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SUBSTANTIVE REVIEW

HIV/STI Prevention Interventions for Women Who Have Experienced Intimate Partner Violence: A Systematic Review and Look at Whether the Interventions Were Designed for Disseminations

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Abstract

This systematic review of HIV/STI prevention interventions for women who have experienced intimate partner violence (IPV) describes the interventions characteristics, impact on HIV-related outcomes, and whether the studies were designed for dissemination. Six intervention studies met the inclusion criteria. Two studies were randomized controlled trials. The interventions consisted of between one and eight individual and/or group sessions. The interventions durations ranged from 10 minutes to 18 hours. The interventions impacts were assessed across 12 HIV-related outcomes. Two randomized control trials showed significantly fewer unprotected sexual episodes or consistent safer sex among abused women in the treatment conditions compared to the control groups. Two studies chose a delivery site for scalability purposes and three interventions were manualized. Three studies examined intervention acceptability, feasibility or fidelity. HIV/STI prevention interventions for women who have experienced IPV may be improved with randomized control designs and greater efforts to design the interventions for dissemination.

Keywords HIV/STI prevention · Intimate partner violence · Women · Systematic review · Designing for dissemination

Resumen

Esta revisión sistemática de las intervenciones de prevención del virus de inmunodeficiencia humana/ infección transmitida sexualmente para mujeres que experimentan violencia de pareja íntima (IPV) describe las características de la intervención, el impacto de las intervenciones en los resultados relacionados con el VIH y si los estudios se diseñaron para su diseminación. Seis estudios de intervención cumplieron con nuestros criterios de inclusión. Dos estudios fueron ensayos controlados aleatorios. Las intervenciones consistieron en 1–8 sesiones individuales y/o de grupo. La duración total de la intervención osciló entre 10 minutos y 18 horas. El impacto de las intervenciones se evaluó en 12 resultados relacionados con el VIH. Dos ensayos de control aleatorio mostraron significativamente menos episodios sexuales sin protección o sexo más seguro consistente entre las mujeres abusadas en una condición de tratamiento en comparación con el grupo de control. Dos estudios eligieron un lugar de entrega con fines de escalabilidad y tres intervenciones fueron manualizadas. Tres estudios examinaron la aceptabilidad, viabilidad o fidelidad de la intervención. Las intervenciones de prevención del VIH/ITS para mujeres que experimentan violencia de pareja íntima (IPV) pueden mejorarse con diseños de control aleatorios y mayores esfuerzos para diseñar las intervenciones teniendo en cuenta la difusión.

Introduction

Women around the world who experience intimate partner violence (IPV) have elevated risk for contracting HIV [1–3] and other sexually transmitted infections (STI's) [4]. IPV, which affects more than 30% of women globally[5, 6] and appears to be more frequent and severe during the COVID-19 pandemic [7, 8], often involves women being forced or coerced into sex by abusive partners [9, 10]. Additionally,

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women who experience IPV are more likely than women who are not abused to have riskier sexual partners (e.g., partners who are not monogamous or who inject drugs) [11, 12] [10], not use condoms, trade sex for money or drugs, or have a STI [10, 13, 14]. For example, women from Sub-Saharan Africa who experienced psychological, physical or sexual IPV were more likely than women who did not experience IPV to have a STI in the past 12 months [4]. In longitudinal studies of women in South Africa and Uganda, HIV incidence was higher among women who had experienced IPV [2, 3]. Abused women may not use condoms because they fear their partners will become abusive when they do so [15]. Thus, abused women may have greater difficulties enacting safe sex practices than women who are not abused [16]. Since HIV/STI's may cause cervical cancer, infertility and have adverse health consequences for affected women and their children [17], it is important to review the nature and impact of HIV/STI prevention interventions for women who have experienced IPV.

Previous systematic reviews have focused on HIV/STI prevention interventions among women [18–22], but none have summarized the nature and impact of HIV/STI prevention interventions specifically among women who have experienced IPV. In fact, women who have experienced IPV were not the target population for any of the individual studies included in two recent reviews [20, 22]. Another review noted that only three of the 14 studies included specifically targeted women who have experienced IPV [19]. As a result of the absence or limited attention to HIV/STI prevention among women who have experienced IPV in prior reviews, little is known about the state of HIV/STI prevention for this high-risk population.

Additionally, there is a need to evaluate HIV/STI prevention interventions for women who have experienced IPV with respect to whether the interventions were designed for dissemination [23, 24]. Many evidence-based interventions fail to be widely disseminated and have a significant public health impact [23, 25, 26]. Barriers for wide intervention dissemination have been identified [27] and include interventions being designed without consideration of the practice setting that is intended to adopt the intervention. This has led to calls for interventions to be "designed for dissemination" [23, 24], that is "conceived with the resources and limitations of the patient or client, practitioner and system in mind" in order for the interventions to achieve their intended goal [p. 3, 24]." Thus, large community-based service systems that may deliver the intervention to the target population should be identified from the outset of intervention development and testing [28] and key stakeholders (e.g., those who will deliver or receive the intervention) need to be involved in the intervention development or adaptation and implementation [23, 29]. The intervention facilitators, number of intervention sessions, and duration should be purposely chosen since these things affect whether the intervention program is adopted by a community organization or nationally disseminated [30–32]. Interventions that are "packaged" or "manualized" and involve facilitator training may facilitate intervention adoption [26, 33]. Finally, stakeholder views towards the intervention acceptability and feasibility as well as information about the intervention fidelity may help inform the subsequent implementation of evidence-based HIV prevention interventions for abused women [34]. This systematic review of HIV/STI prevention interventions for women who have experienced IPV aimed to summarize the interventions characteristics, impact on HIV-related outcomes as well as the degree to which the studies were designed for dissemination.

Methods

Data Sources

This study was approved by the institutional review board of Rutgers University. A systematic search was conducted between January and February of 2021 to identify HIV/STI prevention intervention studies tested among women who have experienced IPV. We consulted with a research librarian to identify both the best databases to use in this search and the search terms for each database (See Table 1 for the search details). The systematic search was conducted using the following six databases: CINAHL, PsycINFO, Medline, Web of Science, Pubmed, and Academic Search Premier.

Study Selection

Studies were included in this review if they met the following criteria: (1) described an individual level intervention that aimed to prevent HIV/STIs, risky sexual behavior, or related outcomes (i.e., HIV knowledge), (2) was specific to females 18 years of age or older or included gender-stratified analyses to determine the effects of the intervention among adult females, (3) the intervention was tested among women who have experienced IPV, (4) the study was written in English, and (5) the intervention was described in a peer-reviewed journal article. There was no restriction on the publication year of studies included in this review. The references yielded in the search were exported to Endnote and duplicates were removed. Then, both authors reviewed the titles and abstracts of each reference to determine whether the study met the study inclusion criteria. Studies were removed if they did not describe the testing of an HIV/STI-related prevention intervention among women. Both authors

Table 1 Search strategy for HIV/STI prevention intervention studies for women who have experienced IPV

Database	Search no.	Search terms	Search results
CINHAL	1	[CINAHL subject heading] "battered women" OR "dating violence" OR "domestic violence" OR "intimate partner violence"	19,555
	2	[CINAHL subject heading] "attitude to risk" OR condoms OR "health behavior" OR "human immunodeficiency virus" OR "risk taking behavior" OR "safe sex" OR sexuality OR "sexually transmitted diseases" OR "unsafe sex"	116,749
	3	[CINAHL subject heading] "clinical trials" OR "intervention trials" OR "pilot studies" OR "preventative health care" OR "randomized control trials"	256,628
		1 AND 2 AND 3	36
PsycInfo	1	[subject heading] "battered females" OR "dating violence" OR "domestic violence" OR "intimate partner violence"	22,920
	2	[subject heading] condoms OR "contraceptive devices" OR "health risk behavior" OR HIV OR "safe sex" OR "sexual risk taking" OR "sexually transmitted disease"	57,099
	3	[subject heading] "clinical trials" OR "AIDS prevention" OR "intervention" OR [keyword] "preventative health services"	129,359
		1 AND 2 AND 3	72
		1 AND 2 AND 3 and the following additional limits: empirical human populations = adulthood, population group = female	52
Web of Science	1	Topic ("Abused spouse" OR "Battered women" OR "Dating violence" OR "domestic violence" OR "Intimate partner violence" OR "Partner abuse" OR "Spous* abuse")	30,028
	2	Topic ("condom use" OR condom OR "condomless sex" OR "high-risk sex" OR HIV OR "*safe* sex" OR "sexual * behavior" OR "sexually transmitted *" OR "unprotected intercourse" OR "unprotected sex")	425,708
	3	Topic ("feasibility study" OR "clinical trial" OR "randomized control trial" OR intervention OR prevention OR "pilot project")	1,997,543
	4	((adult OR "young adult" AND (female OR wom*n))	1,613,525
		1 AND 2 AND 3 AND 4	184
Medline	1	[MeSH terms] ("battered women" OR "domestic violence" OR "intimate partner violence" OR "spouse abuse")	16, 377
	2	[MeSH terms] (condoms OR "condoms, female" OR "health risk behaviors" OR HIV OR "HIV infections" OR "risk reduction behavior" OR "sexual behavior" OR risk-taking OR "safe sex" OR "sexually transmitted diseases" OR "unsafe sex")	369,271
	3	[MeSH terms] ("feasibility studies" OR "case–control studies" OR "pilot projects")	477,921
		1 AND 2 AND 3	39
		Additional limit = females	37
Pubmed	1	("battered women" OR "domestic violence" OR "spouse abuse" or "intimate partner violence" [majr])	19, 104
	2	(condoms OR "condoms, female" OR "health risk behaviors" OR HIV OR "HIV infections" OR "risk reduction behavior" OR risk-taking OR "safe sex" OR "sexual behavior" OR "sexual risk behavior" OR "sexually transmitted diseases" OR "unsafe sex" [majr])	546,478
	3	"pilot projects" OR "feasibility studies"[MeSH Terms] OR "prevention intervention"	192,659
		1 AND 2 AND 3	64
Academic Search Premier		("Abused spouse" OR "Battered women" OR "Dating violence" OR "domestic violence" OR "Intimate partner violence" OR "Partner abuse" OR "Spous* abuse") AND ("condom use" OR condom OR "condomless sex" OR "high-risk sex" OR HIV OR " *safe* sex" OR "sexual * behavior" OR "sexually transmitted *" OR "unprotected intercourse" OR "unprotected sex") AND ("feasibility study" OR "clinical trial" OR "randomized control trial" OR "pilot project" OR "prevention intervention")) AND (female OR women)	100

then read the methods and results sections for the remaining references to verify the study eligibility for this review. Both authors read the complete articles of all studies that met the inclusion criteria.

Data Extraction

The authors developed their own coding form and independently extracted data from the studies included in this review.

Both authors compared the data they each independently extracted to determine accuracy and resolved discrepancies. The following information was extracted from each of the articles reviewed with respect to the study characteristics: the origin of the study (e.g., adapted or based upon another intervention), study location and dates, study design (e.g., randomized control trial, one group pretest/posttest), inclusion of follow-up assessments, sample size and demographics, intervention modality (e.g., individual, group, or both), number of interventions sessions and intervention duration, and intervention setting.

HIV-Related Outcome Identification and Coding

The authors created a list of all of the HIV-related outcomes assessed among the studies in this review and the frequency these constructs were evaluated across studies. The primary outcomes coded pertained to direct sexual risk for contracting HIV/STI (e.g., unprotected sexual episodes). The secondary outcomes coded were those that were indirectly related to HIV risk behavior and sometimes referred to as antecedents of HIV risk behavior (e.g., HIV knowledge, condom use self-efficacy, etc.). The secondary outcomes were also categorized according to whether they pertained to HIV/STI information, motivation, or behavioral skills consistent with the information-motivation-behavioral skills model of HIV preventative behavior [35].

Designing for Dissemination Features

Information about the following designing for dissemination features was extracted: (1) whether the site was explicitly chosen for scalability purposes, (2) whether key stakeholders (e.g., target recipients, target facilitators) were involved in the intervention development or evaluation, (3) whether the facilitators of the intervention worked in the target intervention setting, (4) information about whether the facilitators received training, and (5) whether the intervention was described as being packaged or manualized. Also, information was extracted about whether the interventions assessed acceptability, feasibility, and fidelity. If any of the studies in this review cited other references as sources of additional information about the interventions evaluated in this review, the authors read those articles too and extracted information from them about whether the intervention was developed with input from key stakeholders or if the intervention involved a facilitator training [28, 36–40].

Results

Figure 1 shows the number of articles yielded from the systematic search and how those meeting the inclusion criteria were identified. As shown, the systematic review yielded a total of 473 potentially relevant articles. Ninety of the references were duplicates and were removed. The title/abstracts of the remaining 383 articles by both authors and 321 of these references were excluded because they did not meet inclusion criteria for this systematic review. The methods and results sections of the remaining 62 articles were reviewed by both authors and six articles were determined to meet this study's eligibility criteria [16, 41–45].

Intervention Characteristics

Table 2 summaries characteristics of the six interventions studies. As shown, all six studies were conducted in the United States. While two studies did not specify the years the study was conducted, the others were conducted between 1994 and 2016. Only two of the interventions were randomized control trials [16, 44]. Three of the interventions did not have control groups [41–43] and one study was quasi-experimental (i.e., had a control group, but participants were not randomized to the treatment and control groups) [45]. Two studies did not have follow-up assessments [41, 45] and the other studies had follow-up assessments at one-month [16], three-months [42–44], six-months [16], or one-year post intervention [16]. The number of participants involved in the interventions ranged from 19 [43] to 152 [16]. The majority of the participants in three studies identified as African American/Black [16, 41, 44] and one study included only women who identified as African American [45]. Three of the six interventions were delivered to participants at domestic violence shelters [41, 42, 45], two were delivered at family planning clinics [16, 43] and one study did not specify where the intervention was delivered [44]. Three interventions involved group sessions [16, 41, 45], two involved individual sessions [42, 43], and one study consisted of both individual and group sessions [44]. The intervention sessions ranged from one, 10 min session [43] to between six and eight sessions (each two–three hours) totaling 16–18 h [16, 44, 45]. Finally, one study examined the efficacy of a four-session versus eight-session group intervention on HIV-related outcomes [16].

HIV-Related Outcomes

Table 3 shows the 12 HIV-related outcomes assessed among the HIV/STI prevention interventions for abused women. These outcomes are organized according to a)

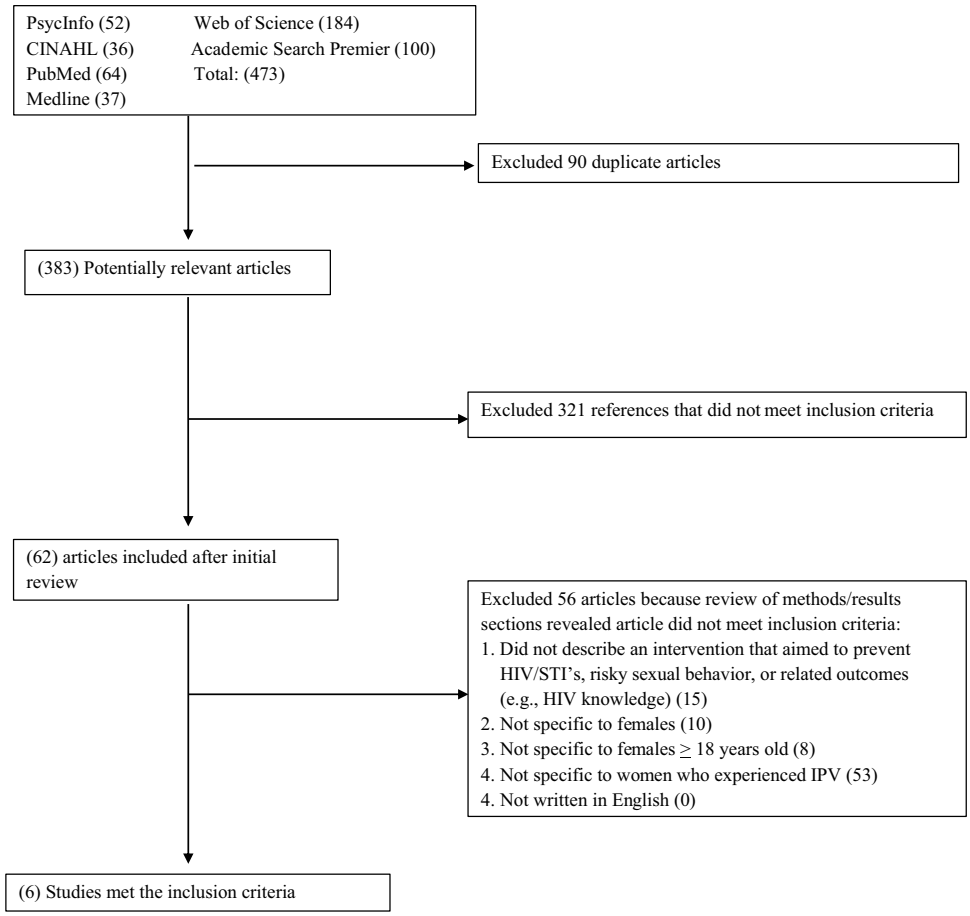

Fig. 1 Flow chart for HIV/STI prevention interventions for women who experience IPV

whether they lead to direct or indirect risk for contracting HIV/STI's and b) the information-motivation-behavioral skills model of HIV preventative behavior [35]. As shown, three studies measured unprotected sexual episodes [16, 42, 44] and three studies examined the impact of the HIV/STI intervention on participants' HIV knowledge [41, 44, 45]. Also, three studies examined intentions for preventative behaviors [16, 42, 44] and four studies examined self-efficacy for HIV/STI reduction behaviors [16, 41, 44, 45]. Although not shown in the table, some of the HIV-related outcomes studied were assessed according to specific sexual partners. For example, one study assessed unprotected sexual episodes among all partners, steady partners, or other partners[44].

Impact of Interventions on HIV-Related Outcomes

Table 4 summarizes the significant findings pertaining to the impact of the interventions on HIV-related primary and secondary outcomes. For studies with a control group, between group findings are reported. For single group, pretest–posttest studies; within group changes in outcomes from baseline to post intervention or follow-up assessments are reported.

Risky Sexual Behavior

Two randomized control trials reported significant reductions in unprotected sexual episodes or consistent safe sex over time among women in an eight-session group intervention (not a four-session group) [16] or an eight-session group and individual intervention [44] compared to women in the control conditions. In one of these studies, women in the intervention group had significantly fewer unprotected sexual episodes or maintained consistent safe sex with *other partners,* but not the *steady partners* compared to women in the control group [44]. Also, results from a one-group, pretest–posttest study found abused women in a 90 min HIV/STI prevention intervention had significantly fewer unprotected sexual occasions at the 3-months post-shelter assessment compared to baseline assessment [42].

Secondary Outcomes

Four studies reported significant intervention effects on other HIV-related outcomes [16, 41, 42, 44], including HIV knowledge [41], condom use self-efficacy [41] or negotiation [44], intentions for HIV/STI prevention behaviors [16, 42], alternative strategies for safer sex [16], and safer sex

Table 2 Characteristics of HIV/STI prevention interventions for women who experience IPV

First author (year)	Country & dates	Design	Follow-up	Sample size at baseline	Participant Race/Ethnicity	Unit of delivery	Number of sessions (total duration)	Setting
Cavanaugh [41]	USA, 2016	One-group, pretest–post-test	No	37	90% African American	Group	2 (6 h)	DV shelters
Johnson [42]	USA NS	One-group, pretest–post-test	3-months	98	50% Caucasian, 44% African American, 6% other	Individual	2 (1.5 h) plus 10-min booster	DV shelters
Laughon [43]	USA, NS	One-group, pretest–post-test	3 months	19	68% Caucasian, 26% African American, 5% other	Individual	1 (10 min)	Rural family planning clinics
Melendez [16]	USA, 1994–1996	RCT	1, 6, and 12-month	152	75% Black, 21% Latina, 4% White	Group	4 or 8, (8 or 16 h)	Family planning clinic
Mittal [44]	USA, 2012–2013	RCT	3 month follow-up	55	51% African American, 33% White, 16% other races	Individual and group	8, (approx.16 h for treatment groups & 12 h for control group)	NS
Roundtree [45]	USA, 2011	Quasi-experimental	No	47	100% African American	Group	6 (18 h)	DV shelter

DV domestic violence, *NS* Not stated

Table 3 HIV-related outcomes studied among HIV/STI preventions interventions for abused women

	No. of Studies	First author (year)
Primary outcome: direct risk for HIV/STI's		
Unprotected vaginal and/or anal episodes	3	Johnson [42], Melendez [16], Mittal [44]
Secondary outcomes: indirect risk for HIV/STI's		
Information		
HIV knowledge	3	Cavanaugh [41], Mittal [44], Rountree [45]
STD knowledge	1	Mittal [44]
Motivation		
Attitudes towards condoms	2	Mittal [44], Rountree [45]
Comfort with sexual discussions	1	Melendez [16]
Intentions for preventative behaviors/safer sex	3	Johnson [42], Melendez [16], Mittal [44]
Sexual risk cognitions	1	Rountree [45]
Behavioral skills		
Condom-negotiating skills	1	Mittal [44]
Safer sex discussion with partners	2	Melendez [16], Mittal [44]
Safer sex strategies (e.g., had fewer partners)	2	Laughon [43], Melendez [16]
Sexual assertiveness	1	Rountree [45]
Self-efficacy for HIV/STI risk reduction behaviors	4	Cavanaugh [41], Melendez [16], Mittal [44], Rountree [45]

Table 4 Impact of interventions on primary and secondary HIV-related outcomes

First author (year)	Primary outcomes: (i.e., unprotected sexual episodes)	Secondary outcomes: (e.g., HIV knowledge, condom use self-efficacy, etc.)
Cavanaugh [41]	NA	More **HIV knowledge** ($p < 0.01$) and **condom use self-efficacy** ($p < 0.01$) from baseline to postintervention
Johnson [42]	Fewer **unprotected sexual occasions** ($p < 0.01$, $d = 0.66$) from baseline to 3 months postshelter	More **intentions to engage in risk preventative behaviors** ($p < 0.01$, $d = -0.66$) from baseline to 3 months postshelter
Laughon [43]	NA	NS
Melendez [16]	Fewer **unprotected sex occasions** or maintained consistent safer sex from baseline to 1 month (OR 3.63, 95% CI 1.50–8.80, $p < 0.01$) and 1 year (OR 2.88, 95% CI 1.17–7.10, $p < 0.05$) follow-ups in 8-session intervention compared to control group	Increased use of **alternative strategies for safer sex** from baseline to 1 month follow-up for 4-session (OR 4.61, 95% CI 1.12–18.87, $p \leq 0.05$) and 8-session intervention (OR 8.76, 95% CI 2.28–33.71, $p \leq 0.01$) compared to control group Greater odds of having **safer sex discussions** with main partner from baseline to 1 month (OR5.10, 95% CI 1.52–17.11, $p < 0.01$) and 6 month (OR2.69, 95% CI 0.87–8.38, $p \leq .10$) follow-up for 8-session intervention compared to control group More **intentions to negotiate safer sex** from baseline to 1 month (OR 1.19, 95% CI 0.27–2.10, $p \leq .01$) or 6 months (OR 1.22, 95% CI 0.17–2.28, $p \leq .05$) follow-ups in 8-session intervention compared to control group
Mittal [44]	Fewer **unprotected sex occasions** with other partners (RR 0.05, 95% CI 0.01–0.28, $p < 0.01$) from baseline to postintervention compared to control	Increased **condom negotiating skills** ($p < 0.01$) from baseline to post-intervention, more **conversations about safer sex with other partners** (RR = 6.31, 95% CI 1.98–20.08, $p < 0.01$) from baseline to postintervention, more **conversations about safer sex with their steady partner** (RR = 4.40, 95% CI 1.78–10.83, $p < 01$) from baseline to 3 month follow-up
Roundtree [45]	NA	NS

Pretest/posttest results reported for one-group only studies. Between (intervention versus control) group differences for studies with a control group

NA not applicable, *NS* not statistically significant

communications [16, 44]. Although, the impact of the interventions on some of these outcomes varied by the interventions duration (four-session versus eight-session) [16], follow-up period (e.g., post-intervention, six-month and one year follow-ups) [16], and by the type of sexual partner (e.g., steady versus other) [44].

Designing for Dissemination Features

Table 5 describes the designing for dissemination features of the six intervention studies. Only two of the intervention sites were described as being purposely chosen because the community based organization offered an ideal place for which to widely disseminate the intervention to the population of interest [41, 42]. Four of the six interventions described being developed with input from key stakeholders including potential intervention recipients, intervention facilitators, and experts in HIV services and varying degrees of stakeholder involvement were reported [16, 28, 36, 39, 41, 42, 45]. Only one intervention was facilitated by workers internal to the target delivery setting [41]. Another study described next steps involving the training of frontline workers [16, 39]. Three studies reported that facilitators received training on the intervention and the trainings ranged from 1 to 3-days [16, 39, 41, 42]. Three of the six interventions were described as manualized [16, 39, 41, 44]. Finally, three studies assessed intervention acceptability, fidelity or feasibility [41, 42, 44].

Discussion

Despite the intersection of IPV and HIV being documented twenty years ago [15] and numerous epidemiologic studies on the topic [1, 46], this systematic review identified only six HIV/STI prevention interventions specifically tested among women who have experienced IPV [16, 41–45]. To our surprise, none of the studies included were from outside the United States even though there is an international literature pertaining to the intersection of violence against women and HIV [2, 3] and recommendations from the World Health Organization to address HIV in services for survivors of violence [47]. Some international studies were excluded from this systematic review because the

Table 5 Designing for dissemination features of HIV/STI prevention interventions for women who experience IPV

First author (year)	Site chosen for scalability	Stakeholder involvement	Facilitator works in target delivery setting	Facilitators training duration	Intervention packaged or manualized	Context assessments
Cavanaugh [41]	Yes	Intervention adapted using feedback from shelter residents, workers, & topical experts [28]	Yes. Intervention facilitated by domestic violence shelter workers	8 h	Yes	Acceptability, feasibility, fidelity
Johnson [42]	Yes	Conducted focus groups [36]	No. Intervention facilitated by doctoral students or personnel who provide rapid HIV testing in the community	2.5 days	NS	Acceptability, feasibility, fidelity
Laughon [43]	NS	NS	NS	NS	NS	No
Melendez [16]	NS	Intervention guided by surveys and focus groups from potential intervention recipients [39]	No. But discussed diffusing intervention to frontline workers [39]	Three days and further training/supervision [39]	Yes [39]	No
Mittal [44]	NS	NS	NS	NS	Yes	Feasibility
Roundtree [45]	NS	Intervention developed with input from IPV survivors and experts	NS	NS	NS	No

NS not stated

interventions were not tested specifically among women who have experienced IPV. Thus, the effects of the intervention among women who have experienced IPV were unclear. For example, one study from India was excluded because it consisted of women who had experienced IPV *or* whose husbands were heavy or frequent alcohol users or had perpetrated IPV [48]. Another study from South Africa was excluded from this review because the study sample consisted of women who had experienced IPV *or* other forms of gender-based violence such as rape by a non-intimate partner (e.g., stranger) [49].

Nevertheless, findings from this review are consistent with other reports of limited attention to IPV in HIV/STI prevention studies [50]. The lack of HIV/STI prevention studies for abused women may be a result of disparities in both HIV/AIDS prevention and treatment for women [51] and disparities in the inclusion of women in HIV/AIDS research [52]. Since the COVID-19 pandemic is leading to increased rates of IPV and even greater social inequities that increase women's risk for HIV and other STI's as well as limited access for HIV testing and prevention services; the development, implementation, and dissemination of HIV/STI prevention interventions for abused women is of even greater importance now than before the COVID-19 pandemic [7, 53, 54].

Our review summarized the characteristics of HIV/STI prevention interventions for women who had experienced IPV, the impact of the interventions on HIV-related outcomes and the degree to which interventions were designed with dissemination in mind. It is noteworthy that only two of the six studies involved randomized control trials [16, 44], three were delivered to women in domestic violence shelters [41, 42, 45], and the majority of participants in four of the six studies were Black/African American [16, 41, 43–45]. Since HIV remains a leading cause of death for Black women in the United States [55], it is beneficial that the majority of abused women in these studies identified as Black/African American. The interventions durations ranged from 10-min [43] to 18 h [45] and four of the six HIV/STI prevention interventions for abused women were more than 2 h in duration [16, 41, 44, 45], which is considered a high-contact time intervention [56]. Thus, regardless of these interventions efficacy, the interventions duration may prevent them from being widely implemented among community service organizations that are often confronted with competing demands and limited resources. The integration of technologies into HIV/STI prevention interventions for abused women may help facilitate intervention dissemination and reduce the burden for staff to deliver the intervention to abused women [57].

There has been increased attention to the use of pre-exposure prophylaxis (PrEP) to prevent HIV among women in abusive relationships [58–61]. However, there was limited attention to this prevention tool in the HIV/STI preventions interventions described here. For example, one study described how future implementations of the HIV/STI prevention should integrate PrEP into the intervention [41] and none of the studies examined the impact of the interventions on participants' knowledge of PrEP, PrEP acceptability or PrEP use. Even though PrEP may serve to prevent HIV for those who use it, behavioral interventions will continue to be an important part of HIV/STI prevention [62]. Thus, HIV/STI prevention interventions for abused women may be improved by integrating PrEP into comprehensive HIV/STI preventions interventions for abused women [63–65].

The effects of the interventions were assessed across 12 different HIV-related outcomes. Only three studies examined the effects of the interventions on unprotected sexual episodes, two of those studies were randomized control trials [16, 44]. Although, two interventions found significant reductions in unprotected sexual episodes or consistent safer sex among abused women in treatment versus control conditions, both of the interventions were 16 h in duration. As noted above, a 16 h intervention would be difficult for many community organizations such as domestic violence shelters to implement. It is also important to note that one of these randomized control trials found significant reductions or consistent safe sex practices among abused women in an eight-session group intervention, but not a four- session group, compared to abused women in a control group [16]. Thus, there is a need for HIV/STI prevention interventions that are both feasible for wide dissemination (e.g., briefer in duration) and efficacious in reducing unprotected sexual episodes among abused women.

While each of the studies reviewed had unique strengths, this review shows that few HIV/STI prevention interventions for women who have experienced IPV are responding to calls for considering dissemination and implementation from the outset of intervention development [23, 24]. For example, only two studies reviewed described purposely choosing an intervention site based upon scalability purposes [41, 42]. Nevertheless, scholars have noted that "If more of our interventions were designed with the ultimate target setting and population in mind…the path from discovery [intervention] to delivery would be far more seamless [p.2.,24]." Domestic violence shelters have been identified as an ideal setting for which to implement HIV/STI programs for abused women [28] and three of the interventions reviewed were conducted at domestic violence shelters and used stakeholder feedback to inform the intervention development and implementation [41, 42, 45]. However, only one of these studies had shelter workers facilitate the HIV/STI prevention intervention [41]. Two interventions were administered at family planning clinics, but neither intervention explicitly described the intervention as being facilitated by clinic staff [16, 43]. Thus, work in this area would be improved by greater involvement of key stakeholders in the intervention development and implementation, particularly with facilitating the interventions.

Study Limitations

Findings from this review need to be considered in the context of the study limitations. As mentioned above, none of the studies that met our inclusion criteria were from outside the United States, which is unfortunate given the global nature of the intersection of HIV and IPV [2, 3, 47]. Additionally, only two studies in this review used randomized control designs [16, 44]. Thus, we were unable to provide more information about the efficacy of the interventions reducing unprotected sexual episodes. Also, this review was restricted to studies published in peer-reviewed journals. It did not include gray literature sources (e.g. conferences, dissertations, etc.). There is the possibility that the inclusion of unpublished HIV/STI prevention studies for female IPV survivors may have shown different findings than those reported here.

There are a number of study strengths. To our knowledge, this is if the first systematic review of HIV/STI prevention interventions specifically for women who have experienced IPV. Thus, it provides a summary of the state of HIV/STI prevention for this high-risk population of women. Additionally, Black or African American women comprised the majority of the participants in four of the six studies and HIV has disproportionately affected this group of women in the United States. Additionally, this systematic review is novel in its summary of whether interventions were designed for dissemination. Given the failure for many innovations to be widely disseminated, understanding the degree to which the interventions were designed for dissemination is important.

Conclusions

This systematic review contributes to the extant literature by providing a summary of HIV/STI prevention interventions for women who have experienced IPV. Specifically, we have summarized the interventions characteristics, impact on HIV-related outcomes, and whether the studies were designed for dissemination. Findings suggest that HIV/STI prevention interventions for abused women may be improved with the following: (1) researchers identifying target settings for which to widely disseminate HIV/STI prevention interventions to abused women (e.g., domestic violence shelters, family planning clinics, high schools and colleges) from the outset of intervention development, (2)

involving key stakeholders in intervention development and testing, especially the facilitation of the interventions, (3) providing community workers with packaged or manualized interventions and training for how to facilitate the intervention to abused women, (4) using randomized control trials to determine the efficacy of the intervention and assessing the interventions feasibility, fidelity, and acceptability, and (5) integrating biomedical prevention strategies (e.g., PrEP) and technologies into the HIV/STI prevention for abused women.

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Availability of Data and Material This review used data from published studies.

Declarations

Conflicts of interest Not applicable.

Ethical Approval This study was approved by the Institutional Review Board of Rutgers University.

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