMILY STRENGTHS AND RESILIENCE

---

**LORRAINE MCKELVEY**

*University of Arkansas for Medical Sciences*

**RACHEL F. SCHIFFMAN**

*University of Wisconsin, Milwaukee*

**HOLLY E. BROPHY-HERB**

*Michigan State University*

**ERIKA LONDON BOCKNEK**

*Wayne State University*

**HIRAM E. FITZGERALD**

*Michigan State University*

**THOMAS M. REISCHL**

*University of Michigan*

**SHELLEY HAWVER AND MARY CUNNINGHAM DELUCA**

*Community Action Agency, Jackson, Michigan*

**ABSTRACT:** Infant Mental Health based interventions aim to promote the healthy development of infants and toddlers through promoting healthy family functioning to foster supportive relationships between the young child and his or her important caregivers. This study examined impacts of an Infant Mental Health home-based Early Head Start (IMH-HB EHS) program on family functioning. The sample includes 152 low-income families in the Midwestern United States, expectant or parenting a child younger than 1 year of age, who were randomly assigned to receive IMH-HB EHS services ( $n = 75$ ) or to a comparison condition ( $n = 77$ ). Mothers who received IMH-HB EHS services reported healthier psychological and family functioning, outcomes that are consistent with the IMH focus, when their children were between the ages of 3 and 7 years of age. Specifically, mothers in the IMH-HB EHS group reported healthier family functioning and relationships, better coping skills needed to advocate for their families, and less stress in the parenting role versus those in the comparison condition. The study also examined support seeking coping, some of which changed differently

---

Findings reported here are based on research conducted as part of the national Early Head Start Research and Evaluation Project funded by the Administration for Children and Families, U.S. Department of Health and Human Services. This research was supported by Grant 90YF0010, Pathways Project: Research into Directions for Family Health and Service Use, from the Administration on Children, Youth, and Families (ACYF), Department of Health and Human Services, Rachel F. Schiffman, Ph.D., R.N., Principal Investigator, Michigan State University. The research is part of the independent research that Michigan State University conducted with the Community Action Agency and the Jackson Foundation in Jackson, MI, which is one of 17 programs participating in the national Early Head Start study. The authors are members of the Early Head Start Research Consortium. The Consortium consists of representatives from 17 programs participating in the evaluation, 15 local research teams, the evaluation contractors, and the ACYF. The Community Action Agency and the Jackson Foundation as well as the Applied Developmental Science Graduate Programs and the Families and Communities Together Coalition of Michigan State University also provided supplemental funding for this research. The content of this publication does not necessarily reflect the views or policies of the Department of Health and Human Services, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government. We thank Deborah Weatherston for her instrumental support of the program in its implementation of infant mental health practice.

Direct correspondence to: Lorraine McKelvey, University of Arkansas for Medical Sciences, College of Medicine, Department of Family and Preventive Medicine, 4301 W. Markham #530, Little Rock, AR 72205; e-mail: mckelveylorraine@uams.edu.

over time based on program group assignment. Overall, findings suggest that the gains families achieve from participating in IMH-HB EHS services are maintained after services cease.

**Keywords:** home visiting, family relationships, parenting stress

**RESUMEN:** La meta de las intervenciones con base en la salud mental infantil es promover el desarrollo sano de infantes y bebés por medio de promover un funcionamiento familiar sano para adoptar relaciones de apoyo entre el pequeño niño y sus importantes cuidadores. Este estudio examinó el impacto que sobre el funcionamiento familiar tiene un programa “Early Head Start” de salud mental infantil con base en casa (IMH-HB EHS). El grupo muestra lo componen 152 familias de bajos recursos del Medio Oeste de Estados Unidos, en espera de o ya criando a un niño menor de un año de edad, que fueron asignadas al azar para recibir los servicios de IMH-HB EHS (n=75) o a una condición comparativa (n=77). Las madres que recibieron los servicios de IMH-HB EHS reportaron un funcionamiento psicológico y familiar más saludable, resultados que son consistentes con el enfoque de IMH, cuando sus niños tenían entre 3 y 7 años de edad. Específicamente, las madres en el grupo IMH-HB EHS reportaron un funcionamiento y relaciones familiares más saludables, mejores habilidades para arreglárselas que eran necesarias para abogar por sus familias, así como menos estrés en el papel de crianza al ser comparadas con aquellas madres en la condición comparativa. El estudio también examinó la manera de arreglárselas buscando apoyo, algunas de las cuales cambiaron diferentemente a través del tiempo con base en las asignaciones de grupo del programa. En general, los resultados sugieren que los aspectos positivos que las familias alcanzan como resultado de participar en los servicios de IMH-HB EHS se mantienen después que los servicios terminan.

**Palabras claves:** Visita a Casa, Relaciones Familiares, Estrés de Crianza

**RÉSUMÉ:** Les interventions fondées sur la santé mentale ont pour but de promouvoir le développement sain des nourrissons et des jeunes enfants en promouvant le fonctionnement sain d’une famille afin de favoriser des relations de soutien entre le jeune enfant et ceux qui s’occupent d’elle ou de lui. Cette étude a examiné les impacts d’un programme américain de Early Head Start focalisé sur la santé mentale du nourrisson (abrégé IMH-HB EHS) sur le fonctionnement de la famille. L’échantillon a compris 152 familles de milieu défavorisé de la région centre des Etats-Unis, attendant un enfant ou s’occupant d’un enfant de moins d’un an, a qui on a assigné au hasard les services IMH-HB EHS (n=75) ou une condition de comparaison (n=77). Les mères ayant reçu les services IMH-HB EHS ont fait état d’un meilleur fonctionnement psychologique et familial, des résultats qui correspondent à l’objectif de santé mentale du nourrisson, lorsque leurs enfants avaient entre 3 et 7 ans. Plus spécifiquement, les mères du groupe IMH-HB EHS ont fait état d’un meilleur fonctionnement familial et de meilleurs relations familiales, de meilleures capacités à s’adapter nécessaires afin de se porter les avocates de leurs familles, et de moins de stress de parentage comparé à celles du groupe de comparaison. L’étude a aussi examiné l’adaptation liée à la quête de soutien, qui a en partie changé différemment au fil du temps, en fonction du groupe de placement. Au bout du compte les résultats suggèrent que les gains obtenus par les familles comme résultat de la participation aux services du IMH-HB EHS se maintiennent après que les services cessent.

**Mots clés:** Visite à domicile, Relations familiales, Stress parental

**ZUSAMMENFASSUNG:** Interventionen, die auf der mentalen Gesundheit von Säuglingen basieren, zielen darauf ab, die gesunde Entwicklung von Säuglingen und Kleinkindern zu verbessern, indem ein gesundes familiäres Funktionieren gefördert wird, um unterstützende Beziehungen zwischen dem Kleinkind und ihren/seinen wichtigsten Bezugspersonen zu begünstigen. Diese Studie untersuchte die Effekte eines Early Head Start-Hausbesuchs-Programms (IMH-HB EHS) auf das familiäre Funktionieren. Die Stichprobe umfasst 152 Familien mit niedrigem Einkommen aus dem Mittleren Westen der USA. Es handelt sich bei der Stichprobe um werdende Eltern oder Eltern mit einem Kind unter einem Jahr, die randomisiert einer Dienstleistung zugewiesen wurden: zum IMH-HB EHS-Programm (n = 75) oder zu einer Vergleichsbedingung (n = 77). Mütter, die das IMH-HB EHS-Programm erhielten, berichteten von gesünderem psychologischem und familiärem Funktionieren, wenn ihre Kinder im Alter zwischen 3 und 7 Jahren waren. Dies sind Ergebnisse, die mit dem IMH Fokus übereinstimmen. Im Speziellen berichteten Mütter, die in der IMH-HB EHS-Gruppe waren, von gesünderem familiärem Funktionieren und familiären Beziehungen, besseren Bewältigungsstrategien, um für ihre Familien einzustehen und von weniger Stress in der Elternrolle verglichen mit den Müttern der Vergleichsbedingung. Die Studie untersuchte auch unterstützungssuchende Bewältigungsstrategien, von denen sich einige basierend auf der Gruppenzugehörigkeit im Laufe der Zeit in unterschiedlicher Weise veränderten. Insgesamt deuten die Ergebnisse darauf hin, dass die Gewinne, die die Familien infolge der Teilnahme am IMH-HB EHS-Programm erzielten, nach Ende des Programms aufrechterhalten werden.

**Keywords:** Hausbesuche, familiäre Beziehungen, elterlicher Stress

抄録: 乳幼児精神保健に基づく介入は、幼い子どもとその重要な養育者との間の支持的な関係性を育てるという健康な家族機能の促進を通して、乳幼児の健康な発達を促進することを目的としている。この研究は、乳幼児精神保健在宅早期ヘッドスタート Infant Mental Health home-based Early Head Start (IMH-HB EHS) プログラムが、家族機能に与える影響を調査した。対象はアメリカ合衆国中西部の妊娠中か1歳以下の子どもを育てている152の低所得家族で、IMH-HB EHS サービスを受ける(n=75)か、比較の条件か(n=77)に、ランダムに割り当てられた。IMH-HB EHS サービスを受けた母親は、子どもが3歳から7歳の間に、より健康的な心理機能および家族機能を報告した。これはIMHの焦点と一致している結果だった。特に、IMH-HB EHS群の母親は、比較条件の母親と比べ、より健康な家族機能と関係性、家族を擁護するのに必要なよりよい対処機能、そして親役割にストレスが少ないことを報告した。研究はまた、支援を

求める対処についても調査した。その一部はプログラム群への割り当てに基づいて時間経過により異なって変化していた。全体として、IMH-HB EHSサービスに参加した結果として家族が達成し獲得したものは、サービスが終了した後、維持されている。

**キーワード:** 家庭訪問, 家族の関係性, 育児ストレス

**摘要:** 以幼兒心理健康為基礎的介入旨在通過健康的家庭運作去培養小童與其重要看護者間的支持性關係, 以此促進幼兒和學步兒的健康發展。本文探討一個幼兒心理健康家訪早期搶步計畫 (IMH-HB-EHS) 對家庭運作的影響。樣本包括一百五十二個在美國中西部低收入的家庭。這些家庭正待產或在養育一個少於一歲的小孩。參與家庭被隨機分派到接受IMH-HB-EHS服務 (n=75) 或一個比較環境 (n=77)。有接受IMH-HB-EHS服務的母親報告在孩兒三至七歲間有較健康的心理和家庭運作, 這結果與IMH的焦點相附合。具體來說, 在IMH-HB-EHS組的母親較在比較環境組的母親報告有健康些的家庭運作和關係, 有好些的因應技巧為家庭作鼓吹, 及在親職角色中有少些壓力。本文亦探討尋求支持的因應, 發現這會根據組別分派而有不同的隨時間改變。總體而言, 探討結果顯示家庭從參與IMH-HB-EHS服務所得的收益在服務停止後仍會維持。

**關鍵詞:** 家訪, 家庭關係, 親職壓力

ملخص: تهدف التدخلات عند الرضع بالنسبة للصحة العقلية لتعزيز التنمية الصحية للرضع والأطفال الصغار من خلال تعزيز أداء صحي للأسرة لتعزيز علاقات داعمة بين الأطفال الصغار و مقدمي الرعاية الهامة لهم. تناولت هذه الدراسة الآثار عند الرضع في برنامج هيد ستارت المبكر المنزلي للصحة العقلية، برنامج (IMH-HB EHS)، على أداء الأسرة. شملت العينة 152 أسرة ذات الدخل المنخفض في الغرب الأوسط الأمريكي، الحوامل أو أمهات أطفال تقل أعمارهم عن السنة الواحدة من العمر، التي تم تعيينهم عشوائياً لتلقي الخدمات IMH-HB EHS (n = 75) أو إلى حالة مقارنة (n = 77). الأمهات اللواتي تلقين خدمات IMH-HB EHS ذكرت صحة أفضل للأداء النفسي للأسرة، والنتائج التي تتسجم مع التركيز لبرنامج IMH، عندما كان أطفالهم بأعمار تتراوح بين 3 و 7 سنوات من العمر. على وجه التحديد، ذكرت الأمهات في المجموعة IMH-HB EHS صحة أداء أفضل للعلاقات الأسرية، والتعامل بشكل أفضل مع المهارات اللازمة للدفاع عن أسرهم، وضغط أقل في دور الأبوة والأمومة بالمقارنة مع تلك الموجودة في حالة المقارنة. كما بحثت الدراسة السعي لدعم المواجهة، والتي يتغير بعضها بشكل مختلف مع مرور الوقت على أساس وظائف مجموعة البرامج. وبشكل عام، تشير النتائج إلى أن مكاسب الأسر على تحقيق نتيجة المشاركة في الخدمات IMH-HB الصحة والسلامة والحفاظ عليها حتى بعد توقف الخدمات.

**كلمات البحث:** الزيارات المنزلية، العلاقات العائلية، والإجهاد الأبوة والأمومة

\* \* \*

Most interventions for families with young children, including the Early Head Start (EHS) program, aim to promote the optimal growth and development of infants and toddlers across many domains (Love, Chazan Cohen, Raikes, & Brooks-Gunn, 2013; Love et al., 2005). Early intervention programs promote early childhood development by enhancing the quality of parenting and family environments. The EHS program in this study was a home-based intervention using an Infant Mental Health (IMH) model. In the IMH model, building stronger relationships between the infant/toddler and his or her important caregivers is central to establishing healthy social and emotional development for children (Brophy-Herb, Schifman, McKelvey, Cunningham-DeLuca, & Hawver, 2001; Fitzgerald & Barton, 2000; Fitzgerald, Weatherston, & Mann, 2011; Swain, 2011; Weatherston, 2001).

IMH services "... include concrete assistance, emotional support, developmental guidance, early relationship assessment and support, infant-parent psychotherapy, and advocacy" (Weatherston, 2000, p. 3). While many infant and family support programs provide these services, IMH practices emphasize parent-child and family relationships as key contexts for the infant's development. IMH practices foster unique insight into the emotional experiences of the infant and encourage parental self-reflection, particularly around issues related to the parent's current and historical experi-

ences of attachment and loss (Fitzgerald, Weatherston, & Mann, 2011; Weatherston, 2000, 2001, 2010; Weatherston, Kaplan-Estrin, & Goldberg, 2009). The goal of the IMH approach and the fostering of these insights and skills is to support parent emotional and mental health; the IMH approach is especially suited to interventions aimed at enhancing parent-child relationships and parental and family functioning.

IMH practice augments infant and family services through supporting the emotional health of both the parent and the developing infant; as such, a safe and nurturing context that promotes the parents' willingness and capacity to reflect on current and past experiences is essential. Within the IMH framework, relationships between the family and the interventionist (in this case, a home visitor) are significant influences on positive child emotional development (Brophy-Herb et al., 2001; Fitzgerald et al., 2011). These relationships form one of the key instruments of behavioral change for the parents (Weatherston, 2001, 2010).

The addition of IMH practice to infant and family services requires training and support for staff. While IMH specialists have training from many disciplines, the home visitors in our IMH-based EHS program had master's degrees in social work or early childhood education. Weatherston (2001) described additional IMH preparation and reflective practice in which the home

visitors participated. Staff training, completed prior to the onset of service provision, included 36 hr of training over 6 weeks focused on home visiting, early relationships, and development. Reflective consultation with an IMH reflective supervisor was conducted for the program supervisor for 1 hr per month and for home visitors for 3 hr per month (D. Weatherston, personal communication, January 6, 2015). During reflective consultation sessions, each home visitor used a consistent format to present and discuss a family who was being served. In addition to reflective consultation, home visitors participated in individual reflective supervision with their program supervisor for 1 hr twice per month. Like with the parent and home visitor, the reflective practice relationship between the home visitor and supervisor is crucial for effective service. Weatherston (2001) described this method as parallel process. Just as the home visitor is providing a nurturing context in which the parent may reflect and grow, so, too, is the reflective supervisor working with the home visitor in building an environment of reflection and growth in professional practice.

The purpose of the current study is to examine the impacts of an EHS program implementing the IMH framework on parent and family functioning, delivered through home visits. The outcomes of interest in the current study are directly associated with the focus of the services and child development outcomes. These outcomes include stress in the parenting role, family coping strategies, and, ultimately, family functioning (i.e., healthy functioning such as supportiveness and cohesion and unhealthy functioning such as mistrust) (described later).

### STRESS IN THE PARENTING ROLE

Parenting stress is a complex construct that involves behavioral, cognitive, affective, and neurobiological components (Swain, 2011). Parental stress is influenced by child and parent characteristics as well as family situational components, as they relate to the parent's appraisal of his or her role (Abidin, 1992). IMH home-based services provide direct supports to the parent and family that are both emotional and instrumental in nature. For example, home visitors provide emotional support for parents in crisis and support personal self-reflection in the role of parenting. Home visitors also provide concrete assistance in the form of direct information to parents to facilitate their understanding of (a) their own behaviors as they support their children's development, (b) their children's development and milestones, and (c) resources and referrals for meeting families' instrumental needs. These supports attenuate stress (McKelvey, Fitzgerald, Schiffman, & Von Eye, 2002) and the impacts that stress can have on parenting behaviors (Ayoub, Vallotton, & Mastergeorge, 2011).

Parenting stress negatively affects relationships within the family, including mother-child interactions (Lutz, Burnson, Hane, Samuelson, Maleck, & Poehlmann, 2012; McKelvey et al., 2002) and interactions between parents and other family members (Buehler & Gerard, 2002; Crnic & Acevedo, 1995; Deater-Deckard, & Scarr, 1996). Parenting stress is associated with parenting behaviors and family interactions that are less supportive

and more punitive in nature (McKelvey et al., 2002). Further, the negative effects of stress have been noted across a variety of parenting contexts: in both single- and two-parent households (Deater-Deckard & Scarr, 1996), in families with lesser as well as greater financial resources (Coyle, Roggman, & Newland, 2002), and across different ages of children (Buehler & Gerard, 2002). At the extreme, the association between parenting stress and the increased likelihood of child maltreatment and abuse also has been documented (Rodriguez, 2010; Rodriguez, & Green, 1997; Wekerle, Wall, Leung, & Trocme, 2007).

There are three literatures to examine when understanding what is known about how IMH home-based EHS services influence family outcomes: (a) the broader home-visiting literature as the method through which services were provided, (b) the EHS literature—which includes home- and center-based options—as the program was guided by the Head Start Program Performance Standards, and (c) the IMH literature because the program implemented IMH principles in training, reflective supervision, and program services. When examining the broader home-visiting literature, studies of home-visiting programs have demonstrated mixed results on stress as an outcome; when impacts are evidenced, they are often small in magnitude (Barlow et al., 2007; Howard & Brooks-Gunn, 2009; Sweet & Appelbaum, 2004). Regarding the impacts of EHS on parenting stress, parents participating in EHS programming delivered through home visits reported lower levels of parenting stress, as compared to those randomly assigned to community services, when their children were 3 years of age (Love et al., 2005). In our review, we did not find studies of explicitly IMH-based services on parenting stress. However, given that some home-visiting models (e.g., Healthy Families America and EHS) often employ home visitors with IMH training, we recognize that the broader literature about home visiting may apply.

This study will add to the literature by examining if reductions in parenting stress are evidenced as a result of IMH home-based services and maintained after services have ended. The theory of change for home visiting as an intervention delivery method posits that changes made at the level of the parent concurrently and longitudinally impact the development of the child (Raikes et al., 2014), creating a positive, bidirectional effect which could operate to maintain reductions in stress. Based on this theory, we hypothesize that when program effects are established, they will be maintained.

### FAMILY COPING: COGNITIVE REFRAMING, EMPOWERMENT, AND SUPPORT SEEKING

Coping is any strategy intended to manage stressful events or circumstances (Judge, 1998; Lazarus & Folkman, 1984; Pearlin & Schooler, 1978). Family coping strategies strengthen or maintain resources that protect the family from stress (McCubbin et al., 1980; Skinner, Edge, Altman, & Sherwood, 2003) and can have an effect on how stress affects parenting behaviors (Abidin, 1992; Hillson & Kuiper, 1994). Effective coping strategies remove the source of stress or impact perceptions of one's coping abilities

while ineffective strategies alienate sources of support, lead to negative perceptions of oneself and family, and fail to alleviate the stress itself (Wills, Blechman, & McNamara, 1996).

Effective coping has the potential to protect family relationships. Jarvis and Creasey (1991) examined the influence of coping on mother–infant attachment and found that cognitive positive reappraisal (which reflects a person’s ability to think of stress as having some positive outcome), rather than avoidant coping strategies, was associated with a reduction in parenting stress and with secure attachment relationships. They also found that cognitive positive reappraisal mediated the association between parenting stress and parental reports of attachment with their 18-month-old children.

Socially supportive relationships foster one’s psychological health and sense of mastery or self-efficacy (see Sarason, Sarason, & Pierce, 1990). Mastery, as a concept, suggests a belief about one’s own abilities to engage in activities to cope with stress (Green & Rodgers, 2001). Sarason et al. (1990) reported that the feeling of support is crucial to the development of one’s sense of mastery, and research with low-income families has supported the tenet (Green & Rodgers, 2001). Furthermore, parent empowerment, self-efficacy, and mastery to act on behalf of themselves and their children also have been associated with more optimal parenting behavior and parent–child relationships (Sanders & Woolley, 2005). For example, mothers with lower self-efficacy are more likely to employ discipline techniques that are coercive and overly harsh (Bugental, Ellerson, Lin, Rainey, Kokotovic, & O’Hara, 2002). However, higher self-efficacy is associated with higher quality parent–child interactions, including maternal behaviors that reflect greater sensitivity, warmth, and responsiveness (Bugental et al., 2002; Olds, 1997; Teti & Gelfand, 1991).

Social support also is associated with maternal parenting behaviors, although not as consistently (McKelvey et al., 2002; Quittner, Glueckauf, & Jackson, 1990). Previous studies have demonstrated that social support moderated the effects of parenting stress on discipline behaviors and parental warmth and sensitivity in interactions (Crnic & Greenberg, 1990; Deater-Deckard & Scarr, 1996; Kotch et al., 1997; Rodgers, 1998). However, Rodgers (1998) found that mothers’ perceptions of usefulness of social support moderated the strength of the association between parenting stress and parenting behaviors; the association was stronger when perceived usefulness of support was low. Emotional support from friends is important for mothers’ coping with parenting stress (Crnic & Acevedo, 1995) and negatively related to stress in the parenting role itself (Deater-Deckard & Scarr, 1996; Melson, Windecker-Nelson, & Schwarz, 1998).

IMH home-based services directly support parents’ and families’ strengths and coping; home visitors support the development and maintenance of healthy relationships in the family and build parents’ capacities to advocate for themselves and their children. In turn, each successful coping outcome has the potential to build upon itself, thus increasing parents’ feelings of mastery and self-efficacy. When examining coping skills or social support as the out-

come in the broader home-based intervention literature, studies of the Infant Health and Development Program and Hawaii’s Healthy Start (the predecessor of Healthy Families America) demonstrated null effects (Klebanov, Brooks-Gunn, & McCormick, 2001; Duggan et al., 1999). However, studies that have examined self-efficacy outcomes often demonstrate positive impacts (Caldera et al., 2007). Coping and self-efficacy were not included in the national evaluation of EHS (Administration for Children & Families, 2002), and we found no studies of IMH program effects on coping. This study will add to the literature by examining if more positive coping, social support, and self-efficacy are evidenced as a result of IMH home-based services.

## FAMILY FUNCTIONING AND RELATIONSHIPS

As theorized in the IMH model, the goal of supporting healthy family functioning is to support optimal parent–child interaction and thus optimal child development. Family functioning is defined in negative (conflictual) and positive (cohesive and supportive) ways. These various aspects of functioning are associated with children’s functioning across multiple domains (McKelvey et al., 2015; McKelvey et al., 2011). Studies have suggested that child outcomes are indirectly related to family functioning through its influence on parent–child interactions and parenting behaviors (Kaczynski, Lindahl, Malik, & Laurenceau, 2006; Kim, Viner-Brown, & Garcia, 2007). For example, conflict in adult romantic relationships has been consistently associated with less favorable parenting behaviors such as harsh discipline (Buehler & Gerard, 2002) and less optimal mother–child (Coyl et al., 2002; McKelvey et al. 2002) and father–child interactions (Kitzmann, 2000). Positive family interaction patterns such as family cohesion (e.g., clear roles and responsibilities, emotional support) were found to be related to positive parenting and child well-being (Armstrong, 2005; Erel & Burman, 1995). For example, Hammes, Aparecida Crepaldi, and Bigras (2012) found that children who had high levels of family cohesion (harmony) during preschool had lower levels of behavioral problems in first grade than did children whose families were less cohesive.

IMH theorists have posited that supporting the development of healthy relationships forms one of the key instruments of behavioral change. IMH practitioners support the healthy functioning of families by providing to parents emotional and instrumental support that reduce stress. Studies of the broader home-visiting literature have reported mostly positive impacts on parent supportiveness in interactions with their children (Howard & Brooks-Gunn, 2009) and EHS programs demonstrated reductions in family conflict when children were 2 (Administration for Children and Families, 2002) and 11 years old (Vogel, Xue, Moiduddin, Kisker, & Carlson, 2010). Again, we did not find studies of IMH-based services. This study will add to the existing literature by examining whether IMH-based EHS home visiting positively influences family functioning and, if so, whether positive influences are maintained after services end.

## STUDY AIM

The purpose of this study was to assess whether the impacts of an IMH-based EHS program on family functioning found at the conclusion of EHS programming when children were 3 years old were still evident when their children were 5 and 7 years of age. We hypothesized that participants in an IMH-based EHS program would report more positive parent and family well-being than would participants in a comparison condition 2 and 4 years after the IMH-based EHS program was completed. This hypothesis was derived from the theory of change for home-based interventions (Raikes et al., 2014) and the IMH focus on the development and maintenance of healthy family relationships (Fitzgerald et al., 2011; Weatherston, 2010), each of which supports families' trajectories toward healthier outcomes.

## METHODS

### Study Design

The design for this study followed the randomized design for the national, 17-site EHS Research and Evaluation (EHSRE) Project (Love et al., 2005). This study examines the effectiveness of IMH home-based services in one of the 17 sites; Michigan, for which the site-specific study name was the "Pathways Project." The project included measures used in the EHSRE and added measures to each wave of data collection that were consistent with the IMH home-based framework being implemented. Site-specific measures are the primary focus of the current study. Families who met the eligibility requirements for the EHSRE (Administration for Children and Families, 2002; Love et al., 2005) were recruited through a local healthcare and social service agency during a visit for prenatal care, a postpartum check, or for a health-related visit for the child. At study enrollment, the national contractor for the EHSRE randomly assigned participants to the program or comparison groups. Randomization yielded equivalent groups at the national (Love et al., 2005) and local (McKelvey et al., 2005) levels.

### Data Collection

Data collection for mothers and infants participating in the Pathways Project began with demographic data collected at application through the Head Start Family Information System. Parents also participated in a baseline interview at or near the family's enrollment date. Follow-up data collection occurred at or near the child's 14-, 24-, and 36-month birthdays, upon exiting the program. Two follow-ups were completed with children and their families at or near the child's 5th and 7th year of age. For this study, only measures collected near and after the planned cessation of services were examined; specifically, data collected at child ages 3, 5, and 7 years. Information on participation in the program, for those randomly assigned to IMH-HB EHS, was obtained through a review of home-visitor documentation in the program records.

**TABLE 1.** Sample Demographics at Enrollment

	Program ( <i>n</i> = 75)	Comparison ( <i>n</i> = 77)	Total ( <i>n</i> = 152)
Age of Applicant (years) ( <i>M</i> , <i>SD</i> )	22.7 (4.8)	23.1 (4.7)	22.8 (4.7)
Child Age (%)			
Unborn	39.3	26.0	37.6
<5 Months	41.4	44.1	42.8
≥5 Months	29.3	29.9	29.6
Teenage Motherhood (%)			
Mother <20 Years	36.0	35.1	35.5
Mother ≥20 Years	64.0	64.9	64.5
Marital Status (%)			
Single	44.0	50.6	47.4
Married	17.3	16.9	17.1
Cohabiting	25.4	18.2	21.7
Separated, Divorced, or Widowed	13.3	14.3	13.8
Applicant Education (%)			
<High-School	44.0	45.5	44.7
Graduate			
High-School	38.7	31.1	34.9
Graduate or Equivalent			
Some College or Degree	17.3	23.4	20.4
Applicant Race/Ethnicity (%)			
Caucasian	69.9	80.5	75.3
African American	19.2	14.3	16.7
Other	11.0	5.2	8.0
No. of Children in Family ( <i>M</i> , <i>SD</i> )	1.8 (1.2)	1.7 (1.1)	1.7 (1.1)
Family Income ( <i>M</i> , <i>SD</i> )	\$8095 (\$5219)	\$9818 (\$6498)	\$9032 (\$5990)
Public Assistance Programs ( <i>M</i> , <i>SD</i> )	3.0 (1.2)	2.9 (1.1)	2.9 (1.2)
No. of Maternal Risk Variables ( <i>M</i> , <i>SD</i> )	2.9 (1.1)	2.9 (1.2)	2.9 (1.2)
Birth Order of Focus Child (%)			
Firstborn	64.0	51.9	57.9
Later Born	36.0	48.1	42.1

### Sample

Of the 196 families enrolled in the Pathways Project, 189 were retained in the sample after random assignment. Seven families withdrew due to death of the focus child, loss of custody, or the family's request. The only demographic difference between the program and comparison families at enrollment was in the focus child's birth order, with more children in the program group being the firstborn child. For the current study, 152 families (program families: *n* = 75; comparison families: *n* = 77) with sufficient data for analysis were included. The characteristics of these 152 families are similar to those of the initial 189 families (for sample characteristics, see Table 1). The average age for children at the 3-, 5-, and 7-year age-collection waves was 3 years 2 months

( $SD = 2$ ), 5 years 8 months ( $SD = 4.4$  months), and 7 years 8 months ( $SD = 7$  months), respectively. The median annual household income at the baseline in-home assessment was \$7714 and families in the study were living at 65% of the Federal poverty level, on average ( $SD = 0.44$ ).

### Program Participation

The average amount of time that families were in the IMH-HB EHS program was 21 (range = 1–46) months. Families completed an average of 71 home visits total (range = 1–282) or ( $3\frac{1}{2}$ ) home visits per month. Approximately 25% of families left the program in each of four age groups: (a) before their child was 1 year, (b) between 1 and 2 years, (c) between 2 and 3 years, and (d) after the child was 3 years of age. After each home visit, program staff recorded information on the content of services (Raikes et al., 2006). On average, time in home visits was spent on child-focused ( $M = 50\%$ ,  $SD = 14$ ), family-focused ( $M = 37\%$ ,  $SD = 13$ ), and staff–family relationship building ( $M = 13\%$ ,  $SD = 13$ ) activities. Participants in the comparison group were free to access other services in their communities, which might include enrolling their children in other home-based services. In fact, 70% of the families in the comparison group reported receiving some home-visiting services (McKelvey et al., 2005). For example, home visiting services available in the state included Medicaid enhanced prenatal care programs in which a public health nurse, nutritionist, and/or social worker provided families a limited number of home visits (Roman, Raffo, Zhu, & Meghea, 2014).

### Measures

Measures included in the current study were collected either as part of the national EHSRE Project (Love et al., 2005) or were specific for the Pathways Project's unique local aims. Data collection occurred through parent interview conducted by trained data collectors.

**EHS program condition.** A binary variable indicated whether families were randomly assigned into the program (1) or into the comparison group (0).

**Parenting stress.** The Parenting Stress Index/Short Form (PSI/SF; Abidin, 1995) as used in the EHSRE contains 24 items divided into two 12-item subscales; Parental Distress (PD) and Parent-Child Dysfunctional Interaction (P-CDI). The PD and PCDI subscales were administered in the current study at child ages 3 and 7 years. The 5-point Likert-type response scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The PD subscale was designed to quantify the distress a person experiences, as a function of individual personal characteristics, in the role as a parent. The principal component stressors of the PD subscale were correlated with stress associated with the demands of being a parent, and with depressive symptomatology. The P-CDI subscale taps the parent's perceptions that the child did not meet his or her expectations. The

subscale also was designed to capture whether interactions with the child were reinforcing to the parent. With a normative sample of 800 subjects, Abidin (1995) reported Cronbach  $\alpha$  reliability coefficients of .87 for the PD and .80 for the P-CDI subscales. Reliabilities for the current sample were high, with Cronbach  $\alpha$  reliability coefficients of .83 and .82 for the PD subscale, and .79 and .78 for the PCDI subscale, collected at ages 3 and 7 years, respectively.

**Family coping.** The Family Crisis Oriented Personal Evaluation Scale (F-COPES) is a 30-item scale designed to measure problem-solving behaviors and attitudes that families utilize to respond to problems (McCubbin, Olson, & Larsen, 1987). The F-COPES was measured at child ages 3, 5, and 7 years. The F-COPES consists of five subscales: Mobilizing the Family to Acquire and Accept Help, Acquiring Social Support, Reframing, Seeking Spiritual Support, and Passive Appraisal. Items in the F-COPES were measured on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Due to low internal-consistency reliabilities for our sample on some of the original scales, a confirmatory factor analysis was conducted on the F-COPES measure, and new scales were developed (McKelvey et al., 2002). The new structure of the F-COPES for the Pathways Project was comprised of two original and three new subscales. The subscales from the original F-COPES were Cognitive Reframing and Seeking Spiritual Support. The Reframing subscale had moderate internal-consistency reliability estimates across time (Cronbach's  $\alpha = .72$ , .68, and .68 at ages 3, 5, and 7 years, respectively). The Seeking Spiritual Support also had moderate reliability estimates (Cronbach's  $\alpha$ s = .85, .82, and .85 at ages 3, 5, and 7 years, respectively). Three new subscales, comprised of items from the Mobilizing the Family to Acquire and Accept Help and Acquiring Social Support subscales, were Seeking Support from Friends and Family, Seeking Support from Neighbors, and Seeking Support from Service Providers. The Seeking Support from Friends and Family subscale consists of six items and had a reliability of .81, .83, and .80 at ages 3, 5, and 7 years, respectively. The Seeking Support from Neighbors subscale consists of three items, with a reliability of .72, .79, and .69 at ages 3, 5, and 7 years, respectively. The third subscale, Seeking Support from Service Providers, consists of three items, with Cronbach's  $\alpha$ s of .60, .61, and .74 at ages 3, 5, and 7 years, respectively.

The Psychological Empowerment Scale (PES; Akey, 1996) is a 32-item scale designed to capture dimensions of psychological empowerment for parents of children with a disability. The PES was collected at child's ages 3 and 5 years, with items measured on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Two subscales were examined in the current study: Attitudes of Control and Competence (eight items), and Skills and Knowledge (eight items). Estimates of internal-consistency reliability for the subscales ranged from .84 to .94 in the original study (Akey, 1996). Reliability of the subscales was high in the current sample (Attitudes  $\alpha$ s = .83 and .86, and Skills and Knowledge  $\alpha$ s = .77 and .77 at ages 3 and 5 years, respectively).

**Mastery.** The Pearlin Mastery Scale (Pearlin & Schooler, 1978) is a seven-item scale which measures perceived mastery; the extent to which the respondent feels that he or she has control over his or her life. Responses to the Mastery Scale were collected at the age 7 years follow-up only. Respondents answered on a scale of 1 (*strongly disagree*) to 4 (*strongly agree*). In the present sample, the Mastery Scale had a Cronbach  $\alpha$  score of .69 at age 7 years.

**Healthy family functioning.** The McMaster Family Assessment Device (FAD; Epstein, Baldwin, & Bishop, 1983), designed to measure family functioning, was measured at ages 3, 5, and 7 years. The measure is based on the McMaster Model of Family Functioning, which describes the structural and organizational properties of families as well as patterns of family interactions demonstrated to distinguish between healthy and unhealthy families (Epstein et al., 1983). The FAD consists of seven scales, including one scale measuring overall family functioning (General Functioning) on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). The General Functioning Scale was used in the current study. It is comprised of six items that assess the overall healthy functioning (Healthy subscale) of the families. Items tap emotional supportiveness between family members. In addition, six items assess the pathology (Unhealthy subscale) of the family. Items assess a lack of family cohesion (i.e., “bad feelings in the family”). Both subscales demonstrated high reliability in our sample. Cronbach’s  $\alpha$ s for the Healthy scale were .85, .76, and .86 and for the Unhealthy scale were .78, .80, and .84 at 3, 5, and 7 years, respectively.

**Control variables: Child and family characteristics.** Four control variables were identified. First, birth order reflects whether the child was first (1) or later born (0). Second, a cumulative index of maternal risk factors, evident at enrollment into the research study, was calculated. These indicators of risk included being a teen at the birth of the focus child, not having completed a high-school education, receipt of welfare, being single, and being unemployed and/or uninvolved in school or training (with scores ranging from 0–5). Third, parental report of early child conditions indicative of child developmental delay, such as chromosomal and congenital anomalies, were controlled. Finally, given the relationship between maternal depression and key study outcomes of parental and family functioning and child development, maternal depression collected at or near the child’s 14th month of age was controlled for in the analyses. Depressive symptoms were measured with the short form of the CES-D (Ross, Mirowsky, & Huber, 1983) using 12 items measuring sadness, loneliness, anhedonia, and reduced energy. Respondents reported how often in the past week they had each symptom on a scale of 0 (<1 day) to 3 (5–7 days). Cronbach’s  $\alpha$  for the current sample was .90.

### Missing Data Estimation

The amount of missing data for the Pathways Project varied across assessment, with completion rates near or above 80% for most assessment points; the lowest response rate (57%) was at age

7 years. Missing data were imputed using the expectation maximization (EM) method, which implements a maximum likelihood approach to iteratively impute missing values by using expectation (E-step) and maximization (M-step) algorithms (Musil, Warner, Yobas, & Jones, 2002). The E-step estimates parameters based on all complete data points. The M-step replaces missing values with E-step-generated values and then recomputes new expected values (Acock, 1997). The two-step process is repeated until the differences in the parameter updates become arbitrarily close to zero, resulting in convergence. Simulation studies have shown that in comparison to listwise, pairwise, and mean substitution methods for missing data imputation, the EM approach is considered superior in recovering original parameters such as mean, skew, and kurtosis (Musil et al., 2002). EM produces more accurate statistical coefficients than do alternative methods, even when a large portion of sample participants have some missing data (Schafer, 1997). When sample size is relatively small, the EM procedure yields more accurate correlation coefficients than do the imputation methods mentioned earlier (Musil et al., 2002).

## RESULTS

In all analyses, the child’s birth order, maternal risk, early childhood disability, and maternal depression were entered as control variables. A series of repeated measures general linear models was performed to investigate program effects on individual and family outcomes across time (for results, see Table 2). In the case of the outcome mastery, which was measured at one time point, a univariate analysis of variance was conducted. Because we have set hypotheses around the direction of impacts between the comparison and intervention groups, significant findings are interpreted as one-tailed at  $p < .10$ .

Findings regarding *stress in the parenting role* indicated a program effect for the PD and P-CDI subscales of the PSI/SF. The main effect for the PSI/SF suggests that taken across time, parents in the program group report lower parental distress,  $F(1, 147) = 2.84, p = .09, d = 0.29$ , and dysfunctional interaction with their children,  $F(1, 147) = 2.79, p = .10, d = 0.29$ , than do those in the comparison group. In addition, there was an effect for time for the P-CDI scale such that for both the comparison and program groups, parent reports of dysfunctional interactions increase as their children aged,  $F(1, 147) = 3.10, p = .08, d = 0.29$ . This finding indicates that program families reported less stress than did those in the comparison group after the program ended (across assessments at ages 3 and 7 years). As can be seen by the Cohen’s  $d$  statistic, estimates of effect were small.

Findings for *coping and social support* show mostly positive impacts of the program, but some effects were not sustained over time. Findings for parental empowerment (Attitudes and Skills and Knowledge subscales) indicated a program effect averaged across time. Therefore, across all assessments, parents in the program group report more optimal attitudes,  $F(1, 147) = 13.35, p < .001, d = 0.59$ , and skills and knowledge,  $F(1, 147) = 7.81, p = .01, d = 0.46$ , than did those in the comparison group. This finding



**TABLE 2.** Estimated Marginal Means, Standard Errors, and F Test of Repeated Measure Analysis for Parent and Family Functioning for Infant Mental Health Home-Based Early Head Start Program (n = 75) and Comparison (n = 77) Families

Variable/Group	Time						F-test		
	Age 3/Exit M (SE)		Age 5 M (SE)		Age 7 M (SE)		EHS Group	Time	Time × EHS
<b>PARENTING STRESS</b>									
Parenting Stress Index (PSI)									
Parental Distress									
Program	27.64	(-1.03)	n.a.	n.a.	21.53	(-0.74)	2.84†	0.15	0.01
Comparison	29.31	(-1.01)	n.a.	n.a.	23.36	(-0.75)			
Parent-Child Dysfunctional Interaction									
Program	18.58	(0.75)	n.a.	n.a.	20.34	(0.58)	2.79†	3.10†	0.48
Comparison	19.58	(0.73)	n.a.	n.a.	22.02	(0.57)			
<b>COPING</b>									
Psychological Empowerment Scale (PES)									
Attitudes									
Program	4.56	(-0.05)	4.45	(-0.05)	n.a.	n.a.	13.35**	2.52	0.04
Comparison	4.37	(-0.05)	4.22	(0.05)	n.a.	n.a.			
Skills and Knowledge									
Program	4.48	(-0.06)	4.27	(-0.05)	n.a.	n.a.	7.81**	2.02	2.28
Comparison	4.24	(-0.05)	4.15	(-0.05)	n.a.	n.a.			
Pearlin Mastery									
Program	n.a.	n.a.	n.a.	n.a.	3.27	(0.05)	6.14*	n.a.	n.a.
Comparison	n.a.	n.a.	n.a.	n.a.	3.10	(0.05)			
Family Crisis Oriented Personal Scales (F-COPES)									
Cognitive Reframing									
Program	4.42	(-0.06)	4.28	(-0.06)	4.22	(-0.07)	0.36	3.57*	0.42
Comparison	4.36	(-0.06)	4.21	(-0.06)	4.24	(-0.07)			
Seeking Support From Friends and Family									
Program	3.81	(-0.11)	3.68	(-0.11)	3.67	(-0.09)	0.12	2.57†	0.01
Comparison	3.84	(-0.11)	3.73	(-0.11)	3.72	(-0.09)			
Seeking Support From Neighbors									
Program	2.08	(0.13)	2.27	(-0.13)	2.27	(-0.10)	4.04*	0.94	0.37
Comparison	2.38	(-0.13)	2.42	(-0.12)	2.56	(-0.09)			
Seeking Support From Service Providers									
Program	3.42	(-0.13)	3.15	(-0.12)	2.98	(-0.13)	0.25	0.58	8.57**
Comparison	2.94	(-0.13)	3.15	(-0.12)	3.25	(-0.12)			
Spiritual Coping									
Program	3.20	(-0.13)	3.18	(-0.13)	3.05	(-0.12)	2.87†	0.36	2.63†
Comparison	2.71	(-0.13)	3.09	(-0.12)	2.94	(-0.12)			
<b>HEALTHY FAMILY RELATIONSHIPS</b>									
McMaster Family Assessment Device (FAD)									
Healthy Functioning									
Program	4.50	(-0.08)	4.48	(-0.06)	4.34	(-0.07)	9.95**	2.68†	0.22
Comparison	4.27	(-0.08)	4.20	(-0.06)	4.13	(-0.07)			
Unhealthy Functioning									
Program	1.78	(-0.09)	1.78	(-0.08)	1.83	(-0.09)	7.67**	0.13	1.89
Comparison	1.99	(-0.09)	1.93	(-0.07)	2.39	(-0.09)			

Note. Numbers enclosed in parentheses represent standard error of the means. Controls for all repeated measure analyses are focus child birth order, maternal risk, early childhood disability, and maternal depression. n.a. = instrument not collected in wave.

† $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

indicates that program families reported more empowerment, as compared to parents in the comparison group after the program ended (across the age 3-year and age 5-year assessments), with moderate estimates of effect. Similarly, for mastery, there was a difference between the program and comparison parents' reports

of feelings of control at age 7 years,  $F(1, 147) = 6.14$ ,  $p = .04$ ,  $d = 0.41$ . The estimate of effect, Cohen's  $d$ , for mastery was small to moderate.

Interaction effects (EHS Group × Time) were found in two areas of family coping: seeking support from service providers,

$F(1, 147) = 8.57, p < .001, d = 0.51$ , and use of spiritual coping,  $F(1, 147) = 2.63, p = .07, d = 0.29$ . When examining patterns of support seeking from service providers, families in the program group initially sought more support from service providers and decreased this support seeking over time while the families in the comparison group gradually increased their support seeking from service providers. Similarly, families in the program group decreased their use of spiritual coping over time while families in the comparison group used more spiritual coping at later assessments than they did at the first assessment. There also was a main effect of IMH-HB EHS participation on spiritual support seeking,  $F(1, 147) = 2.87, p = .09, d = 0.29$ , such that parents in the program reported more use of the skill averaged across time.

An additional main effect of seeking support from neighbors,  $F(1, 147) = 4.04, p = .05, d = 0.35$ , was demonstrated for the IMH-HB EHS program, such that parents in the comparison group reported more use of these strategies across time. Finally, main effects for time were demonstrated for cognitive reframing,  $F(1, 147) = 5.96, p < .001, d = 0.59$ , and for seeking support from friends and family,  $F(1, 147) = 2.30, p = .10, d = 0.35$ , such that use of both skills decreased over time in both groups of families; however, no program effects were evidenced.

For the final outcome, *family functioning*, main effects for program were found for the McMaster FAD for both healthy,  $F(1, 147) = 9.95, p < .001, d = 0.51$ , and unhealthy,  $F(1, 147) = 7.67, p < .001, d = 0.46$ , family functioning. These program effects indicate that program families had more optimal healthy family relationships and fewer unhealthy family behaviors averaged across all these time points, as compared to parents in the comparison group. Cohen's  $d$  effects estimates are small to moderate. In addition, there was an effect of time for healthy family functioning,  $F(1, 147) = 2.68, p = .07, d = 0.29$ , which suggests a slight decrease in healthy functioning across time.

## DISCUSSION

The current study examines the impact of IMH-HB EHS services on the stress and well-being of low-income parents and families. An additional goal of the study was to understand whether program impacts, if evidenced, were maintained once services were completed. Overall, the impacts of the IMH-HB EHS program reflect the IMH model, with effects in family functioning that are indicative of more optimal relationships and better coping strategies for dealing with stress.

Parents who were randomly assigned to the IMH-HB EHS program reported less parenting stress and parent-child dysfunctional interactions averaged at the end of services and when children were age 7 years. Studies of home-visiting programs have demonstrated mixed results on stress, and when impacts are achieved, they are often small in magnitude (Barlow et al., 2007; Howard & Brooks-Gunn, 2009; Sweet & Appelbaum, 2004). Our findings also suggest a small effect, but one that is maintained for families across time. Parenting stress negatively impacts parenting behaviors and children's outcomes. Reductions in parenting stress,

as a result of participating in IMH-HB EHS services, could result in longer term, positive gains for parents and their children.

When we examine parents' attitudes about and perceptions of their skills and understanding of what is needed to advocate on behalf of their children and families, as well as their perceptions of mastery, or control over their lives, we have similarly positive findings. As a whole, IMH-HB EHS home-visiting services equip parents with beliefs that they can achieve what is needed for themselves and their families. The findings for these impacts were stronger, with effects that were moderate in size. IMH-HB services directly support parents' and families' strengths and coping through building parents' capacities to advocate for themselves and their children. This study adds to our existing understanding of how improvements in coping skills and self-efficacy are maintained. Further, parent self-efficacy and mastery is associated with more optimal parenting behavior and parent-child relationships (Sanders & Woolley, 2005).

When we examined particular coping strategies, we found several differences between families in the comparison and the IMH-HB EHS program groups. For example, findings suggest that IMH-HB EHS participation is associated with greater spiritual coping and more support seeking from service providers by those in the program group than by those in the comparison group. However, those in the comparison group reported more support seeking from neighbors than did those in the IMH-HB EHS group. It seems that participating in HB services changes the individuals/organizations from whom/which families seek support. Those in the comparison group relied more heavily on neighbors and those in close proximity while those in the program relied more heavily on formal service providers—at least until their children were 3 years. Findings suggest that parents in the comparison group do more formal support seeking as their children age than do those in the IMH-HB EHS group. It is not possible to disentangle need from support seeking; therefore, it may be that the increased attitudes, mastery, and skills that the program group reports requires less support seeking across time.

Interestingly, support from spiritual sources was higher for the IMH-HB EHS group than for the comparison group. The Seeking Spiritual Support subscale included questions about attending church services, participating in church activities, seeking advice from a minister, and having faith in God. This was an unexpected outcome of the program, but has been discussed as a potential impact, not of the direct services provided but due to the social network building efforts of the program and the prevalence of faith-based assistance that is available in the community for low-income families with young children.

As a whole, the moderate impact on family functioning reflects the cumulative impact of services (i.e., the reduction in stress and increase in coping skills supported global family functioning). Further, the impact that was achieved on family functioning was maintained after the program ended. Healthy and supportive family relationships provide the most optimal environment for positive parent-child interactions and parenting behaviors (Kaczynski et al., 2006; Kim et al., 2007). Indeed, there is strong evidence

that more positive family functioning is associated with more optimal outcomes for children (Hammes et al., 2012), consistent with expectations from the IMH-HB approach.

### Strengths and Limitations

One strength of the current study is the longitudinal nature of the design, which allows us to examine how processes in the family change across time. Longitudinal designs are crucial for understanding the long-term outcomes of interventions. Without having longitudinal data available from families, conclusions could have been drawn that would not have been supported once services were no longer provided. The longitudinal nature of the study yielded information regarding the maintenance of program impacts on family functioning and well-being.

The sample is small and primarily Caucasian, which limits generalizability of findings to other populations. Therefore, the study should be replicated in other settings and with families of other races/ethnicities. That said, the findings do support the implementation of EHS by those with IMH training and reflective supervision to support healthy family relationships. The coping strategies examined in the current study were cognitive reframing, parent empowerment and mastery, and support-seeking behaviors. Note that support in the current study includes the active seeking of support only, and does not reflect parental perceptions of the quality nor the amount of support. An additional limitation was that the measure of mastery was collected only in the follow-up period, which limits an understanding of change.

The EHS program in the current study was funded in the first wave of EHS programs and was one of the 17 programs included in the national evaluation of the program. The IMH-HB EHS program that was being evaluated implemented all of the performance standards for funding; however, during the inauguration of an intervention, there often is less consistency in services while developing and standardizing the intervention conducted. In this study, evaluation efforts were under way as the program was being established, which has the potential to influence our findings; however, these influences would likely attenuate the strength of our results. Finally, it is impossible to disentangle the effects of EHS services, which were implemented using the Head Start performance standards, and the IMH home-based intervention.

### Conclusions

As a whole, the findings support the positive impacts of IMH home-based EHS services on parent and family well-being. The outcomes evidenced as impacted by IMH-HB EHS are consistent with Head Start Performance Standards and the tenets of IMH. Many home-based interventions implement services using IMH theory and staff with IMH training; exemplars include EHS, Healthy Families America, and Parents as Teachers. Indeed, Healthy Families America is currently recommending IMH endorsement for its home visitors, but there is variation at the national level in

the availability of IMH training and support. Each evidence-based home-visiting intervention provides its own individualized guidelines and/or curriculum; when these are augmented by IMH principles and practice, it becomes difficult to determine the drivers of intervention effectiveness. These findings suggest the need for additional studies of home-visiting programs and the augmentation of services with IMH practice and training and reflective supervision for staff. The national focus on home visiting provides vast opportunities to examine natural variations in how and by whom home-visiting services are provided. It also provides the opportunity to better understand the effectiveness of IMH-HB intervention across the context of varying home-visiting models. The IMH approach offers a rich framework for the implementation and evaluation of home-visiting programs.

### REFERENCES

- Abidin, R.R. (1992). The determinants of parenting behavior. *Journal of Clinical Child Psychology*, 21(4), 407–412.
- Abidin, R.R. (1995). *Parenting Stress Index: Professional Manual* (3rd ed.). Lutz, FL: Psychological Assessment Resources, Inc.
- Acock, A. (1997). Working with missing data. *Journal of Clinical Child Psychology*, 21, 407–412.
- Administration for Children & Families. (2002). *Making a difference in the lives of infants and toddlers and their families: The impacts of Early Head Start*. Washington, DC: U.S. Department of Health and Human Services.
- Akey, T. (1996). Empowering families of children with a disability: Implications for professional educators and service providers from a family-centered program. *Teacher Education and Practice*, 12(2), 26–42.
- Armstrong, M. (2005). Pathways between social support, family well being, quality of parenting, and child resilience: What we know. *Journal of Child & Family Studies*, 14(2), 269–281.
- Ayoub, C.A., Vallotton, C.D., & Mastergeorge, A.M. (2011). Developmental pathways to integrated social skills: The roles of parenting and early intervention in raising healthy children. *Child Development*, 82(2), 583–600. doi:10.1111/j.1467-8624.2010.01549.x
- Barlow, J., Davis, H., McIntosh, E., Jarrett, P., Mockford, C., & Stewart-Brown, S. (2007). Role of home visiting in improving parenting and health in families at risk of abuse and neglect: Results of a multicentre randomised controlled trial and economic evaluation. *Archives of Disease in Childhood*, 92(3), 229–233.
- Brophy-Herb, H., Schiffman, R., McKelvey, L., Cunningham-DeLuca, M., & Hawver, M. (2001). Quality improvement: Lessons learned from an Infant Mental Health-based Early Head Start Program. *Infants and Young Children*, 14(2), 77–85.
- Buehler, C., & Gerard, J.M. (2002). Marital conflict, ineffective parenting, and children's and adolescents' maladjustment. *Journal of Marriage and Family*, 64(1), 78–92.
- Bugental, D.B., Ellerson, P.C., Lin, E.K., Rainey, B., Kokotovic, A., & O'Hara, N. (2002). A cognitive approach to child abuse prevention. *Journal of Family Psychology*, 16(3), 243–258.

- Caldera, D., Burrell, L., Rodriguez, K., Crowne, S.S., Rohde, C., & Duggan, A. (2007). Impact of a statewide home visiting program on parenting and on child health and development. *Child Abuse & Neglect*, 31(8), 829–852.
- Coyl, D.D., Roggman, L.A., & Newland, L.A. (2002). Stress, maternal depression, and negative mother–infant interactions in relation to infant attachment. *Infant Mental Health Journal*, 23(1), 145–163.
- Crnicek, K., & Acevedo, M. (1995). Everyday stresses and parenting. In M. Bornstein (Ed.), *Handbook of parenting*, Vol. 4: Applied and practical parenting (pp. 277–297). Hillsdale, NJ: Erlbaum.
- Crnicek, K.A., & Greenberg, M.T. (1990). Minor parenting stresses with young children. *Child Development*, 61(5), 1628–1637.
- Deater-Deckard, K., & Scarr, S. (1996). Parenting stress among dual-earner mothers and fathers: Are there gender differences? *Journal of Family Psychology*, 10(1), 45–59.
- Duggan, A.K., McFarlane, E.C., Windham, A.M., Rohde, C.A., Salkever, D.S., Fuddy, L., Rosenberg, L.A., Buchbinder, S.B., & Sia, C. (1999). Evaluation of Hawaii's Healthy Start program. *Future of Children*, 9(1), 66–90.
- Epstein, N.B., Baldwin, L.M., & Bishop, D.S. (1983). The McMaster Family Assessment Device. *Journal of Marital and Family Therapy*, 9(2), 171–180.
- Erel, O., & Burman, B. (1995). Interrelatedness of marital relations and parent-child relations: A meta-analytic review. *Psychological Bulletin*, 118(1), 108–132.
- Fitzgerald, H.E., & Barton, L.R. (2000). Infant mental health: Origins and emergence of an interdisciplinary field. In J.D. Osofsky & H.E. Fitzgerald (Eds.), *WAIMH handbook of infant mental health*, Vol. 1: Perspectives on infant mental health (pp. 2–36). New York: Wiley.
- Fitzgerald, H.E., Weatherston, D., & Mann, T. (2011). Infant mental health: An interdisciplinary framework for early social and emotional development. *Current Problems in Pediatric and Adolescent Health Care*, 41(7), 178–182. doi:10.1016/j.cppeds.2011.02.001
- Green, B., & Rodgers, A. (2001). Determinants of social support among low-income mothers: A longitudinal analysis. *American Journal of Community Psychology*, 29, 419–427.
- Hammes, P.S., Aparecida Crepaldi, M., & Bigras, M. (2012). Family functioning and socioaffective competencies in children in the beginning of schooling. *Spanish Journal of Psychology*, 15(1), 124–131. doi:10.5209/rev\_SJOP.2012.v15.n1.37295
- Hillson, J.M.C., & Kuiper, N.A. (1994). A stress and coping model of child maltreatment. *Clinical Psychology Review*, 14, 261–285.
- Howard, K.S., & Brooks-Gunn, J. (2009). The role of home-visiting programs in preventing child abuse and neglect. *Future of Children*, 19(2), 119–146.
- Jarvis, P., & Creasey, G. (1991). Parental stress, coping, and attachment on families with an 18-month-old infant. *Infant Behavior & Development*, 14, 383–395.
- Judge, S. (1998). Parental coping strategies and strengths in families of young children with disabilities. *Family Relations*, 47, 263–268.
- Kaczynski, K.J., Lindahl, K.M., Malik, N.M., & Laurenceau, J.-P. (2006). Marital conflict, maternal and paternal parenting, and child adjustment: A test of mediation and moderation. *Journal of Family Psychology*, 20(2), 199–208.
- Kim, H.K., Viner-Brown, S.I., & Garcia, J. (2007). Children's mental health and family functioning in Rhode Island. *Pediatrics*, 119, S22–S28.
- Kitzmann, K.M. (2000). Effects of marital conflict on subsequent triadic family interactions and parenting. *Developmental Psychology*, 36(1), 3–13. doi:10.1037/0012-1649.36.1.3
- Klebanov, P.K., Brooks-Gunn, J., & McCormick, M.C. (2001). Maternal coping strategies and emotional distress: Results of an early intervention program for low birth weight young children. *Developmental Psychology*, 37, 654–667.
- Kotch, J.B., Browne, D.C., Ringwalt, C.L., Dufort, V., Ruina, E., Stewart, P.W. et al. (1997). Stress, social support, and substantiated maltreatment in the second and third years of life. *Child Abuse & Neglect*, 21(11), 1025–1037.
- Lazarus, R., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.
- Love, J.M., Chazan Cohen, R., Raikes, H., & Brooks-Gunn, J. (2013). What makes a difference: Early Head Start evaluation findings in a developmental context. *Monographs of the Society for Research in Child Development*, 78(1), 1–173.
- Love, J.M., Kisker, E.E., Ross, C., Raikes, H., Constantine, J., Boller, K. et al. (2005). The effectiveness of Early Head Start for 3-year-old children and their parents: Lessons for policy and programs. *Developmental Psychology*, 41(6), 885–901.
- Lutz, K.F., Burnson, C., Hane, A., Samuelson, A., & Pohlmann, J. (2012). Parenting stress, social support, and mother-child interactions in families of multiple and singleton toddlers born preterm. *Family Relations*, 61, 642–656. doi:10.1111/j.1741-3729.2012.00726.x
- McCubbin, H., Joy, C., Cauble, A., Comeau, J., Patterson, J., & Needles, R. (1980). Family stress and coping: A decade of review. *Journal of Marriage and the Family*, 42, 855–871.
- McCubbin, H., Olson, D.H., & Larsen, A. (1987). F-COPES: Family Crisis Oriented Personal Evaluation Scales. In H. McCubbin & A. Thompson (Eds.), *Family assessment inventories for research and practice* (pp. 195–205). Madison: University of Wisconsin-Madison.
- McKelvey, L.M., Conners-Burrow, N., Mesman, G., Pemberton, J., & Casey, P. (2015). Promoting adolescent behavioral adjustment in violent neighborhoods: Supportive families can make a difference! *Journal of Clinical Child & Adolescent Psychology*, 44(1), 157–168. doi:10.1080/15374416.2014.895939
- McKelvey, L.M., Fitzgerald, H.E., Schiffman, R.F., Reischl, T., Brophy-Herb, H.E., Gu, L. et al. (2005). Jackson Community Action Agency Early Head Start: Findings from the program evaluation. Michigan State University, University of Wisconsin-Milwaukee, University of Michigan, Jackson Community Action Agency, and Jackson County Center for Family Health.
- McKelvey, L.M., Fitzgerald, H.E., Schiffman, R.F., & VonEye, A. (2002). Family stress and parent–infant interaction: The mediating role of coping. *Infant Mental Health Journal*, 23(1), 164–181.
- McKelvey, L.M., Whiteside-Mansell, L., Bradley, R.H., Casey, P.H., Conners-Burrow, N.A., & Barrett, K. (2011). Growing up in violent

- communities: Do family conflict and gender moderate impacts on adolescents' psychosocial development? *Journal of Abnormal Child Psychology*, 39, 95–107. doi:10.1007/s10802-010-9448-4
- Melson, G.F., Windecker-Nelson, E., & Schwarz, R. (1998). Support and stress in mothers and fathers of young children. *Early Education and Development*, 9(3), 261–281.
- Moffitt, T.E., Caspi, A., Rutter, M., & Silva, P.A. (2001). Sex differences in antisocial behavior: Conduct disorders, delinquency, and violence in the Dunedin Longitudinal Study. Cambridge, United Kingdom: Cambridge University Press.
- Musil, C.M., Warner, C.B., Yobas, P.K., & Jones, S.L. (2002). A comparison of imputation techniques for handling missing data. *Western Journal of Nursing Research*, 24(7), 815–829.
- Olds, D. (1997). The prenatal early infancy project: Preventing child abuse and neglect in the context of promoting maternal and child health. In D.A. Wolfe, R.J. McMahon, & R. Dev. Peters (Eds.), *Child abuse: New directions in prevention and treatment across the lifespan* (pp. 130–154). Thousand Oaks, CA: Sage.
- Pearlin, L.I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior*, 19(1), 2–21.
- Quittner, A.L., Glueckauf, R.L., & Jackson, D.N. (1990). Chronic parenting stress: Moderating versus mediating effects of social support. *Journal of Personality and Social Psychology*, 59, 1266–1278.
- Raikes, H.H., Roggman, L.A., Peterson, C.A., Brooks-Gunn, J., Chazan-Cohen, R., Zhang, X., & Schiffman, R.F. (2014). Theories of change and outcomes in home-based Early Head Start programs. *Early Childhood Research Quarterly*, 27, 574–585. doi:10.1016/j.ecresq.2014.05.003
- Raikes, H., Green, B.L., Atwater, J., Kisker, E., Constantine, J., & Chazan-Cohen, R. (2006). Involvement in Early Head Start home visiting services: Demographic predictors and relations to child and parent outcomes. *Early Childhood Research Quarterly*, 21(1), 2–24.
- Rodgers, A.Y. (1998). Multiple sources of stress and parenting behavior. *Children and Youth Services Review*, 20(6), 525–546.
- Rodriguez, C.M. (2010). Personal contextual characteristics and cognitions: Predicting child abuse potential and disciplinary style. *Journal of Interpersonal Violence*, 25, 315–335.
- Rodriguez, C.M., & Green, A.J. (1997). Parenting stress and anger expression as predictors of child abuse potential. *Child Abuse & Neglect*, 21(4), 367–377.
- Roman, L., Raffo, J.E., Zhu, Q., & Meghea, C.I. (2014). A statewide Medicaid enhanced prenatal care program: Impact on birth outcomes. *JAMA Pediatrics*, 168(3), 220–227. doi:10.1001/jamapediatrics.2013.4347
- Ross, C.E., Mirowsky, J., & Huber, J. (1983). Dividing work, sharing work, and in-between: Marriage patterns and depression. *American Sociological Review*, 48(6), 809–823.
- Sanders, M.R., & Woolley, M.L. (2005). The relationship between maternal self-efficacy and parenting practices: Implications for parent training. *Child: Care, Health and Development*, 31(1), 65–73.
- Sarason, B.R., Sarason, R.G., & Pierce, G.R. (1990). Traditional views of social support and their impact on assessment. In B. Sarason, I. Sarason, & G. Pierce (Eds.), *Social support: An interactional view* (pp. 1–26). New York: Wiley.
- Schafer, J.L. (1997). Analysis of incomplete multivariate data. Boca Raton, FL: Chapman & Hall/CRC.
- Skinner, E., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for a structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, 129, 216–269.
- Swain, J.E. (2011). Becoming a parent—Biobehavioral and brain science perspectives. *Current Problems in Pediatric and Adolescent Health Care*, 41(7), 192–196.
- Sweet, M.A., & Appelbaum, M.I. (2004). Is home visiting an effective strategy? A meta-analytic review of home visiting programs for families with young children. *Child Development*, 75(5), 1435–1456.
- Teti, D.M., & Gelfand, D.M. (1991). Behavioral competence among mothers of infants in the first year: The mediational role of self-efficacy. *Child Development*, 65, 918–929.
- U.S. Department of Health and Human Services; Administration for Children and Families. (1996). Head Start Program: Final rule. *Federal Register*, 61, 215.
- Vogel, C.A., Xue, Y., Moiduddin, E.M., Kisker, E.E., & Carlson, B.L. (2010). Early Head Start Children in Grade 5: Long-Term Follow-Up of the Early Head Start Research and Evaluation Study Sample. OPRE Report # 2011–8, Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
- Weatherston, D. (2000). The infant mental health specialist. *Zero to Three*, 21, 3–10.
- Weatherston, D. (2001). Relationships for learning: Early Head Start Infant Mental Health in Jackson, Michigan. *Zero to Three*, August/September, 51–58.
- Weatherston, D., Kaplan-Estrin, M., & Goldberg, S. (2009). Strengthening and recognizing knowledge, skills, and reflective practice: The Michigan Association for Infant Mental Health competency guidelines and endorsement process. *Infant Mental Health Journal*, 30(6), 648–663. doi:10.1002/imhj.20234
- Weatherston, D. (2010). Infant Mental Health home visiting strategies. *Zero to Three*, July, 51–57.
- Wekerle, C., Wall, A.M., Leung, E., & Trocme, N. (2007). Cumulative stress and substantiated maltreatment: The importance of caregiver vulnerability and adult partner violence. *Child Abuse & Neglect*, 31, 427–443.
- Wills, T., Belchman, E., & McNamara, G. (1996). Family support, coping and competence. In M. Hetherington & E. Blechman (Eds.), *Resiliency in children and families* (pp. 107–133). Mahwah, NJ: Erlbaum.