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Screening for intimate partner violence in healthcare settings: An implementation-oriented systematic review

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Abstract

Background: Intimate partner violence (IPV) is a population health problem affecting millions of women worldwide. Screening for IPV within healthcare settings can identify women who experience IPV and inform counseling, referrals, and interventions to improve their health outcomes. Unfortunately, many screening programs used to detect IPV have only been tested in research contexts featuring externally funded study staff and resources. This systematic review therefore investigated the utility of IPV screening administered by frontline clinical personnel.

Methods: We conducted a systematic literature review focusing on studies of IPV screening programs for women delivered by frontline healthcare staff. We based our data synthesis on two widely used implementation models (Reach, Effectiveness, Adoption, Implementation and Maintenance [RE-AIM] and Proctor's dimensions of implementation effectiveness).

Results: We extracted data from 59 qualifying studies. Based on data extraction guided by the RE-AIM framework, the median reach of the IPV screening programs was high (80%), but Emergency Department (ED) settings were found to have a much lower reach (47%). The median screen positive rate was 11%, which is comparable to the screen-positive rate found in studies using externally funded research staff. Among those screening positive, a median of 32% received a referral to follow-up services. Based on data extraction guided by Proctor's dimension of appropriateness, a lack of available referral services frustrated some efforts to implement IPV screening. Among studies reporting data on maintenance or sustainability of IPV screening programs, only half concluded that IPV screening rates held steady during the maintenance phase. Other domains of the RE-AIM and Proctor frameworks (e.g., implementation fidelity and costs) were reported less frequently.

Conclusions: IPV is a population health issue, and successfully implementing IPV screening programs may be part of the solution. Our review emphasizes the importance of ongoing provider trainings, readily available referral sources, and consistent institutional support in maintaining appropriate IPV screening programs.

Plain language abstract: Intimate partner violence (IPV) is a population health problem affecting millions of women worldwide. IPV screening and response can identify women who experience IPV and can inform interventions to improve

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their health outcomes. Unfortunately, many of the screening programs used to detect IPV have only been tested in research contexts featuring administration by externally funded study staff. This systematic review of IPV screening programs for women is particularly novel, as previous reviews have not focused on clinical implementation. It provides a better understanding of successful ways of implementing IPV screening and response practices with frontline clinical personnel in the context of routine care. Successfully implementing IPV screening programs may help mitigate the harms resulting from IPV against women. Findings from this review can inform future efforts to improve implementation of IPV screening programs in clinical settings to ensure that the victims of IPV have access to appropriate counseling, resources, and referrals.

Keywords
Intimate partner violence, screening, implementation, effectiveness, RE-AIM

Intimate partner violence (IPV) is a global population health problem (World Health Organization, 2013), defined as behavior by a current or former intimate partner that causes physical, sexual, or psychological harm. IPV can include physical aggression, psychological abuse, and sexual coercion (World Health Organization, 2013). Although individuals of all gender identities experience IPV, women are most likely to experience severe IPV along with associated adverse outcomes (World Health Organization, 2013). Nearly a third (30%) of women worldwide have experienced IPV (Devries et al., 2013), which can result in lingering reproductive, cardiovascular, neurological, mental health, and social impacts (Campbell, 2002; Dillon et al., 2013; Diop-Sidibé et al., 2006; Miller & McCaw, 2019), including suicide (Iverson et al., 2013). Women who experience IPV present frequently to health services (Dichter et al., 2018; Musa et al., 2019). Such visits provide opportunities to have conversations with patients about IPV experiences and offer referral and support as needed.

Screening for IPV can identify women who have experienced it, and can lead to interventions to increase safety and improve health (Feltner et al., 2018; Hegarty et al., 2013; McCloskey et al., 2006; Miller et al., 2011). Thus, in some countries, routine screening for IPV is recommended among women presenting to primary, preventative, and prenatal care (Gee et al., 2011; Institute of Medicine, 2011; US Preventive Services Task Force et al., 2018). In addition, women who experience IPV interact with other aspects of the healthcare system where screening may be useful for detecting IPV (e.g., emergency departments, mental health, public health settings, and services embedded within homeless shelters). Programs to identify and address IPV can offer information, resources, referrals, and interventions (O'Campo et al., 2011). Additionally, being able to disclose in a safe environment with a supportive provider may provide validation and relief (Spangaro et al., 2011).

To support the uptake of IPV screening programs, many IPV screening tools have been validated for use among women across healthcare settings (Feltner et al., 2018; Rabin et al., 2009). Commonly used screening tools are typically 3–5 items and include: the Hurts/Insults/Threatens/Screen (HITS) and an extended version of the HITS (Chan et al., 2010; Sherin et al., 1998), Humiliation/Afraid/Rape/Kick (Sohal et al., 2007), and Partner Violence Screen (Feldhaus et al., 1997). Such screening tools can be self-administered via paper-and-pencil or technology (i.e., tablets), or clinician-administered.

There may be crucial differences, however, in the ways that IPV screening tools perform in well-financed research studies versus the resource-constrained clinical settings where most women receive healthcare. To address this distinction, it is important to consider implementation outcomes of IPV screening and response practices (i.e., the extent to which such tools and practices achieve widespread use outside the context of robust external research funding).

To better understand the ways that IPV screening and response practices can be successfully implemented, we conducted a systematic literature review with outcomes rooted in two widely used implementation frameworks. First, we used the Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) framework, which attends to clinical effectiveness (i.e., the extent to which IPV screening practices successfully identify women experiencing IPV, such as the proportion of screened women who screen positive) while also providing a robust evaluation of key implementation outcomes (i.e., reach, adoption, implementation fidelity/quality, and maintenance) (Glasgow et al., 1999). Second, we supplemented RE-AIM with other important implementation outcomes highlighted by Proctor et al. (2011), namely acceptability, feasibility, appropriateness, and costs. We included these dimensions in addition to RE-AIM because they reflect important aspects of the implementation process and contribute to clinical decision-making regarding whether, when, and how to implement a clinical innovation (Eisman et al., 2020).

To maintain a focus on implementation, we focused exclusively on studies in which the IPV screening tools were administered by endogenous clinical staff (rather than those hired and paid by the research team). Such studies (e.g., Bullock et al., 2006; Kornfeld et al., 2012) are important for exploring the implementation outcomes described above. By focusing on studies of IPV screening and response implementation by frontline clinical staff, our approach aims to provide useful data for administrators and clinicians committed to improving the detection and treatment of IPV among women in their own clinical settings. As the overwhelming majority of existing work on healthcare-based interventions for IPV have focused exclusively on women patients, we focus our review on this population, noting that individuals of other gender identities may also experience IPV and benefit from healthcare-based screening and response.

Methods

Search process

We searched PubMed for English language manuscripts from the earliest available date through March of 2020. Our initial search terms consisted of the following: (((((intimate partner violence[Title/Abstract]) OR domestic violence[Title/Abstract]) OR domestic abuse[Title/Abstract]) OR spouse abuse[Title/Abstract]) OR battering[Title/Abstract]) AND screen[Title/Abstract]. We used similar search terms in clinicaltrials.gov to identify other articles derived from recent studies of IPV screening not yet captured in PubMed. We supplemented this search process with snowball sampling, which involved mining the reference lists of key articles identified via our search process, and using the Google Scholar citation function to find manuscripts that cited papers we identified. We also examined the citation lists of included manuscripts and conducted forwards and backwards citation tracking. This process, along with the analytic process described below, meets criteria for conducting a systematic review (Grant & Booth, 2009). Details of our search process and results can be found below and in Figure 1.

Inclusion and exclusion criteria

To be included, articles had to meet the following criteria:

- Investigated one or more IPV screening measures for women delivered within the healthcare context, delivered by endogenous healthcare clinic staff rather than externally funded research staff. For these purposes the healthcare context was broadly defined to include various types of healthcare settings. "Endogenous

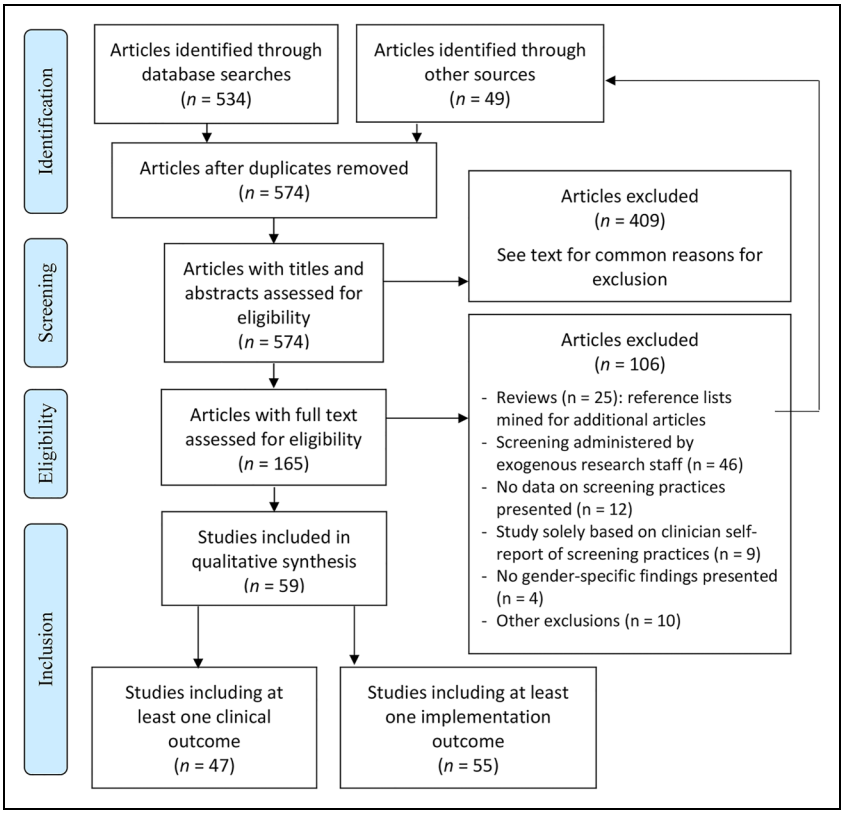

Figure 1. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) diagram (Moher et al., 2010).

clinic staff' were defined as staff who were already employed at the sites implementing the screening, and who administered IPV screening as part of their clinical duties (rather than in a separate role as research staff, such as a research assistant).
- Reported empirical results stemming from IPV screening related to at least one RE-AIM or Proctor dimension (details below).
- Were available in English.

We excluded articles that met any of the following criteria:

- Reported prevalence rates of IPV without tying results to specific screening practices.
- Reported provider self-report of IPV screening practices without any additional data. For example, papers reporting survey results in which clinicians self-reported the frequency with which they screened for IPV were excluded in the absence of other outcome data.
- Reported results in such a way that findings specific to women could not be abstracted (e.g., women's data were presented in aggregate with data from men).
- Reported results from IPV screening delivered by externally funded research staff, or that featured financial incentives for women participants that could not be replicated in routine clinical care. We therefore ruled out studies that used research dollars to hire or fund the screening personnel.
- Review papers that did not contain original data. However, we mined the reference lists of identified reviews to supplement our search process.

Review stages

We used two rounds of review for each identified article: the first was a title/abstract review stage to rule out manuscripts that obviously did not meet the aforementioned inclusion and exclusion criteria. For example, our search uncovered many articles that (by their titles and/or abstracts) were clearly opinion pieces on IPV, or described the impacts of IPV without concrete data on screening practices, and were therefore excluded prior to full-text review.

For the remaining articles, we then conducted a full-text review. The goal for this review stage was to make the ultimate determination for whether an article met the aforementioned inclusion and exclusion criteria, and therefore qualified to be included in the sample.

Reliability

We used double coding at two stages of our review to ensure reliability in the application of our inclusion and exclusion criteria. First, two study coauthors (OA, CJM) independently conducted title/abstract review for a subset of 45 manuscripts identified by the search process described above (8% of identified articles). These included some articles that the primary coder (OA) ruled out based on title/abstract review, and others that the primary coder determined should proceed to full-text review. We resolved discrepancies regarding whether articles should proceed to full-text review by independently reviewing the full article followed by discussion to come to consensus.

Second, three study coauthors (OA, CJM, KI) independently conducted full-text review for a subset of ten manuscripts. These ten manuscripts included some that the primary coder determined had met inclusion criteria, along with others that the primary coder thought should be excluded. Intraclass correlation for all three raters for this subset of manuscripts was 0.94, indicating excellent reliability regarding whether manuscripts met our inclusion and exclusion criteria at the full-text review stage. Furthermore, we used group consensus to ensure reliability of our data extraction process (details below), with all coauthors reviewing draft versions of study results (Tables 1and 2) and discussing revisions and modifications in a series of team meetings.

Analytic approach

We extracted descriptive data about each included study (e.g., study setting, patient population, specific screening tool used [including whether the tool was modified], and randomization if applicable). We did not extract demographic data (regarding patients or clinicians), as these data were reported inconsistently among our included studies. We extracted results based on implementation outcomes derived from two implementation-oriented frameworks: RE-AIM (Glasgow et al., 1999) and Proctor's dimensions of implementation effectiveness (Proctor et al., 2011; details below). We chose these frameworks based on their widespread use in the implementation literature, and their inclusion of constructs relevant to implementation success in multiple settings (Eisman et al., 2020; Harden et al., 2018). Data extraction was guided by these frameworks regardless of whether the authors of the included studies specifically used or cited them. Questions regarding data extraction were resolved via consensus of the entire study team. First, the RE-AIM framework (Glasgow et al., 1999) includes five dimensions: *R*each, *E*ffectiveness, *A*doption, *I*mplementation fidelity, and *M*aintenance. We extracted quantitative and qualitative data related to these dimensions, and operationalized them in the following ways:

- Reach: proportion of women who received IPV screening (among those eligible for screening).
- Effectiveness: clinical implications of, or follow-up to, a positive screen (e.g., IPV disclosure or screen-positive

Table 1. Characteristics of included studies.

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
Mancheno et al. (2020)	United States	Custom IPV screen	Pediatric ED within a medical center	Caregivers of children presenting to the ED	Not reported	Quasi-experimental	Screening rates following versus prior to implementation	Implementation: 4 months Data collection: 12 months preimplementation; 15 months after implementation started
Sohal et al. (2020)	United Kingdom	Humiliation, Afraid, Rape, Kick (HARK) tool	Primary care clinic within a community health system	Women age 16 years and older	540,300 women among 116 practices	Observational	Four implementation boroughs versus one comparison borough	Data collection: 53 months
Spangaro et al. (2020)	Australia	HITS	ED within two rural and one metropolitan hospital	Women aged 16–45 years, triaged to be treated within 2 hr	9,177 women	Observational	N/A	Not reported
Dauber et al. (2019)	United States	Relationship assessment tool	Home visits by nurses within the Healthy Families America (HFA) program	Pregnant women or those up to one year postpartum with other risk factors	1,149 women; 71 home visit nurses	Quasi-experimental	Screening rates for HFA program with versus without supplemental screening and referral program	Not reported
Halpern-Meekin et al. (2019)	United States	Custom IPV screen	Mailed questionnaire and telephone survey as part of the CDC's Pregnancy Risk Assessment Monitoring System (PRAMS) in 25 states	Women who had given a live birth in the previous month	28,851 women	Retrospective review of questionnaire responses	N/A	Data collection: 12 months
Lee et al. (2019)	United States	AAS	OB/GYN outpatient clinic within an academic medical center	All women seen in the clinic	179 clinicians	Quasi-experimental	Screening rates following versus prior to implementation	Not reported
Litzau et al. (2019)	United States	Custom IPV screen	Pediatric (ED) and UC within a hospital system	Men and women caretakers	176,457 visits	Retrospective review of EHR data	N/A	Data collection: 12 months

(Continued)

Table 1. (Continued)

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
Taillieu et al. (2019)	Canada	Custom IPV screen	Mandated home medical visits by public health nurses within one week postdischarge after birth	Women within one week postdischarge for live singleton birth	52,710 women	Observational	N/A	Data collection: 4 years
Bermele et al. (2018)	United States	AAS	Antepartum triage unit within one metropolitan hospital.	Pregnant women seen in antepartum triage unit after presenting to ED with prenatal symptoms	3,888 women; 35 nurses	Observational	N/A	Data collection: 12 months
Dichter et al. (2018)	United States	E-HITS	All clinic settings (mostly primary care) within 13 veterans health administration sites	Any woman patient screened in clinic	8,888 women	Retrospective review of EHR data	N/A	Data collection: 2 years
Clark et al. (2020)	United States	Custom IPV screen	Primary care clinics within an academic medical center	All women seen in primary care clinics	Not reported ($N = 9,044$, including men)	Retrospective study of EHR data	N/A	Data collection: 5 months
Dauber et al. (2017)	United States	Relationship assessment tool	Home visits by nurses in four counties of a statewide home visit program	Pregnant women or women up to two weeks postpartum, or women up to 1 year postpartum, if on temporary assistance	116 women; 21 nurses	Observational	N/A	Data collection: not reported Implementation: home visitor training included 3 hr of webinars, 3 day workshop, optional annual booster training
Bacchus et al. (2016)	United States	AAS and women's experience with battering scale	Home visits by Domestic Violence Enhanced Visitation Program (DOVE) staff in three U.S. states	Women screening positive for IPV in year before current pregnancy	23 home visiting staff; 2 DOVE computer program designers	Observational	N/A	Data collection: 9 months

(Continued)

Table 1. (Continued)

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
Samandari et al. (2016)	Guinea	Custom IPV screen	Adult family planning clinic	Women presenting to family planning clinic	184 women; 4 clinic staff	Observational	N/A	Data collection: 4 months Implementation: 6 months overall, five day training with periodic supervision
Warren-Gash et al. (2016)	United Kingdom	Custom IPV screen	Community gynecology, genitourinary, and HIV medicine clinics within community health clinics	Male and females patients screened in community clinics	10,183 patients	Observational	Compared to rates of hospital admission in 3 year prior to implementation and rates of referral in 8 months prior to implementation.	Data collection: 9 months
Taft et al. (2015)	Australia	Custom IPV screen	Community-based nursing teams within maternal health centers	Postpartum women with babies 12 months old or younger	10,472 women; 162 providers	RCT	Control group	Implementation: 12 months Data collection: 3 months after implementation ended and at 2 year postimplementation
Rhodes et al. (2014)	United States	Social health survey	Community health clinics offering comprehensive medical and dental care within community health centers	Male and female patients aged 18–64 years who received care at CHC	21,200	Quasi-experimental	Two community health centers given full intervention and two centers as controls. Also compared to baseline	Initial implementation: 9 months then control groups received implementation or 6 months. Data collection: all CHCs observed for 6 months following full implementation
Ambuel et al. (2013)	United States	Custom screen for clinician knowledge, comfort, and practice; healthcare provider survey on IPV; Delphi instrument for hospital-based domestic violence programs	ED, pediatric clinics, family health clinics within a large academic health center	Healthcare providers in ED, family medicine clinics, pediatric clinics	109,300 visits in treatment group; 52,000 visits in control group; 147 providers in intervention	Quasi-experimental	ED, pediatric clinic, 1 family health clinic in intervention; 2 family health clinics in control	Implementation: 3 years Data collection: 2 years postimplementation

(Continued)

Table 1. (Continued)

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
Hugl-Wajek et al. (2012)	United States	Custom IPV screen	ED within a medical center	Female patients between ages of 18–60 years presenting to ED	1,500 women; 1 provider	Retrospective chart review	N/A	Data collection: 12 months
Kornfeld et al. (2012)	United States	Modified IPV screen (USPTF 2-item depression questionnaire and 5-item universal violence prevention screening protocol)	Urban primary care clinics within a community health clinic	Mothers bringing newborn, 2, 4, or 6 month old children to clinic	173 women	Retrospective chart review	N/A	Data collection: 1 month
Feder et al. (2011)	United Kingdom	HARK	Urban primary care general practices within urban primary care trusts	Women aged 16 years and older presenting to general practices	143,868 women (70,521 in intervention); 48 clinics	RCT	25 practices received training intervention; 24 practices as control	Implementation: 13 months Data collection: 12 months preceding training and 12 months postsecond training
Scribano et al. (2011)	United States	Modified IPV screen: partner violence screen (PVS) + 1 item about emotional IPV + 1 item sexual IPV	Pediatric ED within a medical center	Caregivers of children presenting to ED	13,057 screens; 91,864 visits (78% female caregiver)	Prospective feasibility	N/A	Data collection: 15 months
Hamberger et al. (2010)	United States	Custom IPV screen	Family practice clinic within an integrated healthcare system	Male and female patients visiting clinic for routine medical services	384 total visits; 244 female patient visits; 96 providers	Quasi-experimental	N/A	Phase 1 implementation (education only): 6 months data collection; Phase 2: 7 months data collection; Phase 3: 1 month data collection
McColgan et al. (2010)	United States	Modified IPV screen: select screening questions from safe families practice RADAR cards	Pediatric ambulatory care clinic within a medical center	Female caregivers presenting to clinic	1,011 women; 52 providers	Quasi-experimental	12 month retrospective review versus intervention	Data collection: 12+ months

(Continued)

Table 1. (Continued)

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
Roark (2010)	United States	Custom IPV screen	All hospital admissions to medical center	All male and female patients admitted to medical, surgical, mother/baby units, and ED	100 nurses	Quasi-experimental	Chart review 3 months before and 3 months posteducational program	Data collection: 3 months before education program and 3 months posteducation program.
Vakili et al. (2010)	Iran	Modified IPV screen: abuse assessment questionnaire based on AAS	Public obstetrics, gynecology, and family planning health services	15–64 year old married women who had husband during previous year	702 women	Cross-sectional	N/A	Data collection: 3 months
Yildizhan et al. (2009)	Turkey	Modified IPV screen	Infertility clinics within a tertiary training and research hospital	Women aged 22–39 with primary infertility	122 women	Cross-sectional	Abuse status	Data collection: 15 months
Coker et al. (2007b)	United States	Brief intimate partner violence screen; women's experience with battering (WEB) screen	Primary care and comprehensive health services clinics within 8 community rural health clinics	Women receiving care at rural health clinics	4,945 women	Observational	N/A	Data collection: 40 months
Coker et al. (2007a)	United States	Brief intimate partner violence screen; WEB screen	Primary care and comprehensive health services clinics within 8 community health clinics	Women receiving care at rural health clinics	4,945 women	Prospective	N/A	Data collection: 40 months
Hammoury and Khawaja (2007)	Lebanon	AAS	Refugee primary care clinics	All women attending clinic who were not accompanied by husbands	351 women	Cross-sectional	N/A	Data collection: 2 months
Trautman et al. (2007)	United States	Modified IPV screen: 3 questions from PVS and 1 sexual IPV item	ED within level 1 trauma center	All women presenting to ED 18 years or older	1,005 women	Quasi-experimental	Screening via computer versus UC screening by ED providers	Data collection: 6 weeks

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Table 1. (Continued)

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
Gerber et al. (2005)	United States	Modified IPV screen adapted from PRIME-MD	Primary care clinics within urban network of community hospital and health centers	Patients coming into primary care	90 patients; 70 providers	Observational	N/A	Data collection chart review: 2 years Data collection survey: 3 months
Higgins and Hawkins (2005)	United States	AAS and other custom screening tools	Prenatal care clinics within two large tertiary care hospitals, several community health centers, three community hospitals, and one large managed care organization	Pregnant women	5,745 women	Observational	N/A	Not reported
McFarlane et al. (2005)	United States	Severity of violence against women scale (SAVAWS); danger assessment scale (DAS)	Primary care clinics within five public health clinics	All women presenting to clinics for routine care between ages of 18 and 44 years speaking English or Spanish and self-identified as African American, White, or Hispanic	7,443 women	Observational	Race and ethnicity	Not reported
Ruiz-Pérez and Plazaola-Castaño (2005)	Spain	Custom IPV Screen	Family practices within 23 public health practices	Female patients 18–65 years seeking medical care at family practices	1,402 women	Cross-sectional	N/A	Data collection: 5 months
Weinsheimer et al. (2005)	United States	Modified IPV screen: severe items from revised conflict tactics scales	Level I trauma center service within one academic medical center	Women ages 18–80 years admitted to trauma service	95 women	Observational	IPV and alcohol use	Data collection: 8 months

(Continued)

Table 1. (Continued)

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
Holtrop et al. (2004)	United States	Partner violence screen	General pediatric unit within a medical center	Female caretakers/ guardians	4,084 women	Observational	Positive screens compared to number of referrals received in 1 year period before PVS screening began	Data collection: 12 months
Mezey et al. (2003)	United Kingdom	Modified IPV screen: variation of AAS	Community antenatal clinics within a teaching hospital and women's homes	Women with perinatal needs	116 midwives trained; 28 midwives interviewed	Qualitative study	N/A	Data collection: at antenatal booking, at 34 weeks gestation, within 10 days postpartum
Siegel et al. (2003)	United States	Custom IPV screen	Pediatric settings within a pediatric practice based research network	Women who accompanied their children to well child visits	435 women; 5 providers	Observational	N/A	Data collection: 12 months
Janssen et al. (2002)	Canada	Modified IPV screen: shortened version of AAS	Primary and secondary level obstetrical care clinics within 2 general and teaching hospitals	Postpartum women before hospital discharge (postbirth)	300 obstetrical nursing staff	Quasi-experimental	N/A	Data collection: 18 months
Jones and Bonner (2002)	Australia	Custom IPV screening	Antenatal clinic within a medical center	All women 16 years or older	199 women	Quasi-experimental	N/A	Data collection: 3 months
Krasnoff and Moscati (2002)	United States	PVS	ED within a level 1 trauma center	All medically stable women presenting to ED between ages of 18 and 65 years	31,847 women	Observational	N/A	Data collection: 30 months
Ramsden and Bonner (2002)	Australia	Custom IPV screen	ED within a medical center	All women 16 years and older presenting to ED	2,446 women	Observational	N/A	Data collection: 3 months

(Continued)

Table 1. (Continued)

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
Campbell et al. (2001)	United States	Modified IPV screen: patient safety Satisfaction survey (adaptation of AAS); staff attitudinal survey (SAS); custom culture of ED survey	ED within a medical center	Every female patient in ED during monitored shifts	12 medical center teams; SAS administered to 649 staff; process evaluation 19 staff	RCT	ED teams in experimental group versus ED teams in control group	Data collection: 24 months
Larkin et al. (2000)	United States	Domestic safety assessment	ED within a trauma and burn center	Female emergency department patients ages 19 years or older who were discharged	1,638 preintervention; 1,617 postintervention; 40 providers	Quasi-experimental	1 year pre implementation versus 1 year post	Data collection: 12 months
Thompson et al. (2000)	United States	Modified IPV screen: 2 questions from AAS	Primary care clinics within a large health maintenance organization	All individuals 18 years or older visiting primary care clinics	3,795 women; 208 providers	RCT	2 control clinics	Implementation: 12 months Data collection: 24 months
Wasson et al. (2000)	United States	Custom IPV screen: The screening tool for an abusive relationship chart	Primary care clinics within 31 office practices	Women being seen in office practices	1,584 women	Observational	N/A	Data collection: 12 months
Canterino et al. (1999)	United States	AAS self-reported followed by custom verbal IPV screen	Prenatal clinics within a tertiary care medical center	All patient who underwent initial prenatal visit	224 women	Quasi-experimental	rates of identification using domestic abuse questionnaire versus directed interview	Data collection: 6 months
Purwar et al. (1999)	India	AAS	Public antenatal clinics within a secondary and tertiary care public hospital	Low risk pregnant women in 3rd trimester of pregnancy	600 women	Observational	N/A	Not reported

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Table 1. (Continued)

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
Fanslow et al. (1998)	New Zealand	Modified IPV screen	ED within a public hospital	Women presenting to ED	8,051 women	Quasi-experimental	One intervention ED versus one control ED	Data collection: 2 years
Furbee et al. (1998)	United States	Modified IPV screen	ED within a medical center	Women older than 18 years treated by one designated physician in ED	186 women; 1 provider	RCT	505 subjects screened in face-to-face interviews and half responded to tape recorded questionnaire and reported responses	Data collection: 7 months
Covington et al. (1997)	United States	Modified IPV screen: subset of questions from AAS	Prenatal clinics within a county health department	All adolescents enrolled ages 12–19 enrolled in maternity care coordination program	117 women; 7 providers	Observational	New systematic protocol versus previous routine method of screening used in 12 months before new screening rolled out.	Data collection: 12 months
Olson et al. (1996)	United States	Custom IPV Screen	ED within a level 1 trauma medical center	All females ages 15–70 years presenting to ED	4,073 women	Quasi-experimental	Compared to data collected in first month	Data collection: 4 months
Quillian (1996)	United States	AAS and domestic violence assessment screen form	Family planning clinics, HIV testing and counseling site, and STD clinics within community health clinics	All consecutive female patients attending family planning, HIV testing and counseling clinic, and STD clinics	2,410 women	Quasi-experimental	N/A	Data collection: 5 months
Parker et al. (1993)	United States	AAS, index of spouse abuse, conflict tactics scale, danger assessment screen	Prenatal health clinics within public health clinics in metropolitan cities	Urban pregnant adolescents ages 13–19 years and women ages 20–42 years	691 women and teens	Observational	Rate of IPV in pregnant adolescents versus pregnant adult women	Screened at initial visit and then at 2nd and 3rd trimester visit

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Table 1. (Continued)

First author and year	Country	Measure used	Organizational and clinic setting	Target population	Sample size	Study design	Comparison	Time frame
McFarlane et al. (1992)	United States	AAS, conflict tactics scale, and index of spouse abuse	Prenatal clinics within public health clinics in metropolitan cities	Black, Hispanic, and white pregnant women who were urban residents	691 women	Observational	N/A	Followed from first prenatal visit through delivery
McFarlane et al. (1991)	United States	Custom IPV screen	Planned parenthood community health clinics	Women reporting to clinic for annual or initial medical visit	300 women randomly selected for nurse interview; 477 women self-reported abuse in prior study	Observational	Women who self-reported abuse versus abuse questionnaire administered by RN.	Not reported
McLeer and Anwar (1989)	United States	Custom IPV screen	ED within a medical center	ED records for every 4th cause of female trauma during calendar year	412 women	Retrospective chart review/ quasi-experimental	Compared to every fourth case of female trauma during previous calendar year	Implementation period: 12 months
Tilden and Shepherd (1987)	United States	Modified IPV screen	ED within a medical center	Adult female trauma patients	447 women; 22 providers	Quasi-experimental	Data collected in 4 months prior to intervention	Implementation: 8 months Data collection: 4 months pre and 4 months postimplementation

Note. ED = Emergency Department; UC = urgent care center; PC = primary care clinic; OB/GYN = obstetrics/gynecology clinic; CHC = community health center; AAS = abuse assessment screen; WEB = women's experience with battering screen.

Table 2. Clinical effectiveness outcomes and implementation outcomes from included studies.

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Mancheno et al. (2020)	Not reported	30%	Number of providers screening increased from 66 to 160	Not reported	Screening rate of 30% was maintained after 15 months	Patients appreciated nonverbal screening Appropriateness; providers appreciated screening embedded in EMR. IPV screening was not associated with increased time in the ED for patients.	Not reported
Sohal et al. (2020)	Referral rate in implementation boroughs was 30 times higher than comparison borough (30% vs. 1%)	Not reported	Not reported	Effect of implementation not significantly different in different sites with diverse populations.	Sustained effectiveness over 4 years with significantly increased referral rate	Patients may not want to discuss IPV outside of home leading to lower number of cases of IPV than estimated. Healthcare response results generalizable to primary care systems in high-income countries and modifiable to lower-income countries if a safe setting is present for screening.	Study analyses determined the screening to be cost saving for NHS and society.
Spangaro et al. (2020)	17.7% screened positive; 48.7% of positive screens received psychosocial response.	9.5% on first presentation; 11.4% overall	Not reported	Not reported	Not reported	Lack of electronic prompts, high patient volume in ED, lack of privacy for screening, and frequent presence of children/significant other emerged as key barriers to screening.	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Dauber et al. (2019)	12% positive rate. Discussing IPV increased from 8% to 41% and IPV related referral increased from 2% to 5%.	97%	Not reported	Not reported	Not reported	Clients reluctant to disclose IPV-related concerns to home visitor providers due to concerns of children being removed from home. Clients in home visiting program often had transportation difficulties making referrals less likely.	Not reported
Halpern-Meekin et al. (2019)	Not reported	49.2%	Not reported	Significant state-level variation in screening rates (29.9%–62.9%) suggests variable fidelity	Not reported	State mandate for perinatal depression screen associated with increased rates of IPV screening. Patient-level variability suggests providers identify some women as more in need for screening than others despite universal screening recommendation.	Not reported
Lee et al. (2019)	Not reported	Not reported	Not reported	Not reported	Not reported	Provider surveys showed significant improvement preimplementation to postimplementation on several factors related to perceived appropriateness and utility of screening in the setting.	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Litzau et al. (2019)	0.3% of all men and women screened positive. 91% of true positives were women. 0.0009% all IPV assessments were true positive screens of women.	96%	Not reported	46% of total positive screens were true positives for IPV. Positive predictive value of assessment was 35% for IPV.	Not reported	Feasible in pediatric acute care setting. IPV victims in this study were more likely to seek care for their children than for themselves.	Not reported
Taillieu et al. (2019)	2.1% of screened reported a past or current history of violence between parenting partners.	66.7%	Not reported	Women not screened were younger, lived in lower income areas, more likely to be on social assistance and/or have history of substance abuse, suggesting variable fidelity.	Not reported	Not reported	Not reported
Bermele et al. (2018)	1% of women screened positive. Of those, 85% received referral handout.	Not reported	Not reported	Not reported	Not reported	Nurses reported that the screening protocol was clear and easy to follow.	Not reported
Dichter et al. (2018)	8.7% women screened positive. 70% had psychosocial visit within 2 weeks and 95% had psychosocial visit within 6 months.	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Clark et al. (2020)	Not reported	35%	Not reported	Not reported	Not reported	Providers reported training modules were insufficient in preparing them for screening and referral. Social workers were overworked and providers had minimal knowledge about other referral options.	Not reported
Dauber et al. (2017)	11% screened positive. 44% of positive screens were referred for services.	97%	Not reported	Not reported	Not reported	Clients reluctant to disclose abuse, providers struggled to connect patients to services, providers reported competing time pressures/ initiatives for home visitors.	Not reported
Bacchus et al. (2016)	Not reported	Not reported	Not reported	Not reported	Not reported	Computer-based administration of screening offered greater sense of anonymity. Patients appreciated someone cared to ask about IPV. Barriers included: home visitors felt use of tablet impeded building relationship. Also reported lack of privacy during home visits to screen.	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Samandari et al. (2016)	92% screened positive. Of those screening positive 87% completed safety planning. Only 1% accepted referral.	94%	100% (all four providers trained to deliver IPV screening)	Not reported	Not reported	Providers appreciated breadth of training but were frustrated by lack of services to refer women to. Patients rated screening process favorably overall, but less favorable for items related to privacy and time to ask questions. Patients felt family planning visits good time to screen.	Not reported
Warren-Gash et al. (2016)	9.5% women patients screened positive. 7.1% overall patients screened positive. 77 referrals were made. 59.7% of referrals participated in risk assessment follow up.	99%	Not reported	Not reported	Not reported	Screening used standardized language that may have no included all types of controlling behavior possibly leading to decreased disclosure rates. Using paper screening less effective than electronic screening. Identified high rates of IPV in HIV clinic suggesting success in high-risk populations. Key barriers include: getting patients alone to be screened and competing demands on staff.	Not reported

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Taft et al. (2015)	Referral rates remained low at <1%.	No significant difference in screening rates during routine visits. 63.1% screening rate (fourfold increase) with use of self-completion checklists during consultations.	Not reported	Not reported	Two years postimplementation: referral rates did not differ. Safety group planning increased 3–4× in implementation group. Screening rates at 36 months postimplementation >50%.	IPV screening was welcomed by nurses and women. Nurses reported continued high use (81%) of checklist within clinic. Checklist allowed women to decide whether they wanted to disclose during visit instead of nurse being one to ask. Barriers: Introduction of new practice framework coincided with the intervention, nurses felt there was a lack of reflective practice by the nurses.	Not reported
Rhodes et al. (2014)	5.2% women screened positive.	15% of patients who visited the health centers were screened.	Not reported	Not reported	IPV + frequencies reverted to baseline levels during 6 months sustainability period when advocate was no longer present in clinic.	66% of patients supported provider screening at routine visits. No significant changes in provider/ staff responses of satisfaction. Providers indicated they found it overwhelming to discuss high levels of psychosocial health risk emerging from survey along with IPV during 15 min visit.	Not reported

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Ambuel et al. (2013)	Not reported	Screening rates increased from 30% to 80% over 3 years.	Percent of providers screening increased from 30% to 80% 2 years poststudy.	Not reported	Clinics showed continued improvement in patient education and increase in documentation of IPV screening 2 years postimplementation.	Significant change occurred with modest time investment from Healthcare Advocates (HCA). HCA reported increased IPV knowledge and understanding of victims. Screening module gave allowed for clinic staff to have systematic method to identify and help victims. ED struggled to maintain communication between HCA and hospital administration. Pediatric clinic faced barrier that child's medical record accessible to both parents and is not confidential place to document one parent's IPV status.	Not reported

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Hugl-Wajek et al. (2012)	4.8% screened positive for current abuse. 27.5% screened positive for lifetime abuse.	On a random day, only 3.7% of women screened.	Only IPV coordinator screen on sample day examined. No other health providers screened women in ED.	IPV advocate's method of screen not standardized.	Not reported	IPV advocate only being available during weekday daytime hours, lack of standardized training for staff in IPV detection, inadequate educational experience of providers, day to day constraints associated with emergency medicine care emerged as key barriers.	Not reported
Kornfeld et al. (2012)	7% screened positive for IPV	82% screened on multiple occasions	Not reported	Not reported	Not reported	Not reported	Not reported
Feder et al. (2011)	641 (.009) positive screens in intervention versus 236 disclosures in control. Intervention group recorded 223 referrals (184 direct) versus 12 referrals in control. Of 184 direct referrals, contact was made with 70% for further follow up.	Not reported	Not reported	Not reported	In 1 year postintervention, 26 women referred by clinician and 74 women in practices contact domestic violence agencies.	Intervention may be transferrable in resource-rich environment (e.g., settings with EHR is used).	Not reported

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Scribano et al. (2011)	13.7% screened positive.	14%. When nurse champions added, screening increased to 32%.	Not reported	Questionnaire was written at 6.7 grade literacy level possibly leading to issues with caregiver reading skills.	Not reported	Providers and caregiver receptivity of technology was mixed. Screening method requires availability of social worker or other staff. Placing technology in waiting room allowed for "herd effect" of caregivers seeing other caregivers screening. Technology failure, child illness severity in ED, lack of education for providers emerged as key barriers.	Not reported
Hamberger et al. (2010)	Not reported	Screening rate with education only: 2% screening rate with education plus chart prompt: 92%	29% female physicians screened; 39% male physicians screened	Not reported	When chart prompt was removed for 1 month, screening remained high at 72%.	Conducted in medical resident clinic. May not be generalizable to other clinics.	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
McColgan et al. (2010)	Less than 2% screened positive. IPV coordinator received 107 (11%) referrals.	IPV screening improved from 0.9% at baseline to 36% at 3 months and 33% at 8 months.	Not reported	Not reported	Not reported	Following training, significant improvements in perceived knowledge of IPV screening questions, referrals sources and relationship of child abuse and IPV. No changes in residents' perception that pediatric setting is appropriate place to screen. Key barriers included lack of time, presence of children or other adults in room.	Not reported
Roark (2010)	No increase in disclosure rates. Charting of referrals by nurses increased.	Not reported	Not reported	Not reported	Not reported	Screening did not place extra work on staff. Practice change believed to last long term due to encouragement from accrediting body.	Not reported
Vakili et al. (2010)	82.6% screened positive for psychological violence, 43.75 screened positive for physical violence, 30.9% screened positive for sexual violence.	98%	Not reported	Not reported	Not reported	Refusal rate among women was low and response rate was about 98%. Women often attend appointments at centers alone allowing for private screening.	Not reported
Yildizhan et al. (2009)	33.6% reported history of IPV	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Coker et al. (2007b)	13.3% screened positive for current IPV. 25.6% screened positive for IPV during past 6 years.	74%	Not reported	Not reported	Not reported	Women did not report feeling offended by IPV screening. Patients commented that screening is important part of clinic procedure. No harmful effects reported by PCP, nurses or IPV specialist. Feasibility: 17-item IPV screen not feasible for busy clinic setting.	Grant provided 1 part-time clinic staff position to increase staff availability conduct screens.
Coker et al. (2007a)	13.8% reported recent IPV; 5.7% reported physical or sexual assault; 8.1% positive for battered only. 95.8% who were negative at screening 1 remained negative at screening 2.	74%	Not reported	Not reported		Key barriers include providers could not determine whether IPV stopped because women left relationships or behavior stopped, could not query women on timing of violent experiences so IPV continuation may be overestimated.	Grant provided 1 part-time clinic staff position to increase staff availability conduct screens.
Hammoury and Khawaja (2007)	68.8% reported experiencing at least one form of abuse. 19.3% experienced abuse during pregnancy.	99%	Not reported	Not reported	Not reported	Vast majority of women did not object to screening. Screening only conducted at home primary health refugee clinic—may not be generalizable.	Not reported

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Trautman et al. (2007)	19% screened by computer screened positive. Subjects significantly more likely to be referred to social work if screened positive via computer. 53% IPV + received referral. 77% of those screening positive did not receive services from social work after referral was made.	99.8% screened in treatment group versus 33% in UC	Not reported	Not reported	Not reported	88% of patients reported liking the screening being conducted via computer (took average of 6 min to complete). Rates of referral to IPV lower than expected possibly due to logistical issues with getting need of referral to social worker and limited availability of social worker. Social worker did not receive referral for 42% of those who screened positive on computer.	Not reported
Gerber et al. (2005)	49% IPV + patients received referral and 14% received safety plan	Not reported	Not reported	Not reported	Not reported	Only 68% of providers agreed they are confident in ability to diagnose and manage IPV patients. 67% providers reported time as a barrier.	Not reported
Higgins and Hawkins (2005)	Not reported	Screening rate using AAS ranged from 83.4% to 98.1% across sites.	Not reported	Not reported	Difficult to sustain interest of staff over long term because of the geographical placement of study sites result in member of study team not being present at each site.	At sites where nurse manager was involved and required staff to attend program, site yielded many interviews. Nurses who were confident in their preexisting screening methods had lower interest in using AAS.	Not reported

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
McFarlane et al. (2005)	5.9% positive overall. White women highest prevalence at 8.9% followed by African American women at 6.0% and Hispanic women at 5.3%.	100% women screened during visit. 83% agreed to additional interview.	Not reported	Not reported	Not reported	Not reported	Not reported
Ruiz-Pérez and Plazaola-Castaño (2005)	32% reported lifetime IPV. 14.4% reported lifetime psychological abuse; 7.2% reported lifetime physical and psychological abuse; 2.5% reported psychological and sexual abuse; 6% reported lifetime physical, psychological and sexual abuse.	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Weinsheimer et al. (2005)	Lifetime prevalence of severe IPV: 46.3%. Past year prevalence of IPV: 26%.	100%	Not reported	Not reported	Not reported	18% women felt screening infringed on their privacy. 90% felt it was appropriate to ask about IPV and women should be asked about it in healthcare setting. 93% of women who screened positive felt trauma center health provider could assist with safety plan. 1 in 4 abused women thought reporting abuse could increase chance of further harm.	Not reported
Holtrop et al. (2004)	3.7% women screened positive	75%	Not reported	Positive predictive value of screener: 91.5%.	Not reported	Key barriers included: could not screen if children >3 years of age were present in room or if other adult accompanied women. Concerns about privacy of information recorded in child's medical record to which father may have access.	Not reported

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Mezey et al. (2003)	Not reported	Not reported	74% of trained midwives conducted booking screen. 23% of trained midwives conducted 23 week screen. 40% of trained midwives conducted postnatal screen.	Midwives selected women who could be screened quickly, suggesting variability in fidelity.	Midwives lost enthusiasm over time due to lack of morale within midwifery team due to high turnover rates and increasing workload.	After training, most midwives considered midwife as right person to be initiating IPV inquiry. Midwives often categorized IPV problems as "medical" or "social" issues and did not feel social concerns were theirs to address. Key barriers included time constraints due to full clinic.	Not reported
Siegel et al. (2003)	22% screened positive (lifetime); 6% reported abuse within last 24 months.	Less than 20% screened	Not reported	Not reported	Not reported	Low rates of screening suggest screening in pediatrician's office may be difficult. Key barriers included providers' inability to screen if children >3 years old were present. Some women may have chosen not to disclose due to state mandate of practitioners to report IPV to state.	Not reported
Janssen et al. (2002)	Not reported	Screening rate increased from 42.1% to 53.8% at 4 months and 60.7% at 6 months.	50% of staff engaged in screening process within 4 months of implementation.	Not reported	18 months postimplementation: screening rate stable at 62.1%.	Nursing staff struggled to get a few minutes alone with women to conduct screening privately.	Not reported

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Jones and Bonner (2002)	10.7% positive for previous or current IPV. 23.5% positive screens wanted or accepted further assistance.	80%	Not reported	Not reported	Training about IPV and screening adopted by clinics for all new midwives and students after study ended.	Midwives reported feeling that screening enhanced relationship with women and helped develop skills in asking about health issues. Patients provided positive feedback about screening. Lack of privacy away from partner or other family members during appointments emerged as a key barrier.	Financial support essential to cover time and cost involved with screening and staff training.
Krasnoff and Moscati (2002)	2% screened positive. 84% of those that screened positive agreed to meet with crisis services. 54% met with crisis services for at least 1 follow up.	22%	Not reported	Not reported	Not reported	ED nurses and physicians increased screening in whole ED population, not just study population. Key barriers included IPV victims' concerns that children could be taken away after disclosure, and distrust in agencies involved in documenting and addressing IPV.	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Ramsden and Bonner (2002)	14.6% positive rate for lifetime IPV. 22% women who screened positive had referral placed. 0.6% of all women presenting to ED referred to SW for IPV.	10%	Not reported	Not reported	Not reported	Women felt screening questions were professional and straight forward. Medical staff felt IPV was a social issue and should be handled by nursing staff. Male staff felt it was inappropriate to ask women about IPV. Key barriers included lack of time to ask questions, lack of privacy and confidentiality, no after-hours social worker.	Not reported
Campbell et al. (2001)	Not reported	Not reported	Not reported	Not reported	Not reported	Women in experimental group more satisfied with care than those in control group. Six-month implementation goal too rapid per ED staff members. Key barriers included lack of mentoring to ensure timely adherence to action plan, along with shortage of money and time to support screening.	Financial strain to small community hospital to provide in-service trainings and modify medical record to include charting prompt.

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Larkin et al. (2000)	8% screened positive.	72.8%	52.5% of nurses had screening rates <90% resulting in verbal counseling. 20% of nurses remained with screening rates <90% after verbal counseling; 10% of nurses had screening rates <90% after written counseling.	Odds of detection rose 50% postintervention, suggesting fidelity to the screening protocol.	13 of 21 nurses who received disciplinary action improved to be compliant for full year postintervention and remained complaint for full year postintervention.	Patient satisfaction with routine screening remained high.	Not reported
Thompson et al. (2000)	Positive rate increased from 2.3% positive at baseline to 4% positive at 9 months in intervention clinic and from 1.9% positive in control clinic to 2.2% positive.	Percent screened increased from 3.5% to 20.5% in treatment group.	Asking rate was 55% higher in intervention group than control.	Not reported	Improved self-efficacy, fear of offense and safety concerns by providers remained significantly higher at 21- 23 months postintervention. Perceived asking did not sustain at 21-month follow up.	Clinicians reported IPV questionnaires were useful. Environmental resources such as wall posters useful leading to increase in self-disclosure by IPV victims. Implementation was an intense effort with modest effects. Record review likely led to underestimated rates of IPV and did not allow for time course of IPV to be established.	Not reported
Wasson et al. (2000)	13% women screened positive. Mean rate of possible abuse in practices was 11%.	96%	Not reported	Not reported	Not reported	Not reported	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Canterino et al. (1999)	36% screened positive. 85% abuse identified by questionnaire, 59% identified by directed interview, 15% identified by both questionnaire and directed interview. 100% IPV + patients received crisis intervention, counseling, and referral.	100%	Not reported	Not reported	Not reported	Screening tool found to be efficient and simple tool that all physicians can easily use during evaluations.	Not reported
Purwar et al. (1999)	22% reported abuse during current pregnancy. 25% reported abuse while not pregnant.	100%	Not reported	Not reported	Not reported	All women approached for interview agreed to participate.	Not reported
Fanslow et al. (1998)	2.6% screened positive. Rates of referral to community or social services increased from 2% to 25%.	Not reported	Not reported	Hospital administrators intervened resulting in questioning only being provided to women when staff had "reasonable suspicion of abuse."	Not reported	Not reported	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Furbee et al. (1998)	51% lifetime IPV	94%	Not reported	Not reported	Not reported	Concerns that tape recorded IPV screening could: be impersonal; miss behavioral or contextual clues; contribute to stigmatization of IPV victims. Benefits of tape recording: could reduce disparities in screening, allow interviews to be conducted regardless of physical layout of clinic, and can be conducted with limited disruption to healthcare delivery.	Tape recorded screening can be implemented at very low cost with few requirements for ED staff.
Covington et al. (1997)	10.3% screened positive using standardized assessment versus 5.4% using routine assessment	100%	Not reported	Not reported	Not reported	Maternity care coordinators reported positive feedback about usefulness and effectiveness of intervention. Concern that standardized assessment used vague terms of IPV to probe abuse. Possible that adolescents may not ID themselves as victims of abuse without having specific behaviors listed in questions.	Not reported

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Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
Olson et al. (1996)	Positive rate increased from 2.0% at baseline to 3.4% positive during chart-modification month to 3.6% positive in chart-modification + education month.	Not reported	Not reported	Not reported	Regular training sessions on IPV instituted and charts permanently modified to include IPV question.	Stamping reminder felt to be time-efficient and cost effective to increase asking about IPV. Key barrier included personal interviews may inhibit victims from IPV disclosure.	Not reported
Quillian (1996)	8.4% women screened positive for IPV in past year. 2.6% screened positive for abuse during prior pregnancy; 2% positive for sexual abuse in past year	Not reported	Not reported	Not reported	Not reported	Concerns from staff included own personal experience with IPV, lack of understanding regarding dynamic of abuse, and fear of being involved with legal system. Some staff struggled to ask about IPV in a way that would make a patient comfortable to disclose.	Not reported
Parker et al. (1993)	Rate of physical or sexual abuse at 1st visit: 26%. (31.6% teens and 23.6% adults) Overall rate of abuse during pregnancy: 21.7% teens and 15.8% for adults.	100%	Not reported	Not reported	Not reported	Not reported	Not reported

(Continued)

Table 2. (Continued)

	Clinical outcomes	Implementation impacts					
First author and year	Effectiveness[a]	Reach/ Penetration[a,b]	Adoption[a,b]	Implementation fidelity[a,b]	Maintenance/ Sustainability[a,b]	Acceptability/ Appropriateness/ Feasibility[b]	Cost[b]
McFarlane et al. (1992)	17% prevalence rate of physical or sexual abuse during pregnancy. 60% reported 2 or more episodes of assault.	Not reported	Not reported	Not reported	Not reported	Women were only interviewed by primary care physician with whom they would have another visit, allowing for an increased comfort level with screener.	Not reported
McFarlane et al. (1991)	7.3% women self-reported abuse. 29.3% of women reported abuse to RN.	Not reported	Not reported	Not reported	Not reported	Confidentiality was guaranteed and private environment to disclose and ask questions was provided.	Not reported
McLeer and Anwar (1989)	Not reported	Percent screened positive increased from 5.6% to 30%.	Not reported	Not reported	Not reported	Majority of women "appeared relieved" that someone asked them about how they were hurt and responded readily. Protocol only took 15 min to administer.	Not reported
Tilden and Shepherd (1987)	23% screened positive postintervention.	Not reported	Not reported	Not reported	Not reported	ED presented as good opportunity to intervene as it is a point of entry of battered women into healthcare system.	Not reported

Note. ED = Emergency Department; IPV = intimate partner violence. EMR = electronic medical record; NHS = national health service; PCP = primary care physician.
[a]Outcomes from the RE-AIM framework (Glasgow et al., 1999).
[b]Outcomes from Proctor dimensions (Proctor et al., 2011).

rates, referral rates after a positive screen, or receipt of psychosocial services after a positive screen).
- Adoption: in Glasgow's original formulation, adoption referred to the proportion and representativeness of clinics or worksites that agreed to implement the innovation in question. Very few of our included studies, however, reported site-level representativeness, and so we focused our data extraction for adoption on the proportion of clinics that administered the IPV screening. Because IPV screening is frequently conducted by frontline clinical staff, we also operationalized adoption as the proportion of providers who administered IPV screening.
- Implementation fidelity: extent to which IPV screening was delivered as intended in the study. This could include reports of psychometric performance (e.g., sensitivity, specificity) compared to a gold standard measure of IPV.
- Maintenance: extent to which IPV screening practices remained in place beyond the primary study endpoint.

We also extracted quantitative and qualitative data related to Proctor's dimensions of implementation effectiveness (Proctor et al., 2011). We operationalized these dimensions as follows:

- Acceptability: extent to which clinicians or patients found IPV screening acceptable in their setting. The Proctor model also includes dimensions of Appropriateness and Feasibility: given conceptual similarities between these and Acceptability we combined results for these three dimensions rather than reporting them separately.
- Cost: financial or resource cost of delivering IPV screening programs.
- Note that other Proctor dimensions (of Adoption, Fidelity, Penetration/Reach, and Sustainability/Maintenance) are captured under the RE-AIM dimensions listed above.

In aggregating quantitative data, we report the median among included studies rather than mean and standard deviation, as we were concerned that the mean might be biased by outlier studies or nonnormality of data (Hartwig et al., 2020).

Results

Results of search process

See Figure 1 for our preferred reporting items for systematic reviews and meta-analyses diagram (Moher et al., 2010). Briefly, we screened titles/abstracts for 574 articles, and excluded 409 of them based on title/abstract review. The two most common reasons for exclusion at this stage were (1) reports of IPV prevalence without screening data, and (2) opinion or policy pieces without empirical results. Other common reasons for inclusion at this stage included: study or review protocols; psychometric validations of IPV screening tools administered by externally funded research staff; self-reports of providers' views toward, or use of, IPV screening tools without corroborating data; and qualitative studies of providers' perceptions of barriers to IPV screening.

We conducted full-text review of 165 qualifying articles (Figure 1). The most common exclusion at the full-text review stage was articles involving administration of IPV screening by externally funded research staff. Thus, we extracted data from 59 articles meeting inclusion criteria.

Characteristics of included studies

Table 1 describes the characteristics of included studies. Of the fifty-nine studies, 42 (71%) were conducted in the United States and 17 (29%) were conducted in other countries. Other countries represented include: United Kingdom ($n = 4$), Australia ($n = 4$), Canada ($n = 2$), Spain ($n = 1$), New Zealand ($n = 1$), India ($n = 1$), Lebanon ($n = 1$), Turkey ($n = 1$), Iran ($n = 1$), and Guinea ($n = 1$). Twenty-three (39%) used a specific IPV screening tool, while 16 (27%) used a modified tool and 20 (34%) used a custom or unnamed tool. Examples of modified tools include tools that combined two or more validated screening tools into one (e.g., Kornfeld et al., 2012; Parker et al., 1993), tools that combined the questions of a validated screening tool with additional screening questions (e.g., Scribano et al., 2011; Trautman et al., 2007), and tools that only used select questions from a validated screening tool (e.g., Janssen et al., 2002; McColgan et al., 2010). The most common clinic settings included primary care ($n = 17$, 28%), emergency departments ($n = 13$, 22%), and maternal and child health programs ($n = 25$, 42%). Most studies were conducted within hospitals ($n = 30$, 51%) or community health centers ($n = 24$, 41%); others involved home visitation programs ($n = 4$, 7%). Sample sizes varied widely among the studies that reported these data, both in terms of involved providers (range: 1–649) and patients (range: 26–540,300). Most studies ($n = 37$, 63%) were observational, with some involving quasi-experimental ($n = 17$, 29%) or randomized ($n = 5$, 8%) designs. Seven (12%) studies were fully retrospective, often involving administrative data or chart review following implementation of an IPV screening program. Among the studies that reported their data collection period ($n = 49$, 83%), the median was 12 months; implementation periods (among studies describing a specific implementation effort) ranged from 3 days to 24 months.

Outcomes of IPV screening programs

Table 2 summarizes outcomes, based on RE-AIM (Glasgow et al., 1999) and the Proctor dimensions

(Proctor et al., 2011). Reach or penetration, referring to the percent of women eligible for screening who completed an IPV screen, varied widely among the 40 studies that reported it, with a median of 80%. Some studies ($n = 8$, 14%) reporting pre–post data showed marked improvement in screening rates during the period in which IPV screening programs were implemented (e.g., Mancheno et al., 2020), including reach/penetration of IPV screening above 95% (e.g., Dauber et al., 2019).

The RE-AIM dimension of effectiveness refers to the clinical effectiveness of IPV screening (see Table 2). We conceptualized this as including (a) the percent of women screened who screened positive, (b) the percent of women who screened positive for IPV who were referred to follow-up psychosocial services, and (c) the percent of women who attended follow-up psychosocial services (among those referred). From studies reporting one or more of these findings, the median screen-positive rate for IPV experienced within the past 12 months was 11% (based on $n = 33$ studies, 56%). The median rate of referral to follow-up psychosocial services among those screening positive was 32% (based on $n = 16$ studies, 27% of all included studies). Among those referred to such services, a median of 54% of women attended or received those services (based on $n = 9$ studies, 15%).

Only seven studies reported concrete data on the RE-AIM dimension of adoption (i.e., the percent of providers or clinics delivering IPV screening). Each of these seven studies reported provider-level rather than clinic-level adoption, with adoption ranging from 23% to 100% of clinicians conducting IPV screening. Reports of implementation fidelity (i.e., the RE-AIM dimension of implementation, operationalized here as the extent to which IPV screening programs were conducted as intended in the study) were primarily limited to two types of data. Specifically, some studies reported differential screening rates (e.g., across geographic areas) as evidence of variable fidelity to IPV screening protocols, while others described the psychometric properties of IPV screening compared to a gold standard assessment of IPV.

Fourteen studies reported data on the RE-AIM dimension of maintenance or sustainability of IPV screening programs. Of these, about half demonstrated IPV screening or referral rates that were comparable to those found at the primary study endpoint (e.g., Hamberger et al., 2010; Taft et al., 2015). In three studies, the maintenance of these effects was attributed to institutional policies (e.g., recurring trainings regarding IPV screening, or disciplinary action for clinicians who failed to continue screening for IPV). Others found that IPV screening practices reverted to previous levels during the maintenance phase (e.g., Higgins & Hawkins, 2005; Mezey et al., 2003) based on factors such as high clinician turnover and difficulty coordinating continued IPV services across geographically disparate sites.

Turning to the additional Proctor dimensions, most studies ($n = 50$; 85%) described the perceived acceptability, appropriateness, or feasibility of IPV screening. While differences in contextual factors (e.g., clinic settings and patient populations) made it difficult to draw firm conclusions across studies, several findings stood out nonetheless. First, emergency departments may be particularly important yet challenging setting for screening. Given the frequency with which women who experience abuse may present there with IPV-related injuries, there were perspectives supporting the appropriateness of IPV screening in this context. But several issues can complicate the feasibility and acceptability of Emergency Department (ED)-based IPV screening programs, including high patient volume, the frequent presence of children or significant others, limited privacy, and the urgency of the injuries that necessitated the ED visit (Krasnoff & Moscati, 2002; Scribano et al., 2011; Spangaro et al., 2020).

Second, three articles reported patient or provider perspectives regarding the acceptability of tablets or other electronic modalities to conduct IPV screening (Bacchus et al., 2016; Trautman et al., 2007; Warren-Gash et al., 2016). Such administration was generally viewed favorably by providers and patients, though there were pros and cons identified for technology-assisted IPV screening. Some women may be more comfortable disclosing IPV via electronic methods, but others may find such impersonal administration methods off-putting and prefer the face-to-face contact of a caring provider.

Third, seven studies reported that a lack of follow-up services (to which women who screened positive could be connected or referred) undermined efforts to implement IPV screening programs (e.g., Clark et al., 2020; Dauber et al., 2019; Samandari et al., 2016; Trautman et al., 2007). In contrast, in at least one study, robust referral options facilitated clinicians' ongoing commitment to IPV screening and response practices (Sohal et al., 2020).

Only six studies presented information on financial or resource cost considerations for integrating IPV screening programs into clinical care, most of which did not formally quantify numerical costs. Among the studies that addressed this issue, most ($n = 5$) emphasized the importance of financial resources and clinical personnel to support full implementation.

Subgroup analyses

Our sample was too heterogeneous (e.g., in terms of clinic settings) to conduct formal meta-analysis or to support statistical comparisons between studies. Instead, Table 3 summarizes post-hoc subgroup findings for two quantitative outcomes: reach and clinical effectiveness (i.e., the screen-positive rate). We noted a curious relationship between study location and screen-positive rates, with U.S.-based studies reporting higher rates of recent IPV, but lower rates of lifetime IPV. Furthermore, emergency department settings demonstrated lower rates of IPV screening than primary care or maternal/child health settings. It was

Table 3. Subgroup analyses.

	Implementation outcome (reach)		Clinical effectiveness outcome (screen-positive rate)			
	Number (percent) of studies reporting screening rate	Median screening rate	Number (percent) of studies reporting screen-positive rate (past year)	Median screen-positive rate (past year)	Number (percent) of studies reporting screen-positive rate (lifetime or unknown timeframe)	Median screen positive rate (lifetime or unknown timeframe)
Country						
United States	29 (69%)	80%	27 (64%)	8.7%	4 (9%)	26.5%
Non-United States	11 (65%)	80%	6 (35%)	27.8%	7 (41%)	10.7%
Screener type						
Specific	15 (65%)	90.8%	18 (78%)	9.9%	1 (4%)	36%
Modified	10 (63%)	88%	9 (56%)	22%	3 (19%)	2.6%
Custom or unnamed	15 (75%)	66.7%	6 (30%)	5.4%	7 (35%)	12.7%
Clinic setting[a]						
Primary care	11 (65%)	80%	11 (65%)	8.7%	1 (6%)	32%
ED	8 (62%)	47.4%	7 (54%)	8%	4 (31%)	18.8%
Maternal and child health	20 (80%)	80%	12 (48%)	11.5%	4 (16%)	6.4%
Organizational setting[a]						
Hospital	20 (65%)	73.9%	15(48%)	8.7%	7 (23%)	14.6%
Community health center	17 (68%)	92%	16 (64%)	11.7%	3 (16%)	32%
Home visitation	3 (50%)	97%	2 (33%)	11.5%	1 (17%)	2.1%

[a]Studies conducted in more than one setting are included in totals for each applicable row.

difficult to discern other reliable patterns regarding differences across settings, given variations in reporting (e.g., some studies calculated the screen-positive rate as the percentage of women reporting IPV in the past year, while others reported lifetime IPV, and yet others did not describe the timeframe in which women had to experience IPV to screen positive).

Discussion

Major findings in context

IPV is a population health problem (World Health Organization, 2013). IPV screening programs in healthcare settings represent one way to identify individuals who experience IPV, thereby facilitating the provision of support, resources, referrals, and interventions. There is a robust literature on IPV screening programs, but many studies have included features that cannot be replicated in routine clinical care (e.g., externally funded research staff to facilitate IPV screening; financial incentives to encourage patients to complete IPV screening). Thus, in this systematic review we focused on 59 studies of IPV screening conducted by frontline clinical personnel, and collected information on clinical effectiveness and implementation outcomes informed by two widely used implementation frameworks (Glasgow et al., 1999; Proctor et al., 2011). While individuals of any gender identity may experience IPV, our review focused on IPV screening programs for women, as women are most likely to experience frequent and severe IPV, and most research on IPV screening has been conducted on women (World Health Organization, 2013).

Starting with study results rooted in the RE-AIM framework, we found variability in reach of IPV screening programs (i.e., the percent of women eligible for screening who were screened), with a median of 80%. Emergency department settings featured a lower screening rate (closer to 50%). Whereas this setting may present an important opportunity for IPV screening and response (Ahmad et al., 2017; Kothari & Rhodes, 2006), factors like high patient volume, frequent presence of children or significant others, limited privacy, and the severity of injuries may make it difficult to conduct IPV screening in the emergency department (Krasnoff & Moscati, 2002; Scribano et al., 2011; Spangaro et al., 2020). Regarding clinical effectiveness of IPV screening, the median screen-positive rate for past-year IPV among included studies was 11%. This median rate is slightly lower than the screen-positive rates from recent randomized controlled trials in

which screening was facilitated by research staff (12%–18%) (Klevens et al., 2012; Koziol-McLain et al., 2010; MacMillan et al., 2009). These findings suggest that IPV screening programs conducted in frontline clinical contexts may obtain broadly similar screen-positive rates when compared to more tightly controlled research contexts.

Among those who screened positive, a median of 32% received a referral to follow-up services; among those who were referred, more than half (a median of 54%) had documentation of receiving those services. It is difficult to discern how these findings compare to controlled trials that were excluded from this review, as such studies tend to focus on IPV and health symptoms as primary outcomes and rarely report on psychosocial service use as a function of screening positive for IPV (e.g., Klevens et al., 2012; Koziol-McLain et al., 2010). For example, MacMillan et al. (2009) reported that 33% of women who were screened for IPV (regardless of screening results) received services with a psychologist or social worker, and 13% received advocacy or counseling for abuse within 6 months of being screened. Nonetheless, the current findings on referrals and associated service use are promising, considering that such services may be required to reduce a patients' exposure to violence and improve health.

When considering the referral findings, we note that there are likely incidences of patient-provider discussions in response to IPV disclosure that focus on validation and other resource provision, but are not necessarily captured in a "referral to services" outcome metric. There may be subtle but important benefits for patients in simply having a safe, empathic person with whom to discuss unhealthy relationship experiences, regardless of whether the patient is interested in follow-up services related to IPV, as reported by some providers, patients, and clinical experts (Dichter et al., 2020; Iverson et al., 2019; Miller & McCaw, 2019). Patients also value self-determination in following through with referrals (Feder et al., 2006), as readiness to change, personal and familial safety considerations, and myriad contextual factors (e.g., availability of referral services; details below) impact such decisions. Qualitative research with patients who have experienced IPV emphasizes the importance of providing support for connecting to services, in addition to providing information about the services (Dichter et al., 2021).

We operationalized the RE-AIM element of adoption as the proportion of providers or clinics delivering IPV screening. This was reported at the provider level in seven studies, with a broad range (23%–100%). Some researchers noted that direct provider feedback (e.g., audit/feedback for providers who were not consistently screening) were important for ensuring adoption of IPV screening programs. This aligns with findings from other research examining the use of specific implementation strategies to facilitate adoption of IPV screening practices (Adjognon et al., 2021). Workload pressures, competing demands, limited time, and a paucity of referral options (described in more detail below) appeared to contribute to providers' reluctance to adopt IPV screening practices. These factors are consistent with findings from the broader literature examining healthcare providers' barriers to IPV screening (e.g., Sprague et al., 2012).

The RE-AIM element of fidelity refers to the extent to which IPV screening was conducted as intended. In our sample, this was primarily explored by (a) investigating variability in screening rates as evidence of variable fidelity, or (b) calculation of psychometric properties of IPV screening tools in the rare event that a gold standard comparison evaluation of IPV was conducted. Notably, none of our included studies reported on the more person-centered aspects of conducting IPV screening, including the interpersonal nuances of screening and response practices. For example, no studies assessed the extent to which IPV screening was conducted empathically, sensitively, and nonjudgmentally, and to what extent responses and recommendations were individually tailored, even though these factors have been deemed essential by IPV survivors (Chang et al., 2005; Feder et al., 2006; Iverson et al., 2014). While behavioral observations may represent the gold standard assessment method for determining whether care is delivered in this way, we realize that the sensitivity of IPV may make such methods impractical, particularly outside the context of externally-funded research. Instead, future studies could employ point-of-care surveys or interviews to assess these critical factors that likely impact the clinical effectiveness of IPV screening practices.

The RE-AIM element of sustainability refers to the extent to which IPV screening programs were used beyond the primary study endpoint. Ongoing institutional support (e.g., provision of periodic staff trainings) was associated with sustainability, while workload pressures and logistical difficulties were associated with reductions in screening over time (a phenomenon referred to as "drift" in the sustainability literature) (Stirman et al., 2019).While ongoing institutional support has been identified as an important approach to overcoming low levels of provider education and comfort in the context of IPV screening, studies have suggested that staff and provider training alone are insufficient to maintain high IPV screening rates (Waalen et al., 2000). Only with a combination of training and additional IPV screening implementation strategies are screening rates sustainable; such additional strategies include but are not limited to: (a) adequate funding and staffing resources (e.g., dedicated clinicians for training and provision of follow-up services), and (b) the use of IPV stakeholders' learning collaboratives (Adjognon et al., 2021).

Proctor et al. (2011) posited additional implementation outcomes above and beyond the RE-AIM dimensions described above. First, we collected data from our review

related to the acceptability, appropriateness, and feasibility of IPV screening. Some studies described programs in which screening was conducted via tablets or other technological mechanisms, with mixed results, consistent with studies that have found both benefits and limitations to electronic versus paper or clinician-administered screening (Ahmad et al., 2009; Chang et al., 2012; Chen et al., 2007). Our findings are consistent with those from more tightly controlled trials of IPV screening methods, which have generally shown that patient self-administered or computerized screenings are as effective as clinician-administered screening in terms of disclosure, comfort, and time spent screening (Ahmad et al., 2009; Chen et al., 2007). More broadly, our results emphasize the importance—in terms of perceived acceptability of IPV screening programs—of having treatment or referral options available for women who disclose IPV. The absence of referral options is associated with reduced clinician enthusiasm for or commitment to screening, due to concerns of not having adequate supports for patients in need (D'Avolio, 2011; Dichter et al., 2015; Sprague et al., 2012). Unfortunately, this may contribute to a negative feedback loop, as reduced IPV screening on the part of providers can create the false impression that IPV is not a major clinical issue, in turn reducing the chances that patients receive help.

Few studies reported concrete data on the Proctor dimension of implementation cost. While IPV screening may at first seem to be a relatively inexpensive clinical process, complexities abound. Ongoing clinician trainings, the filling of crucial staff roles, facilitation (Miller et al., 2020; Ritchie et al., 2020), or technological updates in electronic medical records may represent substantial investments for resource-strapped medical systems—but without these investments, it is unlikely that IPV screening will be consistently adopted and sustained.

Limitations

As with many systematic reviews, we faced challenges in consolidating our results based on differences in how data were collected, conceptualized, or reported across studies (e.g., different time frames for IPV detection). We attempted to address this by using group consensus in extracting our data. In addition, based on the information in our included articles, we were unable to consistently extract comprehensive data regarding differential screening rates by provider type (e.g., nurses vs. physicians) or patient demographics (e.g., age, ethnicity). Given that some evidence suggests that provider type may be an important predictor of screening practices, future research should explore it further in implementation-focused trials. Third, over half of the included studies used either a custom or modified IPV screening tool, potentially limiting generalizability. In addition, the variability in positive screen-rates across studies is likely impacted, in part, by differences in the wording of screening questions and types of IPV assessments. While we took steps to ensure reliability at several stages in the review process, we did not double code all articles, raising the possibility that reviewer drift may have impacted our results. We also note that our review contained studies from multiple countries, healthcare systems, and clinic settings. While this allowed us to get a broad picture of IPV screening practices, it also made it difficult to determine the relative impact of these contextual factors on those studies' results. For example, we found intriguing differences in screening rates between ED and other healthcare settings, but variations in reporting made it difficult to draw firm conclusions regarding possible differences in screen-positive rates between settings. Furthermore, some of our included studies were conducted in less traditional healthcare contexts, such as perinatal home visits by IPV-trained community health nurses (e.g., Bacchus et al., 2016) and others were in the context of acute trauma care (Weinsheimer et al., 2005); it is plausible these settings may be associated with higher rates of IPV screening (and positive screens) compared to other settings. We also note that our reliance on quantitative (as opposed to qualitative) studies, published in English, means that we may have missed relevant studies published in other languages or featuring different methodologies. Furthermore, we organized our findings around the RE-AIM and Proctor frameworks. While these frameworks are widely used in implementation research contexts, we acknowledge that including constructs from other relevant frameworks (e.g., the Consolidated Framework for Implementation Research [Damschroder et al., 2009]) would likely have enriched our findings. Finally, our study was limited to research focused on screening for and addressing IPV among women patients, and the extent to which findings would extend to programs for patients who do not identify as women is unknown. The literature on IPV screening and response practices for male and nonbinary gender identity patients is relatively sparse, limiting the ability for review—expanding the research on the effectiveness and uptake of IPV screening programs for men and nonbinary patients is an area for future research.

Conclusions

This review on IPV screening implementation outcomes and effectiveness is particularly novel in its focus on studies of IPV screening conducted by frontline clinical staff. Our findings emphasize the importance of ongoing commitment to IPV screening (e.g., via recurring staff trainings) if such screening programs are to be sustained in healthcare settings. Implementation outcomes should be further examined in the IPV screening literature, as successful implementation of IPV screening and response practices is critical to ensuring their clinical benefits. For

example, future research could incorporate more nuanced evaluation of the contextual factors (e.g., leadership support and organizational culture) that may ultimately determine which clinical settings successfully embed IPV screening in routine care—and which do not. It is similarly important to examine the success of specific implementation strategies used to promote IPV screening in specific healthcare contexts, such as the mixed methods research being done to evaluate implementation and clinical outcomes in the largest integrated healthcare system in the United States (Iverson et al., 2020). Emphasis should also be put on better assessing adoption, fidelity, and person-centeredness in IPV screening, as almost all clinicians across healthcare settings will encounter patients who have experienced IPV. Deliberately seizing every opportunity to properly screen for IPV, counsel, refer, and follow up on patients who endorse IPV in healthcare settings is a cornerstone to address this public health issue effectively.

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