



# Service Coordination to Address Maternal Mental Health, Partner Violence, and Substance Use: Findings from a National Survey of Home Visiting Programs

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## Abstract

Maternal risks such as poor mental health, partner violence, and substance misuse can undermine child health and development. Maternal and early childhood home visiting programs address these risks primarily through referral and coordination with community-based services, yet effects on these outcomes have been small. This study assessed the strengths of local home visiting sites' systems to support coordination of mental health, partner violence, and substance use services. Investigators recruited home visiting sites ( $N=88$ ) representing diverse models from a national practice-based research network, the Home Visiting Applied Research Collaborative (HARC). Web-based surveys assessed five implementation system supports for coordination and nine coordination activities drawn from the Measurement Framework for Coordination developed earlier in the project. Surveys also assessed seven coordination barriers identified in previous research. Sites varied in their implementation supports and coordination activities; on average, sites had stronger systems in place to support screening and referring families than to support linkage and follow-up. Implementation supports and activity scores were higher for mental health and partner violence than for substance use. Across all service needs, scores were highest for offering a referral and documenting the caregiver's agreement for exchange of information between providers. Scores were lowest for offering a warm handoff. Lack of open slots and lack of transportation were major barriers to successful coordination for all three services. Results suggest that home visiting coordination could be strengthened by focusing on infrastructure for linkage and follow-up with services in the broader system of care.

**Keywords** Service coordination · Home visitation · Mental health · Partner violence · Substance abuse

## Introduction

Maternal and early childhood home visiting is a two-generation strategy to promote health and well-being of pregnant women and families with infants and young children living in the most at-risk communities (Minkovitz et al., 2016). Home visiting aims to strengthen parent and community capacity to support the foundations of early childhood health and improve life course trajectories (Mistry et al., 2012). To do this, home visitors meet regularly with families in their homes to provide relationship-based, family-centered

parenting and health education, family support, and referrals to needed services in the community.

One pathway through which home visiting programs strengthen maternal and child health is by addressing parental risk factors such as poor maternal mental health, partner violence, and substance misuse. Prior research shows high rates of maternal depressive symptoms and anxiety (Ammerman et al., 2013, 2009), partner violence (Sharps et al., 2008), and substance misuse (Dauber, Ferayorni et al., 2017; Dauber, John et al., 2017) among families enrolled home visiting. The national Maternal and Infant Home Visiting Evaluation (MIHOPE) found that over one third of mothers scored at or above the cutoff for maternal depressive symptoms, over one quarter experienced partner violence in the past year, and nearly a third reported binge alcohol or illegal drug use before pregnancy (Duggan et al., 2018). Strong evidence links poor maternal mental health, partner violence, and substance

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misuse with increased risk for parenting difficulties and negative maternal and child health outcomes (Albright & Tamis-LeMonda, 2002; Forray, 2016; Teti et al., 2017), especially when exposures are chronic and confounded with other background risks (Murray et al., 2010).

Recent evidence suggests that current strategies to address maternal mental health, partner violence, and substance misuse through home visiting may fall short of what is intended. Results from MIHOPE showed small effects of home visiting on maternal depressive symptoms ( $d = -0.05$ ) and partner violence ( $d = 0.11$ ) and no effects on behavioral health service receipt (Michalopoulos et al., 2019). Research has also shown that maternal risks may moderate the effects of home visiting on other key outcomes. Studies have found that maternal depression moderated program effects on family engagement (Molina et al., 2020), maternal psychosocial outcomes (Duggan et al., 2009), child development (Cluxton-Keller et al., 2014), and child maltreatment (Easterbrooks et al., 2013). Another study found that reductions in partner violence mediated program effects on parenting distress and risky behaviors (Easterbrooks et al., 2017). Accumulating evidence points to a need to identify more effective approaches to address these parenting risks (Ammerman et al., 2010; Dauber, Ferayorni et al., 2017; Dauber, John et al., 2017; Novins et al., 2018).

Home visiting programs address maternal mental health, partner violence, and substance use through education and referrals to community-based services. Referrals are essential to achieve positive outcomes because most home visiting programs lack the expertise or resources to provide evidence-based treatments themselves. Home visitors play a central role in connecting families with needed services and in helping families navigate emotional and structural barriers to service access (Goldberg et al., 2018). Referrals to needed services also have been associated with stronger family engagement in home visiting (Duggan et al., 2015; Molina et al., 2020).

Referrals are a core component of most home visiting services, yet a referral alone may not ensure service receipt. *Service coordination* implies a higher standard of care. Service coordination refers to purposeful organization of activities between two or more organizations to facilitate, in partnership with the family, the delivery of the right services in the right setting at the right time (West et al., 2018a). Many home visiting programs intend to engage families with multiple needs and limited resources and who may benefit from additional support to access services. Service coordination ensures that family needs that are beyond the purview of the home visiting program are identified and addressed while reducing duplication of services (Tschudy et al., 2013). A study comparing two home visiting programs found that service

coordination was associated with positive substance use outcomes compared to referrals only (Haynes et al., 2015).

We conceptualize service coordination as having four key aspects: screening, referral, linkage, and follow-up. Each aspect requires one or more activities on the part of the referring home visitor, the family, or the organization to which the family is being referred (West et al., 2018a). Screening identifies families who may require services beyond what the home visiting program can provide. A referral provides key information about a service and service provider to the family. Linkage connects the family to the provider and may include providing information to the provider about the family (with the family's permission). Finally, follow-up involves closing the loop with the family and provider to ensure that a high-quality service was received.

Mental health, partner violence, and substance misuse are sensitive issues that may pose unique barriers to service coordination. Mothers may be hesitant to disclose due to stigma, shame, and concerns around privacy and safety. One study found that low rates of positive screens for substance use were, in part, due to stigma and fears of child removal (Dauber, Ferayorni et al., 2017; Dauber, John et al., 2007). In the case of partner violence, there may be concerns around safety should a partner learn of the disclosure. In one qualitative study of mothers who disclosed partner violence to home visitors, trust developed through an extended relationship was an essential precondition for disclosure (Jack et al., 2017). Research also has shown that home visitors describe these concerns as particularly challenging to address (Eddy et al., 2008; Jones-Harden et al., 2010; Tandon et al., 2008). Finally, results from several studies highlight concerns regarding the availability of high-quality community-based mental health (Ammerman et al., 2009) and substance use treatment (Neger & Prinz, 2015) for pregnant women and new mothers.

Little is known about service coordination practices across early home visiting models and sites, and the extent to which practices vary for these three specific service needs. This is due, in part, to limitations of currently available data. A recent federally funded project that aimed to understand connections between home visiting sites and other community service providers showed marked variability in how sites currently collect and track data regarding screenings, referrals, linkages, and follow-up (Rosinsky et al., 2019). Findings from the same project also hint at the complexity of the referral process, the success of which is likely influenced by family, provider, and community characteristics.

Research is needed to elucidate factors that promote or hinder successful coordination for mental health, substance use, and partner violence. We know little about the strength of local sites' implementation systems and activities to support coordination for these services. Implementation systems are the mechanisms to assure that providers have the ability and motivation—the “can do” and “will do”—to carry

out activities as expected. Understanding current practices and barriers to coordination may shed light on areas that, if improved, could lead to more successful coordination and, thus, improve outcomes.

This descriptive, cross-sectional study is part of a larger project that aimed to understand service coordination in home visiting. Previously, we developed a framework and 37 indicators to assess the strength of implementation systems and activities that support coordination (West et al., 2018a). A separate manuscript described the role of state context in promoting service coordination in local sites (West et al., 2018b). This study describes coordination practices within a national sample of home visiting sites with a focus on three specific service needs: mental health, partner violence, and substance misuse. The objectives were to examine (1) the strength of local sites' implementation systems and activities to support coordination for each service need, (2) whether specific aspects of coordination (screening, referral, linkage, and follow-up) vary by service need, and (3) whether site managers' perceptions of availability, accessibility, and barriers for coordination vary by service need. In addition, because MIECHV holds states accountable for improving screening for mental health and partner violence, we explored whether this was reflected in higher screening rates for these two needs.

## Methods

### Participants

We recruited home visiting sites from the Home Visiting Applied Research Collaborative (HARC). HARC is a national research and development platform whose members include local home visiting sites across the USA with an interest in field-initiated home visiting research. HARC sites were eligible to participate in the current study if they met two criteria: (1) they were located in a state in which the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) state administrator had completed a survey in an earlier phase of the study that assessed state-level factors for coordination ( $N=38$  states; West et al., 2018), and (2) the state had at least five individual HARC sites or a network of sites ( $N=22$  states representing all major geographic regions of the USA). A network is a group of home visiting programs with a central contact person serving as liaison. In states with more than five HARC sites, we purposively selected sites to achieve variation in program model and geographic context (e.g., urban, rural, or suburban). Of the 126 sites invited to participate, 89 (71%) agreed to participate. Most survey respondents held positions such as director, nurse administrator, lead worker, or research coordinator. On average, four sites participated in each of the 22 states (range 2–7;  $SD=1.3$ ).

### Procedures

Study staff distributed a recruitment email and survey link to managers of all eligible HARC sites. The study team administered the survey using an online platform, Qualtrics (Qualtrics, 2017). We sent reminders at 1, 3, and 5 weeks after the initial e-mail and made a final attempt to recruit participants by phone. Participants were offered a \$60 gift card; 83 participants (93%) were allowed by their agency to accept gift cards. The Johns Hopkins Bloomberg School of Public Health IRB determined the study was not human subjects research.

### Measures

The Web-based survey assessed basic site characteristics, implementation system and activity indicators of coordination, and barriers to coordination. A Measurement Framework for Coordination, developed in an earlier phase of the project (West et al., 2018), informed survey items. The Framework was grounded in implementation science and was developed using a stakeholder-engaged process. A conceptual diagram is available as supplemental content.

**Site Characteristics.** A single categorical item assessed the respondent's role (*Site manager, Supervisor, Other*). Respondents could provide further information about their role in an open text field. Additional items assessed number of children and families served, geographic context (*Urban, Suburban, or Rural*), and percent of funding provided through MIECHV. Three Likert-type items assessed the extent to which addressing maternal mental health, partner violence, and substance use were site priorities (0 = *Not a priority* to 10 = *Highest priority, or Not sure*). Scores of 9–10 were recoded as 1 (*High priority*); all other scores were recoded as 0 (*Low priority*). Three categorical items assessed the extent to which sites prioritized enrollment of families with needs for services related to maternal mental health, partner violence, and substance use (*Requirement, Priority but not required, Not a consideration, and Disqualification*). Responses were recoded into a dichotomous variable (1 = *Requirement or priority* and 0 = *Not a consideration or disqualification*). Three categorical items assessed how sites addressed each service need (*Primarily through direct service, Balance of direct service and referral and coordination, Primarily through referral and coordination, and We do not address this at all*). Responses were recoded into a dichotomous variable (1 = *Primarily through referral and coordination* and 0 = *Primarily through direct service or a balance of the two*).

**Five Implementation System Indicators.** Binary items assessed whether the site screened enrolled families for each of the three service needs. A set of 60 items assessed

the extent to which five implementation system indicators supported four key aspects of coordination (screening, referral, linkage, follow-up) for each of the three service needs. Examples were “Formal policy clearly defines who is responsible [for each aspect]” and “Home visiting staff receive formal training [for each aspect].” Response options and values assigned to each option were: *Yes, fully in place* (1), *Yes, partially in place* (0.5), *No or Not sure* (0). We calculated indicator summary scores as the average of scores for each of the three service needs and each of the four aspects of coordination (screening, referral, linkage and follow-up). Indicator summary scores could range from 0 to 1.0; higher scores indicated closer approximation to having indicators fully in place in all sites.

**Nine Activity Indicators.** A set of 27 items assessed nine coordination activities specific to the three service needs. Example items were “Home visiting staff screen caregivers for [mental health/partner violence/substance misuse] with a standardized tool” and “Caregivers who receive referrals to community organizations for [mental health/partner violence/substance misuse] services have a warm hand-off.” Five Likert-type response options for the activity indicators ranged from *All families/All of the time* to *No Families/None of the time*. For analysis, responses were aggregated into three groups with assigned values as follows: *All families/All of the time* (1), *Most families/Most of the time* (0.5), and *All other responses* (0). We calculated indicator summary scores as the average of scores for each of the three service needs. Higher scores indicated closer approximation to having indicators fully in place in all sites.

**Service Availability and Accessibility.** Categorical items assessed whether services for each need were available in the community (*Yes, No, Not sure*), and the extent to which families have difficulty accessing services for each need (*No difficulty, Sometimes have difficulty, Often have difficulty*). A categorical item assessed barriers that make it hard for families to access each of the three service needs. Eight response options were *No slots available, Wait list, Cost of service is too high, Location or lack of transportation, Services only offered during work hours, Lack of child care, Services not available in families’ primary language, Families don’t meet eligibility requirements*, and *Other* (with open text field).

## Data Analysis

One participant responded to < 20% of items and was dropped from analyses. All but two items had minimal (< 5%) missing data. Data for one indicator (“HV staff receive formal training...”) were missing for 11 respondents due to a survey administration error. When computing summary scores, missing data were imputed using

ipsative mean imputation when data were available for  $\geq 75\%$  of the other items needed to compute the summary score (Schafer & Graham, 2002). We calculated means and standard deviations for all indicator summary scores. Two sets of three Fisher’s  $2 \times 2$  exact tests were used to examine (a) whether sites that received any MIECHV funding were *more* likely to screen for each of the three service needs, and (b) whether sites that served rural contexts were *less* likely to address each of the three service needs through referral and coordination. For each of the three service needs, two t-tests were used to examine whether sites categorized as rating that outcome as a high priority (yes/no) evidenced higher a) implementation system indicator summary scores and b) activities indicator summary scores. Because the study was restricted to a small number of planned comparisons, *p* values were not adjusted for familywise error rate (Armstrong, 2014). Finally, intraclass correlation coefficients (ICCs) were calculated for each indicator to explore similarity of scores for sites within each state relative to other states.

## Results

### Sample Characteristics

The sample of 88 sites was diverse in type of implementing agency, model implemented, size, and geographic context (Table 1). Respondents were from sites using evidence-based models and models not yet designated as evidence-based by the Home Visiting Evidence of Effectiveness (HomVEE) review (Sami-Miller et al., 2019). Notably, the four models most prevalent in our sample are also the four models most widely disseminated in the USA. Half of the sites (50%) reported receiving some MIECHV funding.

### Local Program Priorities and Ways of Addressing Service Needs

Most sites reported that improving maternal mental health (72%) and reducing partner violence (65%) and substance use (59%) were high outcome priorities. Similarly, a majority prioritized enrollment for mothers with needs related to mental health (78%), partner violence (74%), and substance use (75%). All sites addressed maternal mental health; 3% addressed it primarily through direct services, 66% primarily through a balance of direct services and referral and coordination, and 31% primarily through referral and coordination. Results were similar for partner violence. All but one site reported that they addressed partner violence; of these, one program (1.1%) addressed it primarily through direct services, 63% through a balance of direct services and referral and

**Table 1** Program characteristics ( $N=88$ )

| Characteristic                         | $N$ (%) |
|--|---------|
| Implementing agency                    |         |
| Community-based non-profit             | 60 (68) |
| Local health department                | 9 (10)  |
| School district                        | 7 (8)   |
| Other <sup>a</sup>                     | 12 (14) |
| Program model <sup>b</sup>             |         |
| Healthy Families America               | 36 (41) |
| Parents as Teachers                    | 32 (36) |
| Early Head Start                       | 13 (15) |
| Nurse Family Partnership               | 10 (11) |
| Other <sup>c</sup>                     | 25 (28) |
| Size of program <sup>d</sup>           |         |
| Small (serves fewer than 100 families) | 35 (40) |
| Medium (serves 100–199 families)       | 28 (32) |
| Large (serves more than 200 families)  | 23 (27) |
| Geographic context <sup>e</sup>        |         |
| Urban                                  | 42 (48) |
| Suburban                               | 39 (44) |
| Rural                                  | 55 (63) |
| Receive MIECHV funding <sup>f</sup>    | 36 (50) |

<sup>a</sup>Other implementing agencies included health care organizations, child welfare agency, and Early Head Start grantee

<sup>b</sup>Twenty-four implementing agencies use multiple models

<sup>c</sup>Other program models included SafeCare Augmented, HIPPIY, and several models other than those designated as evidence-based by HomVEE

<sup>d</sup>One agency offered a universal program that serves all families with newborns; one agency had missing data

<sup>e</sup>Thirty programs served more than one type of geographic area

<sup>f</sup>For this item, 8 programs selected “don’t know” and 16 responses were missing; percentage is based on the 72 cases with complete data

coordination, and 36% primarily through referral and coordination.<sup>1</sup> All but two sites reported addressing substance use; of these, 2% addressed it primarily through direct services, 45% through a balance of direct service and referral and coordination, and 52% primarily through referral and coordination. Sites serving rural areas were less likely than other sites to rely primarily on referral and coordination to address partner violence (26% vs. 52%,  $p=0.02$ ) but not mental health (24% vs. 42%,  $p=0.09$ ) or substance misuse (46% vs. 63%,  $p=0.19$ ).

## Local Programs’ Systems to Support Coordination

**Prevalence of Screening for Each Service Need.** Most sites reported that they screened mothers for poor mental health

<sup>1</sup> This item had one missing response; percentages are for 86 valid responses from sites that address partner violence.

(76%), partner violence (76%), and substance use (53%). Sites that received MIECHV funding were more likely than those that received no MIECHV funding to screen for mental health (86% vs. 58%,  $p=0.02$ ) and partner violence (94% vs. 53%,  $p=0.001$ ), but not substance use (67% vs. 42%,  $p=0.06$ ).

**Implementation System Indicators.** Table 2 presents summary scores for the implementation system indicators. The table gives summary scores for all five implementation system indicators individually and combined, all three service needs individually and combined, and all four aspects of coordination individually and combined. For each summary score, as the mean score approaches 1.00, so does the number of sites with the indicator fully in place. For all five indicators combined, summary scores were higher for mental health and partner violence ( $M=0.68$  for both) than for substance use ( $M=0.56$ ). This pattern was consistent across all indicators except supervisory support, for which scores were uniformly high across all three service needs ( $M=0.81$ , range 0.78 to 0.81). Across all three service needs, summary scores were higher for screening ( $M=0.73$ ) than for linkage ( $M=0.64$ ), referral ( $M=0.63$ ), and follow-up ( $M=0.60$ ).

**Activity Indicators.** Table 3 presents summary scores for each of the nine activity indicators for each service need. On average, activity scores were stronger for mental health ( $M=0.68$ ) and partner violence ( $M=0.65$ ) than for substance use ( $M=0.52$ ). Across all service needs, scores were highest for offering a referral ( $M=0.76$ ) and documenting the caregiver’s agreement for exchange of information between providers ( $M=0.71$ ). Scores were lowest for offering a warm hand-off ( $M=0.36$ ), particularly for substance use ( $M=0.29$ ).

**Outcome Priorities.**  $t$  Tests showed that implementation system and activities indicator summary scores for each service need were significantly higher for sites that prioritized these outcomes. Sites that prioritized mental health evidenced stronger implementation systems ( $p=0.002$ ) and activities ( $p<0.001$ ) to support coordination of mental health services. Sites that prioritized substance use and partner violence also had stronger implementation systems ( $p=0.006$  and  $p=0.005$ ) and activities ( $p=0.02$  and  $p=0.007$ ) to support coordination for these services.

**Within-State Correlations.** ICCs were used to assess correlation of site scores within states; higher scores indicate stronger correlation. Thus, large ICCs could reflect state-level priorities, policies, or initiatives for service coordination for a particular service need. ICCs were particularly high ( $ICC>0.200$ ) for four indicators of service coordination for partner violence (training policy, use of standardized screening tools, family agreement for exchange of information, and follow up to see why referrals were not completed) and two

**Table 2** Implementation system indicators by service need: unadjusted means<sup>a</sup>

|  | Screening<br>( <i>N</i> =46–87) | Referral<br>( <i>N</i> =73–87) | Linkage<br>( <i>N</i> =69–83) | Follow-up<br>( <i>N</i> =69–83) | All four aspects |
|--|---------------------------------|--------------------------------|-------------------------------|---------------------------------|------------------|
| All five implementation system indicators                          |                                 |                                |                               |                                 |                  |
| Average across all service needs <sup>c</sup>                      | .73                             | .63                            | .64                           | .60                             | .64              |
| Mental health  | .78                             | .71                            | .69                           | .62                             | .68              |
| Partner violence   | .77                             | .67                            | .68                           | .64                             | .68              |
| Substance use  | .64                             | .52                            | .55                           | .54                             | .56              |
| 1. Job descriptions clearly define expectations and accountability |                                 |                                |                               |                                 |                  |
| Average across all service needs <sup>c</sup>                      | .50                             | .46                            | .48                           | .44                             | .48              |
| Mental health  | .57                             | .56                            | .55                           | .49                             | .55              |
| Partner violence   | .53                             | .47                            | .51                           | .48                             | .49              |
| Substance use  | .41                             | .36                            | .39                           | .36                             | .39              |
| 2. Formal policy clearly defines who is responsible                |                                 |                                |                               |                                 |                  |
| Average across all service needs <sup>c</sup>                      | .80                             | .67                            | .65                           | .64                             | .68              |
| Mental health  | .83                             | .78                            | .70                           | .68                             | .74              |
| Partner violence   | .84                             | .71                            | .70                           | .67                             | .72              |
| Substance use  | .72                             | .51                            | .55                           | .58                             | .58              |
| 3. Formal policy clearly defines the timing and scope of training  |                                 |                                |                               |                                 |                  |
| Average across all service needs <sup>c</sup>                      | .74                             | .58                            | .57                           | .55                             | .60              |
| Mental health  | .80                             | .66                            | .63                           | .56                             | .65              |
| Partner violence   | .78                             | .64                            | .62                           | .61                             | .65              |
| Substance use  | .65                             | .45                            | .45                           | .49                             | .50              |
| 4. Home visiting staff receive formal training <sup>b</sup>        |                                 |                                |                               |                                 |                  |
| Average across all service needs <sup>c</sup>                      | .74                             | .67                            | .70                           | .59                             | .68              |
| Mental health  | .80                             | .69                            | .72                           | .60                             | .71              |
| Partner violence   | .78                             | .76                            | .77                           | .67                             | .75              |
| Substance use  | .63                             | .55                            | .61                           | .50                             | .57              |
| 5. Supervisors support and monitor staff                           |                                 |                                |                               |                                 |                  |
| Average across all service needs <sup>c</sup>                      | .88                             | .78                            | .80                           | .78                             | .81              |
| Mental health  | .90                             | .85                            | .84                           | .79                             | .84              |
| Partner violence   | .92                             | .79                            | .80                           | .78                             | .81              |
| Substance use  | .82                             | .71                            | .77                           | .78                             | .79              |

For ease of interpretation means are not adjusted for clustering within states. Response options were coded as *Yes, fully in place* (1), *Yes, partially in place* (.5), *No or Not sure* (0). *SDs* ranged from .30 to .44

<sup>a</sup>Only programs that screen, refer, link, or follow-up were included. For example, the smaller sample size for screening reflects the relatively low number of programs that screen for maternal substance use

<sup>b</sup>Item had 11 (>5%) missing responses due to a survey administration error

<sup>c</sup>Column average; all other values are item-level averages

indicators of coordination for substance use (training policy and use of standardized screening tools; Table 4).

accessing services. For mental health and substance use, lack of childcare was also a significant barrier.

## Perceptions of Coordination by Service Need

Most respondents reported that services for the three needs were available in their communities; however, services were not always easily accessible (Table 5). Mental health services were particularly difficult to access; 88% of respondents indicated that access was sometimes or often difficult. Across all three services, location or lack of transportation and too few slots were among the three most frequently reported barriers to

## Discussion

This study assessed home visiting service coordination for three service needs—mental health, partner violence, and substance misuse. We focused on mutable indicators identified by experts and stakeholders as critical to achieving coordination in early childhood systems (West et al., 2018a). Over half of all sites made it a high priority to

**Table 3** Activity indicators by service need: unadjusted means

| Activities  | Mental health<br>( <i>N</i> = 87–88) | Partner<br>violence<br>( <i>N</i> = 87–88) | Sub-<br>stance use<br>( <i>N</i> = 86–88) | All three<br>service<br>needs |
|---|--------------------------------------|--|---|-------------------------------|
| Average Activities Score  | .68                                  | .65  | .52                                       | .62                           |
| Home visiting (HV) staff screen caregivers with a standardized tool   | .71                                  | .65  | .45                                       | .60                           |
| Caregivers with positive screens receive referral information for specific resources  | .75                                  | .69  | .53                                       | .66                           |
| HV staff offer a referral to caregivers with positive screens, or to those they suspect may have need   | .86                                  | .79  | .62                                       | .76                           |
| HV staff provide key information to caregivers about the HV referral (such as nature of service, logistics)   | .66                                  | .70  | .51                                       | .62                           |
| Caregiver agreement for exchange of information is documented in the record   | .80                                  | .70  | .64                                       | .71                           |
| When linking caregivers, HV staff provide pertinent information about the caregiver to the provider (reason for referral; family needs and preferences) | .61                                  | .54  | .48                                       | .54                           |
| Caregivers who receive referrals to community organizations have a warm hand-off  | .39                                  | .40  | .29                                       | .36                           |
| HV staff follow up with caregivers who received referrals to learn about the caregiver's understanding and next steps                                   | .69                                  | .73  | .60                                       | .67                           |
| HV staff follow up with caregivers who received but did not complete referrals to learn why the referral was not completed                              | .66                                  | .69  | .59                                       | .65                           |

For ease of interpretation, means are not adjusted for clustering within states. Scores are calculated only for sites that address each service need. Response options were coded as *All of the time* (1), *Most of the time* (.5), *Some of the time, rarely, or never* (0). *SDs* ranged from .37 to .48

address these needs and about three quarters made it a priority to enroll mothers with such needs. Sites that made it a priority to address these needs had stronger systems in place to address them, on average. Yet, nearly a quarter reported that they did not routinely screen for mental health or partner violence, and nearly half did not screen for substance use. Nearly all relied on referral and coordination to address needs, either as the primary means or in combination with direct services.

Sites varied in the strength their implementation supports and activities to address the three needs. Strong implementation systems assure that home visitors are motivated, able, and reinforced to carry out their roles effectively. On average, sites were stronger in defining *who* was responsible for screening, referral, linkage, and follow-up than in defining role expectations clearly in job descriptions. Job descriptions outline the tasks and responsibilities that must be performed as part of the job; well-written job descriptions help ensure role clarity and are the basis for performance assessment (Al-Marwai & Subramaniam, 2009). On average, sites scored higher for providing training than for having policy specifying its timing and scope, which may contribute to variability in the training provided.

The activity most frequently endorsed was *offer a referral*. Yet, as the data suggest, referrals are complex and may not in and of themselves result in service receipt. A recent study of five home visiting sites found that only 21% of referrals resulted in connections to services (Goldberg et al., 2018). Taken together, these findings highlight the need to look beyond referrals to better understand the role of linkage and follow-up in promoting service receipt.

Few sites offered a warm hand-off when linking mothers with services. Warm hand-offs may improve service receipt, particularly when services are stigmatized or not easily accessible (Manoleas, 2008; Pace et al., 2018). A recent systematic review found positive impacts of face-to-face warm hand-offs on receipt of substance use treatment service receipt (manuscript under review). However, warm hand-offs may be used infrequently due to the time and effort needed to build the necessary implementation systems.

On average, implementation supports and activities were stronger for coordinating services for mental health and partner violence than for substance use. This is not surprising, because fewer sites prioritized addressing maternal substance use. Also, MIECHV benchmarks include measures for screening and referral for maternal depression and partner violence, but not substance use (Labiner-Wolfe et al., 2018). For partner violence, MIECHV measures focus on screening and receipt of referral information only. For depression, measures focus on screening and completing referrals with a mental health service provider.

Findings are somewhat consistent with MIHOPE findings, which showed that 95% of sites required visitors to screen for mental health, whereas three quarters required visitors to screen for partner violence and substance use (Duggan et al., 2018). Fewer than 60% of MIHOPE sites had formal protocols for addressing partner violence and substance use, and home visitors reported needing more training to address these topics (Duggan et al., 2018).

A key advantage of home visiting is that it removes barriers to access for some services by bringing those services directly to families. Researchers have developed and tested

**Table 4** Implementation system and activity indicators by service need: ICCs

|  | Mental health<br>ICC | Partner violence<br>ICC | Substance use<br>ICC |
|--|----------------------|-------------------------|----------------------|
| <b>Implementation system</b>   |                      |                         |                      |
| Job descriptions clearly define expectations and accountability for screening, referral, linkage and follow-up                                     | .040                 | .092                    | .004                 |
| Formal policy clearly defines who is responsible for screening, referral, linkage, and follow-up   | .060                 | .143                    | .106                 |
| Formal policy clearly defines the timing and scope of training for screening, referral, linkage, and follow-up                                     | .163                 | .272                    | .207                 |
| HV staff receive formal training on screening, referral, linkage, and follow-up  | .004                 | .084                    | .003                 |
| Supervisors support and monitor staff around screening, referral, linkage, and follow-up   | .004                 | .062                    | .097                 |
| <b>Activities</b>  |                      |                         |                      |
| Home visiting program staff screen caregivers with a standardized tool   | .003                 | .266                    | .240                 |
| Caregivers with positive screens receive referral information for specific resources   | .004                 | .023                    | .036                 |
| HV staff offer a referral to families with a positive screen, or to those they suspect may have need   | .002                 | .109                    | .045                 |
| HV staff provide key information to the family about the referral (such as nature of service, logistics)   | .052                 | .109                    | .128                 |
| Family agreement for exchange of information is documented in the record   | .117                 | .329                    | .117                 |
| When linking families, HV staff provide pertinent information about the family to the provider (reason for referral; family needs and preferences) | .120                 | .020                    | .091                 |
| Caregivers who receive referrals to community organizations have a warm hand-off   | .048                 | .100                    | .003                 |
| HV staff follow-up with caregivers who received referrals to learn about the family's understanding and next steps                                 | .056                 | .169                    | .036                 |
| HV staff follow-up with caregivers who received but did not complete referrals to learn why the referral was not complete                          | .142                 | .287                    | .094                 |



**Table 5** Availability, accessibility, and barriers for coordination by service need

|                  | Available, <i>n</i> (%) | Sometimes difficulty accessing, <i>n</i> (%) | Often difficulty accessing, <i>n</i> (%) | Three most frequently reported barriers to accessing the service (%)   |
|------------------|-------------------------|--|--|--|
| Mental health    | 84 (96)                 | 53 (60)                                      | 25 (28)                                  | Location or transportation (81)<br>No slots available/wait list (56)<br>Lack of child care (55)                          |
| Partner violence | 79 (90)                 | 50 (57)                                      | 2 (2)                                    | Location or transportation (41)<br>No slots available/wait list (39)<br>Not available in families' primary language (15) |
| Substance use    | 77 (88)                 | 48 (55)                                      | 11 (13)                                  | Location or lack of transportation (41)<br>No slots available/wait list (39)<br>Lack of child care (38)                  |

strategies to incorporate brief mental health and partner violence interventions within home visiting (Ammerman et al., 2013; Cluxton-Keller et al., 2014; Feder et al., 2018; Jack et al., 2017; McFarlane et al. 2017; Sharps et al. 2016). Other studies are testing screening and brief interventions to increase access to substance use treatment (Dauber, John et al., 2017), and an ongoing federal initiative is developing a conceptual model and strategies for addressing substance use in home visiting (Hossain et al., n.d.). While promising, these strategies require further testing prior to scale up.

There are other barriers to addressing maternal mental health, partner violence and substance use in home visiting that this paper does not address. For example, home visitors can find it hard to balance addressing these family needs with other needs, such as needs for food, housing, and electricity (Tandon et al., 2008). Some home visitors have described feeling more comfortable focusing on the child's needs relative to those of the parent (Hebbeler & Gerlach-Downie, 2002). Many home visiting staff lack the knowledge, confidence, and skills to address these issues with their clients (Jack et al., 2017; Jones Harden et al., 2010; Sharps et al., 2008; Tandon et al., 2005). Home visitors have reported concerns that screening may ruin the trusting relationship they have established, for example (Sharps et al., 2013). Establishing trust may be particularly difficult with family members who have experienced trauma and who may be at higher risk for depressive symptoms, partner violence, and substance use. The field recognizes a need for programs to use trauma-informed approaches to address these and other complex needs of families (Cairone et al., 2017). In a separate paper, we discuss findings from qualitative case studies conducted with four home visiting sites; findings show that strong, trusting relationships between providers and families promote service coordination (manuscript in progress).

Some aspects of coordination are beyond the purview of individual home visiting programs. Our findings highlight the need for systems-level interventions with attention to the barriers facing pregnant women and families with young children. Some, but not all home visiting sites offer

assistance with transportation and childcare, for example. In addition, little is known about the access barriers for women of varied cultural and linguistic backgrounds and abilities. Because home visiting programs understand the needs of families, they can and should contribute to state and community needs assessments and planning processes, such as those required by the Title V Maternal and Child Health Block Grant and MIECHV.

**Recommendations.** Our findings build on and extend those of prior research and highlight a need to think beyond screening and referral and consider a myriad of supports that may be necessary to link families with services (Goldberg et al., 2018). As a starting point, home visiting sites might self-assess their referral and coordination practices. HARC offers an online Coordination Toolkit for self-assessment, quality improvement, research, and evaluation (West et al. n.d.). Home visitors may benefit from professional development to strengthen confidence and skills to address sensitive topics with families, via training, coaching, reflective supervision, and mental health consultation (USDHHS, 2018; West et al., 2018; West et al., 2018; West, Gagliardi et al., 2018). Sites might join a Home Visiting Collaborative Improvement and Innovation Network (HV CoIIN), a strategy shown to improve depression screening and service linkage (Tandon et al., 2020). Sites might also partner with researchers to develop and test new strategies to achieve greater precision in service delivery (Supplee & Duggan, 2019). Finally, data in this study reflect staff perceptions of service availability; family-serving systems should also develop objective measures of service availability and access for use in practice, research, and evaluation.

**Limitations.** Although the sample may not be generalizable to all home visiting sites in the USA, we recruited a diverse array of sites that varied in program model, geographic context, size, and receipt of federal MIECHV funds. Survey data include perspectives of site managers and supervisors and do not represent perspectives of home visitors and families. A separate manuscript describing results from

qualitative case studies with home visitors and families is in progress. Findings also represent the *expectations* of site managers and supervisors, which may vary from the actual behaviors of frontline staff. Respondents included sites from a national practice-based research network interested in participating in research and thus may not be representative of all sites. We were not able to assess characteristics of non-respondents and thus cannot rule out the possibility of selection bias. Self-report data are prone to social desirability bias, yet respondents reported limited coordination. Finally, although we developed survey questions based on a stakeholder-driven conceptual model, associations between implementation system indicators, activities, and program outcomes are theoretical and should be tested. Given the relatively low emphasis on follow-up, programs could test whether strengthening the implementation system and activities for follow-up would lead to better outcomes, for example.

**Conclusions.** Study results offer valuable insights into how home visiting sites currently address mental health, partner violence, and substance misuse. Practitioners, researchers and policymakers must be mindful that all families have unique needs and preferences and that an array of prevention strategies are needed to promote positive outcomes. Home visiting is only one part of a broader system of care to address these complex challenges. Coordinated, community-level strategies are needed to achieve home visiting goals and improve family outcomes.

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## Declarations

**Ethics Approval** This study was determined not human subjects research by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board (IRB#00007609). The study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments.

**Conflict of Interest** The authors declare that they have no conflict of interest.

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