

# An Integrative Review of Home Visiting Programs for Mothers and Infants from Birth to 12 Months in Developed and Underdeveloped Countries

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## ABSTRACT

**Objectives.** To investigate home visiting for mothers and young infants, age birth-to-12 months, program goals, interventions used, home visitor characteristics and qualifications, and the program content and outcomes.

**Methods.** Electronic databases PubMed, CINAHL, ScienceDirect, and Sagepub were used. Eleven studies investigating home visiting from 2011-to-2016 were included. Studies were included if they: 1) were a primary study; 2) commenced during the antepartum or early postpartum period for mothers and finished before or when the infant was 12 months old; 3) and provided a description of home visiting program in terms of goal, type of home visitor, content, length, and outcomes. Data extraction included goals, activities, home visitor characteristics and qualifications, and outcomes. A descriptive approach was used to synthesize data.

**Results.** Home visiting impacted birth preparedness, newborn care practices, breastfeeding practices, and home environment necessary for maternal wellness and child health and development.

**Conclusion.** Home visits in developed and underdeveloped countries create positive outcomes for mothers and infants. It is important to understand the process in order to make it more effective.

*Key Words:* home visit, home visitation program, maternal and infant health

## INTRODUCTION

In 2009, the World Health Organization (WHO) and the United Nations International Children's Fund (UNICEF) issued a joint statement urging low-and middle-income countries to engage in home visiting for newborns, especially during the first week of life. Recommended interventions included: three home visits during the first week of life; recognition of issues that place the infant at risk; treatment or referral to address any high-risk issues; and the provision of maternal education to eliminate or reduce any infant safety risks.<sup>1</sup> This strategy is based on studies conducted in South Africa showing a decrease in the neonatal mortality rate by 30-to-60%.<sup>2</sup> The use of home visiting has been further supported internationally by the acknowledgment of the importance of early intervention during the first 1000 days of a child's life (from conception to the end of the first two years).<sup>3</sup>

The main focus of the reviews on home visiting has been to measure the outcomes. Sweet et al.<sup>4</sup> conducted a meta-

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analysis on the impact of home visits to various outcomes related to family. Program characteristics that play a role in the achievement of these outcomes however, are often not fully focused on. In a review conducted to explore the impact of home visiting programs on child outcomes, Peacock et al.<sup>5</sup> recommended looking into what dose of the intervention is most beneficial.

This study looked into the components of home visiting for mothers and infants from birth to 12 months as described in the different programs, specifically the goals of home visiting, the interventions done, the outcomes being measured, and the different home visitors that do home visits. Data generated from this study are expected to provide a clearer path for inquiries that are headed towards prescribing a model for home visits that is most beneficial.

## METHODS

Integrative reviews are summaries of original research on a specific subject to provide a comprehensive understanding of the topic.<sup>6</sup> The methodology outlined by Whittemore et al.<sup>6</sup> was chosen for this review and includes problem identification, literature search, data evaluation, data analysis, and presentation of review findings. Integrative reviews allow for the inclusion of studies with diverse study designs.<sup>6</sup>

The search used electronic databases: PubMed, CINAHL, ScienceDirect, and Sagepub. The following keywords were entered: home visit, home visitation program, house call, mother and infant, maternal and infant health. The search was limited to works published in English from 2011-to-2016. A total of 20,506 records were retrieved and screened. After reviewing the titles and abstracts for duplicates and non-relevant works, 95 articles were examined in full text for inclusion.

Studies were included if: 1) a primary study; 2) commenced during the antepartum or early postpartum period for mothers and finished before or when the infant was 12 months old; and 3) a description of the home visiting program in terms of goal, type of home visitor, content and length, and outcomes were provided. Studies exploring home visiting programs specifically designed for mothers and babies with special needs, such as depression and prematurity respectively, were excluded. Textbooks, commentaries, editorials, and ongoing or pilot studies were also excluded.

Out of the 95 articles, 11 were identified to be eligible for inclusion. Articles included in the analysis were re-read and discussed with the four authors for quality based on relevance, rich description, methodological rigor, and study outcome. Figure 1 shows the flow selection process.

Data extraction included goals, activities, home visitor characteristics and qualifications, and outcomes. A descriptive approach was used to synthesize goals, activities, home visitor characteristics and qualifications, and outcomes.

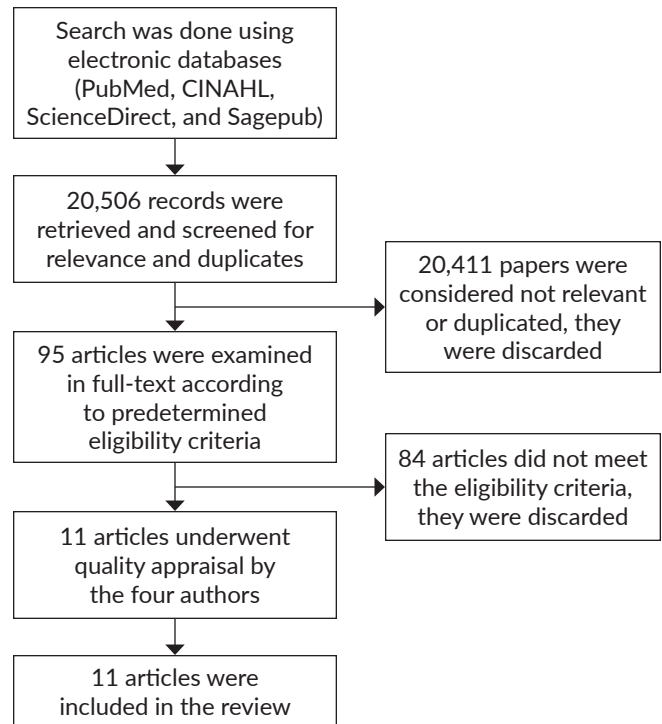


Figure 1. Flow of Selection Process.

## RESULTS

### Characteristics of Samples

Of the 11 studies reviewed, ten were randomized controlled trials (RCTs).<sup>2,7-15</sup> One study used a mixed-method approach.<sup>16</sup> Characteristics of mothers targeted within the studies were reviewed in terms of age, educational attainment, and identified risks/selection are presented in Table 1.

### Characteristics of Home Visiting

Differences in the commencement, length, and frequency of home visits were identified. The intervals of the visits varied in days, weeks or months. Eight studies<sup>2,8-12,14-15</sup> presented home visits that started during the antenatal period. Three<sup>10,11-12</sup> of these programs provided home visits from birth-to-12 months, while five<sup>2,8-9,14-15</sup> had home visits ending when the infants were three months old or less. See Table 2 for the characteristics of home visiting programs.

For home visits that started during the postpartum period, visits commenced from the birthing facility discharge<sup>16</sup>, at 10-15 days of life<sup>13</sup>, or when the infant was between three-to-12 weeks old.<sup>7</sup>

### Goals of Home Visiting Programs

The home visiting programs reviewed had differing visit goals. These ranged from assessment to intervention, then evaluation of the services. Home visiting usually has the infant as the end beneficiary, but the mother directly receives the care.

**Table 1.** Characteristics of Samples in Terms of Age, Educational Attainment, and Identified Risk/Selection Criteria

Authors and country	Participants' age	Educational level	Risk factors/ home visiting selection criteria
Dodge et al. <sup>7</sup> USA	Average age of 28.5 years	Not specified	<ul style="list-style-type: none"> <li>• consenting mothers and families</li> </ul>
Edwards et al. <sup>8</sup> USA	Less than 21 years of age	Not specified	<ul style="list-style-type: none"> <li>• less than 34 weeks pregnant</li> <li>• under 21 years</li> <li>• did not plan surgical birth</li> <li>• maintaining custody of the baby</li> </ul>
Ijumba et al. <sup>9</sup> South Africa	17 years and older	Most of the mothers were high school level	<ul style="list-style-type: none"> <li>• 17 years or older,</li> <li>• lives in the cluster</li> <li>• pregnant and intellectually capable of giving consent</li> <li>• willing to be visited by CHW</li> </ul>
Katz et al. <sup>10</sup> USA	Mean age was 25 years	Most mothers (44.8%) had less than high school education	<ul style="list-style-type: none"> <li>• women over age 18 who were resident of target research area with inadequate prenatal care</li> <li>• never been married (90.6%)</li> <li>• less than high school education (44.8%)</li> <li>• living independently (32.5%).</li> </ul>
Kirkwood et al. <sup>2</sup> Ghana	Range from 15-45 years	Not specified	<ul style="list-style-type: none"> <li>• all consenting pregnant women</li> </ul>
le Roux et al. <sup>11</sup> South Africa	Mean age was 26 years	Low educational level	<ul style="list-style-type: none"> <li>• pregnant women who were at least 18 years of old, living within the target research area and able to provide consent</li> <li>• low household income</li> <li>• history of alcohol use while pregnant</li> <li>• HIV-infection</li> <li>• partner with HIV-infection</li> </ul>
Meghea et al. <sup>12</sup> USA	Majority of mothers were aged 20-25 years	More than half had less than 12 grade education	<ul style="list-style-type: none"> <li>• all consenting pregnant women</li> <li>• most mothers were unemployed, unmarried, and had history of tobacco use and physical abuse</li> </ul>
Mirmolaei et al. <sup>13</sup> Iran	Most mothers were aged 21 to 30	Most mothers had high school education or less	<ul style="list-style-type: none"> <li>• woman with a healthy and term newborn in a recent low-risk pregnancy</li> <li>• recourse to the sampling environment between 3 and 5 days after delivery</li> <li>• received the first postpartum care in health service centers by a general physician and a dentist</li> <li>• ability to discuss and understand Persian language</li> <li>• resident of any target research area</li> <li>• first or second birth order for her infant</li> </ul>
Parker et al. <sup>16</sup> USA	18 years or older	Not specified	<ul style="list-style-type: none"> <li>• 18 years or older</li> <li>• legally competent</li> <li>• read and speak English</li> <li>• 37+ weeks gestation</li> <li>• resident in research area</li> </ul>
Tomlinson et al. <sup>14</sup> South Africa	17 years and older	Most of the mothers were high school level	<ul style="list-style-type: none"> <li>• all consenting pregnant women</li> </ul>
Waiswa et al. <sup>15</sup> Uganda	aged 19-to-25 years	Not specified	<ul style="list-style-type: none"> <li>• all consenting pregnant women</li> </ul>

Goals that were predominately directed towards the mother included: newborn care and parenting development<sup>2,15</sup>; parenting self-efficacy<sup>7,10</sup>; and connections to community resources.<sup>7</sup> Additional mother focused goals included: stress and social support<sup>10-11</sup>; improved mental status<sup>7,11</sup>; improved care-seeking behavior<sup>15</sup>; improved maternal healthy behaviors<sup>13</sup>; adherence to HIV preventive measure<sup>9,11,14</sup>; and increased satisfaction with care.<sup>16</sup>

Goals that were directed towards the infant included: neonatal wellness<sup>16</sup>; increased infant health<sup>11</sup>; better infant health outcomes<sup>12</sup>; improved infant nutrition<sup>8-9,11,14-15</sup>; and optimal infant development.<sup>10</sup>

While the study of Katz et al.<sup>10</sup> investigated the impact of home visiting on the appropriateness of the

home environment, Kirkwood et al.<sup>2</sup> focused on reducing neonatal mortality. Edwards et al.<sup>8</sup> investigated improving breastfeeding rates.

### Home Visitors

Paraprofessionals such as community health workers (CHWs), doulas, and women volunteers conducted most visits.<sup>2,8-12,14-15</sup> There were three programs that employed registered nurses.<sup>7,12,16</sup> In the study of Parker et al.<sup>16</sup>, registered nurses with a minimum of five years maternal-infant experience were employed. One program employed masters prepared early intervention specialist to facilitate groups in partnership with paraprofessionals.<sup>10</sup> Only one study employed trained midwives.<sup>13</sup>

**Table 2.** Home Visiting Characteristics, Goals, Home Visitor, and Content

Author	Study Design	Home Visit Goal	Study Sample	Home Visitor and Training	Length	Content
Dodge et al. <sup>7</sup>	Randomized controlled trial evaluation	To assess family needs and improve connection of parents with community resources to improve infant health and wellbeing	549 families participated in the evaluation	<ul style="list-style-type: none"> <li>• Nurses</li> <li>• Staff member</li> </ul>	<ul style="list-style-type: none"> <li>• One to three nurse home visits when the infant is aged between 3 and 12 weeks</li> <li>• One to two nurses contact with a community service provider and staff member telephone or home follow-up after 1 month</li> </ul>	<ul style="list-style-type: none"> <li>• Family assessment</li> <li>• Child wellbeing</li> <li>• Community resources</li> </ul>
Edwards et al. <sup>8</sup>	Randomized controlled trial	To promote healthy infant feeding practices	248 mothers were randomized between control and intervention group	<ul style="list-style-type: none"> <li>• Doulas</li> <li>• Intensive 20-week doula course</li> <li>• Ten-week breastfeeding course</li> <li>• Weekly individual and group supervision with a pediatric nurse</li> </ul>	<ul style="list-style-type: none"> <li>• Weekly antenatal visits (average 10 visits)</li> <li>• Doulas present at birth</li> <li>• Visits for three months postpartum (average 12 visits)</li> <li>• Provided 24-hour telephone help</li> </ul>	<ul style="list-style-type: none"> <li>• Labor and birth, maternal/infant well-being, breastfeeding advocacy and support</li> </ul>
Ijumba et al. <sup>9</sup>	Cluster-randomized controlled trial	To promote healthy infant pattern	3,957 pregnant women consented to participate in the study (1,821 in the intervention group; 2,136 in the control group)	<ul style="list-style-type: none"> <li>• Community health workers</li> <li>• 10-day training on home entry, motivational interviewing, breastfeeding, antenatal care, newborn care, postnatal depression</li> <li>• Weekly supervision meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Structured home visiting scheduled (two home visits during pregnancy, one in the first 48 hour after birth, 3-4 days, 10-14 day, 3-4 weeks and last visit at 8-9 weeks)</li> </ul>	<ul style="list-style-type: none"> <li>• Community-based intervention package</li> <li>• Topics to discuss infant feeding</li> </ul>
Katz et al. <sup>10</sup>	Randomized controlled trial	To provide health and development intervention for high risk African-American mothers	286 mothers participated in the study (140 in the control group; 146 in the treatment group)	<ul style="list-style-type: none"> <li>• Paraprofessional home visitors and group facilitators – 45 day intensive training</li> <li>• Master's level early intervention specialist lead group – no training stated</li> </ul>	<ul style="list-style-type: none"> <li>• Home Visits weekly until birth to four months, biweekly five-to-12 months</li> <li>• From five months, bi-weekly group attendance</li> </ul>	<ul style="list-style-type: none"> <li>• Combined home visiting and group intervention – discussion and play groups</li> <li>• Standardized curriculum</li> <li>• Content provided</li> <li>• Mother/infant focused</li> </ul>
Kirkwood et al. <sup>2</sup>	Cluster randomized trial	To promote newborn-care practices and decrease neonatal mortality rate	16,329 eligible deliveries from November 1, 2008 to December 31, 2009 were included in the analysis (8294 in the control group, 8035 in the Newhints intervention)	<ul style="list-style-type: none"> <li>• Community-based surveillance volunteers</li> <li>• Nine-days training in three-phases over eight months</li> <li>• Two-days refresher training provided</li> </ul>	<ul style="list-style-type: none"> <li>• Two home visits in pregnancy and three visits after birth (day one, three and seven)</li> </ul>	<ul style="list-style-type: none"> <li>• Newhints an integrated intervention package</li> <li>• Essential newborn care practices</li> <li>• Child health and surveillance</li> </ul>

The paraprofessional training varied in terms of length and focus. In one study, CHWs received skills training to deliver the intended content of the home visit and other required knowledge development on maternal and child health, HIV, malnutrition, and alcohol use.<sup>11</sup> Doulas received

20 weeks participating in an intensive doula training course and 10 weeks of breastfeeding peer counselor training program.<sup>8</sup> In the Ghana Study, community-based surveillance volunteers were trained to identify pregnant women in their community, promote essential newborn-care practices and

**Table 2.** Home Visiting Characteristics, Goals, Home Visitor, and Content (*continued*)

Author	Study Design	Home Visit Goal	Study Sample	Home Visitor and Training	Length	Content
le Roux et al. <sup>11</sup>	Cluster randomized controlled trial	To promote maternal and child well being	1,238 mothers (594 in the standard care; 644 in the intervention group)	<ul style="list-style-type: none"> <li>Community health worker</li> <li>One-month training using an intervention manual</li> <li>Trained in foundational skills</li> <li>Monthly in-service training</li> </ul>	<ul style="list-style-type: none"> <li>Six antenatal visits (range one-to-27)</li> <li>Five postnatal visits (range one-to-12)</li> <li>Sessions averaged 31 minutes</li> </ul>	<ul style="list-style-type: none"> <li>Intervention manual used</li> <li>Maternal/child health promotion</li> <li>Child health surveillance</li> </ul>
Meghea et al. <sup>12</sup>	Randomized controlled trial	To evaluate nurse-CHW home visitation in improving infant health in low-income families	613 women participated in the study (307 in the intervention group; 306 in the control group)	<ul style="list-style-type: none"> <li>Nurses</li> <li>Community health worker</li> </ul>	<ul style="list-style-type: none"> <li>Home visits during pregnancy and the first 12 months of the infant's life</li> </ul>	<ul style="list-style-type: none"> <li>Prenatal and postnatal program</li> <li>Maternal stress and maternal health issues</li> <li>Maternal and child health</li> <li>Modules for CHW were developed</li> </ul>
Mirmolaei et al. <sup>13</sup>	Randomized controlled trial	To promote maternal healthy behaviours	200 mothers (100 in the intervention group; 100 in the control group)	<ul style="list-style-type: none"> <li>Trained midwife</li> </ul>	<ul style="list-style-type: none"> <li>Home visits were delivered at 10-15 and 42-60 days post birth</li> </ul>	<ul style="list-style-type: none"> <li>Maternal health assessment and history</li> <li>Health promotion messages</li> </ul>
Parker et al. <sup>16</sup>	Longitudinal, mixed method, within-subject design	To promote neonatal wellness and breastfeeding practices, and decrease neonatal jaundice-related hospital readmission, and improve satisfaction with care	1,705 mothers agreed to receive home visitation	<ul style="list-style-type: none"> <li>Registered nurses experienced maternal and child health nurses</li> </ul>	<ul style="list-style-type: none"> <li>Home visits one-to-four days after discharge for approximately 90 minutes</li> <li>If indicated, second or third visits can be done</li> <li>Second visit typically occur three to seven days after the initial visit</li> </ul>	<ul style="list-style-type: none"> <li>Physical assessment mother and infant</li> <li>Education on community programs and resources</li> <li>Identification of risk factors</li> </ul>
Tomlinson et al. <sup>14</sup>	Randomized controlled trial	To promote positive postnatal outcomes	Analysis at 12 weeks involved 3,561 mothers (1,902 in the control group; 1,659 in the intervention group)	<ul style="list-style-type: none"> <li>Trained community health workers</li> </ul>	<ul style="list-style-type: none"> <li>Seven home-based visits (two during pregnancy, one within 48 hour of birth, during days 3-4 and 10-14, during weeks 3-4 and 7-8)</li> </ul>	<ul style="list-style-type: none"> <li>Prevention of mother-to-child transmission of HIV</li> <li>Integrated management of childhood illness</li> <li>Lactation counseling</li> <li>Antenatal and postnatal assessment and care</li> </ul>
Waiswa et al. <sup>15</sup>	Cluster randomized controlled trial	To examine the impact of home visitation program on essential newborn care practices and care-seeking	At baseline, 395 mothers were included (194 in the intervention group; 201 in the control group)	<ul style="list-style-type: none"> <li>Community health workers (Women and men)</li> <li>Five days training</li> <li>Reinforcement of community health workers' knowledge and skills through quarterly supervisory meetings and directly observed supervision</li> <li>Six-day in service training was done in public and private health facilities</li> </ul>	<ul style="list-style-type: none"> <li>Two home visits during pregnancy and three visits postnatally as close to days 1, 3 and 7 days</li> </ul>	<ul style="list-style-type: none"> <li>UNEST integrated intervention package</li> <li>Pregnancy, childbirth and postnatal care.</li> <li>Child health information and intervention</li> </ul>

conduct infant health surveillance.<sup>2</sup> While paraprofessional visitors participated in a 45-day intensive training program on issues to be covered and specific content for each visit.<sup>10</sup>

### Content of Home Visit

Activities conducted during home visits also vary. Many of the programs were guided by a framework or manual.<sup>2,7,9-12,14-15</sup> Assessment during the antenatal period involved maternal health and nutrition<sup>11</sup>, birth plans<sup>9,14</sup>, and identifying danger signs that placed mother or infant at risk.<sup>2,11</sup> Health teaching activities include healthy pregnancy behaviors<sup>8</sup>, antenatal care, and HIV prevention.<sup>9,14</sup> During the antenatal period, mothers were reminded about regular antenatal clinic attendance<sup>11</sup>, HIV testing<sup>9,11,14</sup>, child care<sup>9,14</sup>, and early and exclusive breastfeeding.<sup>2,8-9,11,14</sup>

During the postnatal period, the assessment included maternal physical condition,<sup>13,16</sup> and the child's health.<sup>16</sup> Home visitors assessed breastfeeding practices<sup>2,8-9,11,14,16</sup>, monitored child growth<sup>11</sup>, and emphasized extra care for low birth weight babies.<sup>9,14</sup> Skin-to-skin care, together with latching, positioning, relieving physical discomforts were taught<sup>8</sup>, and information about mother-infant bonding was provided.<sup>9,11,14</sup> Another important aspect of postpartum visits involved encouraging mothers to immunize their babies.<sup>11</sup>

Women were assisted to adjust to parenthood.<sup>7,10</sup> Instructions on various parenting health practices were given.<sup>10</sup> Parenting competencies<sup>7,10</sup> and child care topics in accordance with age and development<sup>10,16</sup> were emphasized during visits. The mothers were encouraged to make the most of local and social networks and community services/resources.<sup>16</sup> Home safety, water safety, fire safety, and safe sleep practices were also emphasized.<sup>16</sup>

### Outcomes of Home Visit

Outcomes can be summarized into the following: improved birth preparedness; newborn care practices; improved breastfeeding practices; improved home environment necessary for maternal wellness and child health and development; and improved mental health status. Results demonstrated significant improvements in birth preparedness and essential newborn care practices such as breastfeeding, hygienic cord care, and thermal protection.<sup>15</sup> There were greater improvements in newborn care practices particularly immediate breastfeeding, exclusive breastfeeding in the first three days of life, and clean hands for a home birth.<sup>2</sup>

Several studies focused largely on breastfeeding practices as an outcome. It was identified that home visiting resulted in: higher breastfeeding initiation rates<sup>2,16</sup>; increased rates of those who attempted to breastfeed<sup>8</sup>; higher prevalence of exclusive breastfeeding at 12 weeks<sup>9,14</sup>; use of one feeding method for six months<sup>11</sup>; breastfeeding for six months<sup>16</sup>; and mothers were more likely to breastfeed for more than six months.<sup>8</sup> Home visiting also resulted in fewer mothers introducing complementary food before six weeks, while more waited until four months.<sup>8</sup>

Results of the studies identified that mothers had: improved maternal healthy behaviors<sup>13</sup>; better parenting behaviors<sup>7</sup>; and improved home environments necessary for promoting child development.<sup>7,10</sup> Results also demonstrated an increase in condom use<sup>11</sup> and lower reports of clinical anxiety.<sup>7</sup> Qualitative findings in the study of Parker et al.<sup>16</sup> stated that new mothers described home visiting as comforting, informative, knowledgeable, supportive or reassuring, helpful, great, and positive.

Home visiting was found to impact birth outcomes such as healthy height for age measurements<sup>11</sup> and in some studies, low birth weight babies were given Kangaroo Mother Care.<sup>9,14</sup> In some instance, babies identified as high risk were taken outside the home for care e.g.<sup>15</sup>

In the study of le Roux et al.<sup>11</sup>, it was found that fathers were likely to acknowledge the infant and be more involved with their care as a result of the home-visiting intervention. Katz et al.<sup>10</sup> stated that paraprofessional home visitors can be successful in improving child-rearing environments and parenting attitudes. Further, Katz et al.<sup>10</sup> explained that paraprofessionals are a less costly workforce option.

## DISCUSSION

Child health and development are key factors in improving the life trajectory of a child and contribute to a positive future for the communities in which they live.<sup>17</sup> Investment in early childhood development and health will potentially reduce the inequities that result in poverty, limited education and poor nutrition and illness.<sup>18</sup> While there are many types of successful evidence-based home visiting programs, these programs are mainly offered in high-income countries, extending into the second year of life or longer, and are frequently staffed by professionals.<sup>19</sup> In low-income countries, providing home visiting services to this standard may not be viable due to the number of families requiring these services, lack of professional worker availability, and a lack of funding. Sustainability of home visiting programs is a significant issue in low-income countries.

The focus of home visiting for mothers and infants are mainly directed towards the capacity of mothers to provide the infant with adequate and appropriate care.<sup>9,11,14</sup> The mother is frequently identified as the direct target of care with interventions implemented to improve her physical, mental, and emotional health, the home environment, and family processes, with an end goal to positively impact the infant's growth and development. These are important considerations for the development, implementation, and evaluation of home visiting programs.

A limitation of the programs is the lack of active involvement of the father and other family members.<sup>20</sup> Nevertheless, fathers and families play a significant role as they are potentially supportive or disruptive towards the intended processes and outcomes.<sup>21</sup> In particular, a heightened awareness has occurred of the importance of

paternal mental health during the perinatal period and their child's early years of life.<sup>22</sup> The potentially harmful impact of paternal mental illness on the child's brain development and future health is now well documented.<sup>23</sup> These understanding highlight the need for inclusion of fathers in home visiting programs especially around mental health assessment and if necessary the referral and/or active involvement in home visiting interventions.

The acknowledgment of the father and significant others' role in the care of the mother and infant was minimal. This lack of inclusion may not reflect what actually occurred in the home visits but they need to be included when conceptualizing program strategies to enable successful implementation and integration of interventions and childcare practices into family life.

Important details such as the training and preparations of the home visitors, specific content or activities during home visits, need to be carefully documented and described in the literature. Many of the programs appear to be guided by a manual which is critical to maintaining the fidelity of the home visiting program,<sup>19,24</sup> though it is thought that many home-visiting programs depart from the approach advocated by the manual with variations that include the provision of core services and linkage to core community resources.<sup>20</sup>

Investigations into the competencies needed by nurses to successfully deliver sustained home visiting programs have been identified by Kemp et al.<sup>25</sup> These home visiting competencies in addition to existing nursing competencies are: "... (a) enhanced knowledge of child development, social determinants of health, and broader outcomes for individuals and populations; (b) advanced skills in fine observation, anticipatory guidance, negotiating, modeling and experimentation, holistic case management, and working in interdisciplinary teams; and (c) attitudinal competency for working with and supporting risk-taking".

Nurses are the likely group to be employed in this strategy as they can readily provide the needed support and knowledge. Olds et al.<sup>26</sup> found that paraprofessional home visitors produce smaller effects than nurses for maternal and infant outcomes. Nevertheless, in resource-limited settings paraprofessionals, doulas, community health workers, and women volunteers are the main service providers. They are often part of the community and not as expensive as employing nurses and other professionals. Issues could arise as paraprofessionals have limitations in regards to activities they can or cannot do. There is a need to explore essential tasks during home visits and find a balance between cost-effectiveness and relevance of intervention and provider. Further research is needed as to the essential competencies needed for non-nurse home visiting to ensure safe outcomes for mothers and their infants.

## CONCLUSION

Home visiting promotes a holistic approach of attending to the needs and concerns of mothers, infants, and families.

Home visitors gain opportunities to observe and assess the realities of their situations which is helpful in tailor fitting interventions. Also, home visitors are able to establish trust and create a positive working relationship in a controlled and familiar environment. This is essential in encouraging active participation and promoting optimal support and learning for mothers to acquire knowledge, skills, and attitude towards achieving and maintaining health and wellness.

Home visiting programs in developed and under-developed countries create positive outcomes for mothers and infants. It is important to understand the process in order to make it more effective. A limitation of these studies is a lack of a uniform method of delivering services, measuring outcomes and the long-term impact of home visiting. While making recommendations as to "dose" of intervention considered most beneficial, as was the gap in the literature, this study was able to look closer into the different components of home visiting. The information generated from this study may be used to provide a clearer path for inquiries that are geared towards prescribing a model for a home visit that is most beneficial.

## Statement of Authorship

All authors participated in data collection and analysis, and approved the final version submitted.

## Author Disclosure

All authors declared no conflicts of interest.

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