Review

Effectiveness of home visiting in reducing partner violence for families experiencing abuse: a systematic review

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Abstract

Background. Intimate partner violence (IPV) against women is a major, global societal problem with enormous health consequences both for mother and child. Home visiting interventions in families at risk of abuse seem promising in decreasing IPV. In this systematic review, we aim to assess the effectiveness of home visiting in reducing IPV experienced by mothers.

Methods. We conducted a systematic review using the Pubmed, PsychINFO and Embase databases from inception until March 2014, with a specific search strategy for each database.

Results. Of the 1258 articles identified, 19 (six different home visiting studies) met our inclusion criteria and were examined in detail. Three different types of studies were identified: the primary focus of one study was on the abused mother and the secondary focus on the children (Australia); two studies (Hawaii, The Netherlands) with a primarily focus on reduction of child abuse and a secondary focus on IPV and finally three studies from the USA, which only aimed at reducing child abuse by providing support to the mother. The Australian study reported a significant lowering of the IPV score at 1-year follow-up (15.9 versus 21.8, adjusted difference −8.67, 95% confidence interval [CI]: −16.2 to −1.15). The Hawaii-study showed significantly lower rates of physical assault after 3 years follow-up (incidence rate ratio [IRR] 0.85; 95% CI: 0.71–1.00) and the Dutch study showed a significant decrease of mothers’ physical assaults 2 years after birth (odds ratio 0.46; 95% CI 0.24–0.89). The other three studies showed no significant reduction of IPV.

Conclusions. Home visiting interventions that support abused women explicit to stop IPV seem to be effective in reducing IPV. However, it is not known whether these results are effective in the long term.

Keywords. Abused children; abused women; high risk for abuse; home visiting; randomized controlled trials.

Introduction

Intimate partner violence (IPV) against women is a major, global societal problem with enormous health consequences (1,2). IPV is defined as ‘violence caused by a (ex)partner in an intimate relationship and consists of physical, emotional, psychological and sexual abuse’ (2). In primary care, the prevalence of ever experiencing IPV...
is between 30% and 41% and is rarely identified by health care providers (3–7). Abused women suffer significantly more from (mental) health problems, specifically depression, than non-abused women (1,2,8–11). Children who witness IPV present more emotional and behavioural problems than the children of non-abused women (12–14). According to a meta-analysis, 63% of child witnesses to IPV have poorer emotional health than that of the average child (15). IPV is detrimental for children and adolescents and hampers their emotional development and is therefore regarded as child abuse (12–14).

A significant correlation has been made between the effects of experiencing child abuse and violence in adult relationships and home-visiting interventions to reduce child abuse should pay attention to IPV (16). Men who grow up in violent families are more likely to be a perpetrator of abuse while women run a higher risk of becoming a victim of IPV (17,18). The research has shown that there is also a high risk of physical child abuse in families with IPV (18). Interventions focused on reducing IPV are also expected to reduce child abuse and prevent intergenerational transmission of IPV (17,18).

It is known that screening leads to increased identification of abused women, however, no evidence is found that suggests that screening increases referrals to domestic violence support services (19). Furthermore, screening does not reduce the level of violence experienced by women (19). Violence does not stop with identification only (20). In addition, abused women are commonly isolated by their abusive partner and abused women in disadvantaged areas find it hard to share psychosocial problems with healthcare providers (21–23). The huge negative health consequences for abused women and their children, as well as the obstacles that must be overcome to reach these families at risk, stress the need for easy, accessible interventions for socially isolated families in order to deliver effective interventions to stop IPV.

The question remains: which easily accessible interventions are effective in stopping IPV? A Cochrane review of IPV advocacy interventions argued for early interventions for women who are in a current violent situation at home (24). Early interventions are also key in preventing child abuse. Isolation and depression are common consequences for abused women (11,24). A ‘mentor mother’ advocacy model with a home visiting program for abused pregnant women was effective in offering social support, education and assistance with needed community resources (25).

Home visiting strategies have been shown to reduce maternal depression (26,27), but were less successful in reducing depression when IPV was present (28). Several home visiting studies among disadvantaged socially isolated mothers reported a reduction of child abuse when the intervention continues after birth (29,30). It seems that home visiting interventions create opportunities to reach abused women and their children and possibly can lead to a reduction of IPV. Home visiting intervention focused on mothers experiencing IPV, measuring the reduction of IPV, as a primary outcome should be investigated. To date no systematic reviews have been published on investigating the reduction of IPV through home visiting interventions, for mothers in high-risk abusive families. The aim of our systematic review is to assess the effectiveness of randomized controlled trials (RCT) home visiting interventions in reducing IPV experienced by mothers.

**Methods**

**Search strategies**

With the aid of a librarian skilled in systematic reviews, searches on PubMed, PsycINFO and EMBASE databases were conducted, as well as searches into trial registers for studies published in English, which examined the effect of a home visiting intervention for women with children to reduce IPV. Our population is abused mothers and abused children with home-visiting RCT-intervention with the outcome IPV (Box 1). For the other databases similar terms were used. The search was carried out from inception of the databases until March 2014, and not restricted by country.

**Inclusion and exclusion criteria**

Randomized controlled trials investigating home visiting interventions for women and children exposing IPV, which explicitly measured IPV as an outcome, were selected. Studies without IPV as outcome measure, non-IPV interventions and legal advocacy interventions were excluded.

**Study selection**

The initial selection of articles by title and abstract was based on the inclusion criteria (Table 1) and carried out by two reviewers (GJP, SLFW) under supervision of the supervisory committee (ALML, SLFW). The selected 28 articles were assessed and scored

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**Box 1: Search terms used for PubMed database**

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(((“Child”[tiab] OR infant[tiab] OR young[tiab]
OR youth[tiab] OR adolescent[tiab] OR minors[tiab]
OR minor[tiab] OR teens[tiab] OR women[tiab]
OR woman[tiab] OR partners[tiab] OR partner[tiab]
OR spouse[tiab] OR spouses[tiab] OR wives[tiab]
OR wife[tiab] OR parent[tiab] OR parents[tiab]
OR father[tiab] OR fathers[tiab] OR mother[tiab]
OR mothers[tiab] OR son[tiab] OR sons[tiab]
OR daughter[tiab] OR daughters[tiab]
OR family[tiab] OR girls[tiab] OR girl[tiab]
OR boy[tiab] OR boys[tiab])
OR (“Infant”[Mesh] OR “Young Adult”[Mesh]
OR “Adolescent”[Mesh] OR “Minors”[Mesh]
OR “Child”[Mesh] OR “Family”[Mesh]
OR “Women”[Mesh] OR “Sexual Partners”[Mesh]
OR “Spouses”[Mesh]
OR “Parents”[Mesh]
OR “Fathers”[Mesh]
OR “Mothers”[Mesh] OR “Family”[Mesh])))
AND (((“Rape”[Mesh] OR “Sex Offenses”[Mesh]
OR “Infanticide”[Mesh] OR “Homicide”[Mesh]
OR “Behavior, Addictive”[Mesh]
OR “Compulsive Behavior”[Mesh]
OR “Dangerous Behavior”[Mesh]
OR “Aggression”[Mesh] OR “Stalking”[Mesh])
OR (“Sexual Harassment”[Mesh])
OR (Abuse[tiab] OR abusive[tiab]
OR abused[tiab] OR battered[tiab]
OR battering[tiab] OR violent[tiab]
OR violence[tiab] OR assultive[tiab]
OR neglect[tiab]
OR maltreatment[tiab] OR rape[tiab]
OR sex offence[tiab]
OR sexual offence[tiab]
OR murder[tiab]
OR homicid[tiab]
OR harrassment[tiab])
OR (“Child Abuse”[Mesh]
OR “Child Abuse, Sexual”[Mesh]
OR “Battered Child Syndrome”[Mesh]
OR “Munchausen Syndrome by Proxy”[Mesh]
OR “Elder Abuse”[Mesh]
OR “Spouse Abuse”[Mesh]
OR “Battered Women”[Mesh]
OR domestic violence[tiab])
AND (home[Title/Abstract] OR visit*[Title/Abstract]
OR mentor*[Title/Abstract] OR counseling[Title/Abstract]
OR “Patient Advocacy”[Mesh]
OR “Social Support”[Mesh]
OR “House Calls”[Mesh])
NOT (medicine[sb])
OR (((medicine[sb])
AND
((“Randomized Controlled Trial”[ptyp] OR Meta-
Analysis[ptyp] OR systematic[sb])
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by two independent reviewers (GJP, JvdW). Any disagreements were settled by input from two other reviewers (SLFW, ALML). The reference lists of these articles were reviewed to retrieve additional articles. References of available systematic reviews were also reviewed.

Risk of bias assessment
Two investigators (GJP, JvdW) assessed the risk of bias of the interventions of selected studies using the tool of the Cochrane Collaboration (31). The information that was extracted from multiple papers relating to the same study was combined.

Table 1. Inclusion criteria

<table>
<thead>
<tr>
<th>Types of studies</th>
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<tr>
<td>All randomized control studies examining the effect of home visiting interventions for abused women and/or their abused children to reduce intimate partner violence.</td>
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<th>Types of participants</th>
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<tr>
<td>Abused mothers, mothers with abused children</td>
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<th>Types of exposure</th>
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<tr>
<td>Intimate partner violence, home visiting</td>
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<th>Outcome measures</th>
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<tr>
<td>Intimate partner violence</td>
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Results
The initial search resulted in a total of 1258 articles after excluding 20 duplicate articles. Figure 1 describes in detail the selection process resulting in 19 included articles (32–50). These 19 articles described six different home visiting studies: the Mothers’ Advocates In the community (MOSAIC) in Melbourne (Australia) (32,33) Healthy Families in Alaska (HFAK) (34,35), the Nurse-Family Partnership (NFP)-intervention with paraprofessional and nurses in Denver (36–38), the Healthy Start Program (HSP)-study in Hawaii (39–42), the Nurse-Family Program (NFP) in Memphis Tennessee (43–47) and one in The Netherlands, Voorzorg (Precare) (48,49). Voorzorg (NFP, Amsterdam)
which is a Dutch equivalent of the NFP. The characteristics that were extracted from the six individual studies included: year, country of the study, participants, intervention (including duration), comparison care, data monitoring, data source and the primary outcome for IPV measures (Table 2). The home visiting interventions and where applicable, the study protocol and follow-up studies of each of the RCT articles were described. None of the studies reported explicit type or duration of support during the follow-up. The control groups continued to receive care as usual except NFP Denver and NFP Tennessee (Table 2).

Table 3 describes the risk of bias and presents that none of the included six RCTs are at risk for adequate methods of sequence allocation and concealment of allocation. Blinding of participants and personnel was not possible in all included studies (Table 3). Blinding of outcome assessors was not possible in three studies HFAK (Alaska), NFP (Memphis Tennessee) and NFP (Amsterdam).

These six studies described three different home visiting interventions:

1. The MOSAIC study primarily aimed to reduce IPV by focussing on support to and education of the abused mothers on how to manage partner violence;
2. Three studies HFAK, NFP (Denver) and NFP (Memphis Tennessee) conducted visits in families experiencing IPV, which only aimed at reducing child abuse by supporting the mother and did not pay attention at reducing IPV;
3. The other two studies, HSP (Hawaii) and NFP (Amsterdam) conducted visits in families with pregnant women experiencing IPV with a primary focus on child abuse and a secondary focus on partner violence.

The abused women in the MOSAIC-study received support for a 12-month period from non-professional mentor mothers, the controls in this study received care as usual. The Composite Abuse Scale (CAS) was used to measure IPV at baseline and at the end of the study. Only the CAS presented a cut-off score for IPV (CAS ≥ 7) resulting in no false positives. MOSAIC reported weak evidence of a difference in mean CAS score at 1 year follow-up (15.9 versus 21.8, adjusted difference –8.67, 95% confidence interval [CI]: –16.2 to –1.15) (33).

The HFAK study (Alaska) provided 2-year home visit program to high risk families after the birth of the children and measured physical and psychological abuse with the Conflict Tactics Scale (CTS) 2 only at follow-up after 2 years. This study defined physical abuse as three or more incidents in the past year and psychological abuse as 12 or more incidents in the past year. They reported no significant reduction of physical (adjusted odds ratio [OR]: 0.80; 95% CI: 0.48–1.32) and psychological abuse (adjusted OR: 0.81; 95% CI: 0.58–1.14) (34,35).

The NFP (Denver) provided a home visit program over 2 years period to high risk families by paraprofessionals, nurses compared with controls. Women in the control group were given developmental screening and referral services for children at 6, 12, 15, 21 and 24 months of age. This study did not describe a loss to follow-up after 24 months and only the nurse-visited women showed less domestic violence from partners during the 6-month interval before the 4-year interview. This study reported on domestic violence which was defined as being slapped, kicked, choked or threatened with a knife or gun measured with the CTS1 (37,38).

The HSP (Hawaii) study offered home visits by paraprofessionals to high-risk families and provided direct services to decrease child maltreatment by improving family functioning over a 3-year period. This was the first home visiting study, which also paid attention to reducing IPV as a risk factor. IPV was measured with the CTS1 at baseline and with the CTS2 at 3 and 9 years follow-up. This study reported significantly lower rates of physical abuse (incidence rate ratio [IRR], 0.85; 95% CI: 0.71–1.00) only after 3 years follow-up (41,42). Although the rates of IPV victimization were lower after 9 years, these results were not statistically significant.

In the NFP (Tennessee) study weekly home visits were conducted over a 2-year period and IPV was not measured at baseline and after 3 years follow-up. This study reported the results of a home visiting program provided by nurses to mothers up to 2 years after the birth of their first child with follow-up visits after 3, 6, 9 and 12 years after birth. After 6 years IPV was measured with CTS1 and no statistical significant results were found (43–47).

The NFP (Amsterdam) study offered 50 home visits before and 2 years after birth. It aimed at improving the high-risk young (teenage) mother’s health during pregnancy and the child’s health and development, by helping parents become more competent in child-care through increasing mother’s personal development. The nurses, who visited the women in the intervention arm, also paid attention at identifying IPV and its consequences for the child. In instances when IPV was present, the nurses emphasis this subject at each visit. This study used the Dutch version of the CTS2 to measure IPV and reported that the prevalence physical assault was significantly lower amongst women in the intervention group (OR: 0.46; 95% CI: 0.24–0.89) at 2 years after birth. Psychological assault and sexual coercion were not significantly different (50).

Durations and content of home visit interventions were different. The duration of the HSP (Hawaii) home visiting was at least 3 years and the MOSAIC study was the shortest with 12 months (Table 3). Only the MOSAIC, HSP (Hawaii) and the NFP (Amsterdam) paid explicit attention to reducing IPV while other studies only measured IPV. It means that these studies supported the mothers and providing psycho-education or interventions aiming the reduction of partner violence. Furthermore, the durations of follow-up varied.

In the included studies, different questionnaires were used to measure IPV. MOSAIC used the CAS and all other studies used two different versions of the Conflict Tactics Scale (CTS1 and CTS2). The NFP (Amsterdam) also used the Abuse Assessment Screen (AAS) at baseline in addition to the CTS2. HFAK (Alaska) used the CTS2 and the HSP (Hawaii) used the CTS1 at baseline and the CTS2 at follow-up. Both the NFP (Denver) and NFP (Tennessee) used the CTS1. The CTS1 measured only physical abuse. Although these studies used the same questionnaire, they used different definitions to establish physical abuse. The NFP (Denver) defined ‘any domestic violence’ during the past 6 months as physical abuse and NFP (Tennessee) measured physical abuse over the previous 6 or 3 years (Table 3). The HFAK (Alaska) defined three or more incidents in the past year as physical abuse. All these differences made it impossible to compare outcomes of studies using the same questionnaires.

MOSIAC, HSP (Hawaii) and NFP (Amsterdam) measured physical, psychological and sexual abuse and HFAK (Alaska) measured only the physical and psychological abuse (Table 3). Due to heterogeneity of outcome measures and duration of follow-up, pooling of these results was considered inappropriate.

Discussion

Three of the six home visiting programs, which paid attention to reducing IPV for mothers, showed a statistically significant reduction of IPV in the short-term. Table 2 describes in detail that the MOSAIC and Voorzorg-training pays specific attention to IPV...
### Table 2. Characteristics of included studies

<table>
<thead>
<tr>
<th>Study (country, place)</th>
<th>Article (first author, year of publications)</th>
<th>Setting, inclusion criteria and participants</th>
<th>Intervention, program and duration</th>
<th>Baseline</th>
<th>Follow-up</th>
<th>Questionnaires measuring IPV, kind of abuse, and period of abuse</th>
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<tr>
<td><strong>Part 1</strong></td>
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<tr>
<td>MOSAIC (Australia, Melbourne)</td>
<td>Taft, 2009, 2011</td>
<td>Antenatal and primary care. Inclusion criteria: English and Vietnamese women (≥15 years) with at least one child (0–5 years) disclosing IPV or symptoms indicative for IPV.</td>
<td>76% of the abused women received 12 months of weekly home visits by non-professional mentor mother support. Providing safety strategies, parenting support and assistance in referral to community services.</td>
<td>IPV is measured with CAS at baseline. ( N = 113 ) (intervention); ( N = 61 ) (control).</td>
<td>IPV is measured with CAS at the end of the intervention (12 months) ( N = 88 ) (intervention); ( N = 42 ) (control).</td>
<td>IPV (physical, emotional and sexual) was measured by the Composite Abuse Scale (CAS-total)(^a) at baseline and at the end of the intervention over a period of the past 12 months.</td>
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<tr>
<td>HFAK (US, Alaska)</td>
<td>Duggan, 2007</td>
<td>Antenatal hospital care. Inclusion criteria: High-risk families (assessed for risk using Kempe’s Family Stress Checklist (FSC); score ≥25). Pregnant (50%) or shortly after birth high risk English speaking families</td>
<td>High-risk families received weekly home visiting during 6–9 months by paraprofessionals aiming to prevent child maltreatment by promoting positive parenting and child health and development. 42 visits in 2 years (only active families)</td>
<td>IPV is measured with CTS2 at baseline. ( N = 162 ) (program); ( N = 163 ) (control)</td>
<td>IPV is measured with CTS2 at the end of the intervention 24 months after birth. ( N = 126 ) (intervention); ( N = 123 ) (control)</td>
<td>IPV (physical and psychological abuse) was measured with the revised Conflict tactical Scale (CTS2) over the past 12 months.(^b)</td>
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<tr>
<td>NFP (US, Denver)</td>
<td>Olds, 1988, 2002, 2004</td>
<td>Antenatal care. Inclusion criteria: low-income pregnant women with no previous live births, qualified for Medicare or no private insurance.</td>
<td>This home-visitation program provided by both nurses and paraprofessionals has 3 broad goals: (i) to improve maternal and fetal health during pregnancy by helping women improve their health-related behaviors; (ii) to improve the health and development of the child by helping parents provide more competent caregiving; and (iii) to enhance parents’ personal development by helping them plan future pregnancies, continue their education and find work. Average of 22 home visits in 2 years.</td>
<td>IPV is measured with CTS1: ( N = 245 ) (paraprofessionals); ( N = 235 ) (nurses); ( N = 255 ) (control)(^c)</td>
<td>IPV is measured with CTS1 24 months after end of 2-year program. ( N = 211 ) (paraprofessionals); ( N = 204 ) (nurses); ( N = 220 ) (control)</td>
<td>Physical abuse is measured with CTS1:</td>
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### Table 2. Continued

<table>
<thead>
<tr>
<th>Study (country, place)</th>
<th>Article (first author, year of publications)</th>
<th>Setting, inclusion criteria and participants</th>
<th>Intervention, program and duration</th>
<th>Baseline</th>
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<tr>
<td>HSP (US, Hawaii)</td>
<td>Duggan, 2004; Bair-Merritt, 2010</td>
<td>Antenatal hospital care. Inclusion criteria: assessment of families of new-borns with a high risk of child abuse assessed with Kempe’s FSC to assess the risk (score ≥ 25).</td>
<td>Weekly home visits by paraprofessionals providing the Healthy Start Program (HSP) promoting child health; decrease child abuse by reducing malleable risk factors such as IPV for at least 3 years.</td>
<td>IPV is measured at baseline with CTS1, ( N = 373 ) (intervention); ( N = 270 ) (control)</td>
<td>IPV is measured with CTS2 at the end of the intervention period of 3 years, ( N = 364 ) (intervention); ( N = 257 ) (control) and long term follow up at child age of 7 to 9, ( N = 340 ) (intervention); ( N = 231 ) (control)</td>
<td>IPV is measured with CTS1 (baseline) en CTS2 (physical, psychological and sexual abuse) at child age of 3 and 6 years during the past 12 months.¹</td>
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<tr>
<td>NFP (US, Memphis Tennessee)</td>
<td>Olds, 1997, 2000, 2004, 2007, 2010</td>
<td>Public system of obstetric and pediatric care. Inclusion criteria economical disadvantaged pregnant women, &lt; 29 weeks gestation with previous births and at least 2 socio demographic risk characteristics (unmarried, &lt; 12 years of education, unemployed). N-total: 743.</td>
<td>Nurse home visits during pregnancy (with a mean of 7 home visits) and during the first 2 years postpartum (mean: 26 home visits). This program aims to examine the effects of prenatal and infancy home visits on mother’s fertility and children’s functioning.</td>
<td>IPV is not measured at baseline and at child age of 3 years.</td>
<td>IPV is measured with the CTS1 at child age of 6 ( N = 197 ) [intervention]; ( N = 444 ) [control]), ⁴ ⁹</td>
<td>At 6th year any domestic violence (physical abuse) from 0 to the 6th year was measured with the CTS1; at 9th and 12th year physical abuse was measured over the previous 3 year.</td>
</tr>
<tr>
<td>NFP (Voorzorg) The Netherlands, Amsterdam</td>
<td>Mejdoubi2011, 2013</td>
<td>Antenatal, gynaecological and primary care. Inclusion: low educated disadvantages women (&lt; 25 years, no previous live birth) and pregnant (no longer than 28 weeks) with a high risk for (child) abuse.</td>
<td>Dutch NFP-intervention by trained nurse home visiting intervention offered 10 visits during pregnancy, 20 during the first and 20 during the second year of the child’s life. NFP provided support to improve mother’s health, development, and quality of helpful partner relations, parenting skills and child’s health and safety and reduce risk factors such as IPV.</td>
<td>All women were interviewed at baseline 16-28 (baseline) with Abuse Assessment Screen (AAS), ( N = 237 ) (intervention); ( N = 223 ) (control).</td>
<td>All women were interviewed at 32 weeks of pregnancy and at the end of the intervention 24 months after birth with the Dutch version of CTS2, ( N = 110 ) (intervention); ( N = 146 ) (control).</td>
<td>At baseline with Abuse Assessment Screen (AAS). At 32 weeks of pregnancy and 24 months after birth physical, psychological and sexual assault was measured with the Dutch version of CTS2 male abuse last year.</td>
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¹CAS-total described the total score of IPV (physical, emotional and sexual abuse). IPV is defined as a score higher than 6.
²Physical abuse is defined as three or more incidents of partner assault in past year as indicated by the CTS2. Psychological abuse defined as 12 or more incidents in the past year measured by CTS2. Women without partner are excluded.
³Any domestic violence during past 6 months and since child age 2 ‘e.g. being slapped, kicked, choked or threatened with knife or gun’.
⁴Controls also received free developmental screening and referral services for their child at age 6,12 and 24 months beside usual care.
⁵Bair-Merritt et al. (42) mentioned that the CTS1 was used at baseline and the CTS2 was used after 3 years. Bair-Merritt described that these questionnaires differ too much to compare.
and the intervention was also focused on reduction of IPV. The Hawaii-study mentioned only that women received emotional support and was not specific to reduce IPV. The other three home visiting programs presented no specific intervention to reduce IPV and did not show a significant reduction of IPV. Their outcomes stressed the importance of specifically addressing IPV by supporting abused mothers during the home visiting interventions. The added benefit of these interventions, which focused on stopping IPV, was the possibility of also minimizing intergenerational transmission of IPV and reducing child abuse as well (51,52). Home visits support parenting and a positive parental relationship helps children to cope adequately with the negative effects of witnessing IPV (53). This outcome is also in line with the recommendation of the WHO to implement home visiting focused on women experiencing IPV and to measure IPV as a primary outcome (54). It also emphasizes that IPV does not stop when it is identified. A recent review stresses the importance of combining the identification of IPV with a therapeutic intervention intended at stopping IPV (19,55).

Another review, only focusing on improving child health and minimizing child abuse by home visiting, concluded that 3 of the 12 home visiting programs included: Early Start (New Zealand), Healthy Family America (HFA) and the Nurse-Family Partnership (NFP) had favourable outcomes on health, child-development and reduction in child maltreatment (56). It showed that home visiting was a promising way to work with families who were challenging to engage in supportive services. It is remarkable that IPV was not addressed even though it was known that home visiting programs designed to prevent child abuse had limited effect especially when children were continuously exposed to witnessing violence against their mothers (28). All these findings stressed the importance of combining home visiting with attention to currently abused mothers, in preventing child abuse.

Our study shows several difficulties in measuring IPV, which hindered clear identification of IPV. The HSP-studies (41,42) used different versions of the CTS, which hampered the process of drawing comparisons. The NFP (Denver) and the NFP (Tennessee) used different norms to define IPV although they used both the CTS1. The HSP (Hawaii) used CTS1 and CTS2 (Table 3) which hinders comparison.

Duggan et al. (41) described mixed findings about the program's effectiveness during the first 3 years, but dichotomized the different types of IPV as present or absent. In contrast, Bair-Merritt et al. (42) considered the IPV of the same HSP-study as a count variable and tested the difference in rates between groups. The use of rates is preferred since any threshold for the number of IPV acts, in instances where a relationship is considered to have IPV, remains arbitrary. The MOSAIC-study in Australia used the CAS-questionnaire validated to identify IPV in clinical settings (32,33). This instrument is also used in different European countries and also uses a cut off score for the presence of IPV. Other questionnaires used to identify IPV are the Women Abuse Screening Tool (WAST), which comprises of eight self-report items or the Abuse Assessment Screen (AAS), which comprises of five clinician-administered items with good sensitivity, specificity and test-retest reliability (57). The HARK a shorter tool with good use in clinical practice (58). Heterogeneity of questionnaires and different interpretations of the outcomes hinders the comparability of the results of IPV-studies. Moreover the CTS1-questionnaire and the CTS2, the improved version of the CTS1, has several limitations such as not addressing emotional abuse and sexual abuse compared to the CAS (59).
Quality of the evidence
The included studies yielded very low to moderate quality evidence (Table 3). With respect to risk of bias, blinding of participants and personnel was very difficult for this kind of interventions.

Limitations and strengths
Our study is limited by the choice of databases, limitation of language and inclusion criteria. Another limitation is that most studies did not describe what kind of alternative healthcare support the control group received during follow-up. In most studies the controls received usual care; controls of NFP (Denver) and NFP (Tennessee) received free developmental screening and referral services for children at age 6, 12 and 24 months in addition to usual care.

The strength of our review is that it included RCT-studies for mothers exposing intimate partner abuse while taking care of their children. Most interventions were either focussed on IPV or on child abuse. Intervention studies, which integrated reduction of IPV and child abuse, were rare. As far as it was noted this was the first review of studies that investigated the reduction both of IPV and child abuse.

In addition with this, the second strength of our study was that because of this, we investigate effectiveness for intervention to stopping IPV in the future in order to pay attention to children witnessing IPV. In our opinion witnessing IPV is abuse and neglect the support children needed from their parents. This lack is comparable with child abuse. Other studies showed that IPV passes from one generation to another (17,18,60,61). Early support for these abused children is needed to minimize mental health complaints and inter-generational transmission of IPV. The last strength was that our review revealed the importance of homogeneity of criteria measuring IPV and the duration of follow-up.

Implication for practice and recommendations
The benefit of home-visiting interventions was the success in reaching families experiencing partner abuse. Home visiting seems a promising intervention to stay in contact with these vulnerable women with children who were notoriously hard to reach through regular services. This article highlights some improvements.

Supporting abused mothers is beneficial for abused mothers and their children. To date, home visiting interventions do not describe witnessing IPV as a kind of child maltreatment, explicitly. In our opinion it is, because it is a form of child neglect and witnessing IPV exposes them to stress and unsafely circumstances, which hamper their emotional development. For that reason, children who witness IPV need the attention of healthcare providers. Outreach interventions like home visiting seem helpful to reach these abused mothers with their children. Empowerment of mothers is effective both for mother and child. Our study only revealed results directly after the intervention (12 or 24 months) but long-term investigations are needed.

Heterogeneity of outcome measures and duration of follow-up hindered adequate comparison of the effectiveness of different intervention to stop IPV. International cooperation about measurement of IPV is needed to examine the effective interventions to stop IPV.

Conclusion
This systematic review showed that evidence of effective home visiting intervention for IPV are scare. Short-term effects of home visiting interventions seem effective in reducing IPV when the interventions address IPV and support the abused mother. In addition, homogeneity of outcome measures and duration of follow-up to identify IPV is recommended. Long-term effectiveness of the reduction of IPV is lacking. Longitudinal studies to investigate the effectiveness of home visiting interventions for the long-term will be recommended.

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Ethical approval: upon consultation, the Ethical Committee of the Radboud University Nijmegen Medical Centre stated that ethical approval was not necessary because of the non-invasive character of the study (CCMOCCMO11.1522/GK/ma).

Conflict of interest: none.

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