Article:
Ali, P. orcid.org/0000-0002-7839-8130, Allmark, P., Booth, A. orcid.org/0000-0003-4808-3880 et al. (3 more authors) (2021) How accurate and effective are screening tools and subsequent interventions for intimate partner violence in non-high-risk settings (IPV)? A rapid review. Journal of Criminal Psychology. ISSN 2009-3829

https://doi.org/10.1108/jcp-03-2021-0007

How accurate and effective are screening tools and subsequent interventions for intimate partner violence in non-high-risk settings (IPV)? A rapid review

Journal:	*Journal of Criminal Psychology*
Manuscript ID	JCP-03-2021-0007.R1
Manuscript Type:	Research Paper
Keywords:	intimate partner violence, domestic violence, IPV screening, Primary care, IPV interventions, abuse screening

MANUSCRIPT DETAILS

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ABSTRACT:

To estimate the accuracy and effectiveness of screening tools and subsequent interventions in the detection and treatment of intimate partner violence (IPV) in non-high-risk settings (defined here as those in which routine IPV screening does not take place in the UK, such as in General Practice).

Rapid review as defined by Grant and Booth â€“ it is used under time or financial constraint to assess what is known using systematic review methods.

Medline, PsycINFO, Embase and Cochrane Library databases to May 2019 were searched for â€œintimate partner violenceâ€ and synonyms plus terms related to screening and interventions. A Medline update was performed in August 2020. Data were extracted with the help of a predesigned tool and were synthesized to answer the two study aims. Data were mixed quantitative and qualitative.

The search yielded 10 relevant papers on screening (6 on accuracy and 4 on effectiveness) and 13 on intervention. These showed evidence of the effectiveness of simple screening tools and of subsequent interventions. However, the evidence was insufficient to support a change in UK guidelines which currently do not recommend their use outside of current high-risk environments.

CUST_RESEARCH_LIMITATIONS/IMPLICATIONS_(LIMIT_100_WORDS) :No data available.

CUST_PRACTICAL_IMPLICATIONS_(LIMIT_100_WORDS) :No data available.

A rapid review design was used in accordance with the requirements of the funder and the associated short time frame available. This is less thorough than a systematic review. For example, there was no search for grey or unpublished. In addition, quality appraisal of the articles was performed but not used formally in a meta-analysis. Finally, as already noted, the rapid review was performed under guidelines set out before the most recent update

Identification of an appropriate screening tool is an important issues affecting health and social care professionals ability to identify and respond to intimate partner violence. This papers provide important insights about the effective screening tools and IPV interventions.

How accurate and effective are screening tools and subsequent interventions for intimate partner violence in non-high-risk settings (IPV)? A rapid review

ABSTRACT

Purpose: To estimate the accuracy and effectiveness of screening tools and subsequent interventions in the detection and treatment of intimate partner violence (IPV) in non-high-risk settings (defined here as those in which routine IPV screening does not take place in the UK, such as in General Practice).

Design: Rapid review as defined by Grant and Booth – it is used under time or financial constraint to assess what is known using systematic review methods.

Methods: Medline, PsycINFO, Embase and Cochrane Library databases to May 2019 were searched for "intimate partner violence" and synonyms plus terms related to screening and interventions. A Medline update was performed in August 2020. Data were extracted with the help of a predesigned tool and were synthesized to answer the two study aims. Data were mixed quantitative and qualitative.

Results: The search yielded 10 relevant papers on screening (6 on accuracy and 4 on effectiveness) and 13 on intervention. These showed evidence of the effectiveness of simple screening tools and of subsequent interventions. However, the evidence was insufficient to support a change in UK guidelines which currently do not recommend their use outside of current high-risk environments.

Conclusion: Clinicians outside of high-risk areas should consider the use of some IPV screening tools and interventions but only within research protocols in order to gather further evidence.

Key words: intimate partner violence, domestic violence, spouse abuse, screening, interventions

How accurate and effective are screening tools and subsequent interventions for intimate partner violence in non-high-risk settings (IPV)? A rapid review

1 Introduction

Intimate partner violence (IPV) is a form or subset of domestic violence and abuse (DVA). DVA is defined in the UK as,

"any incident or pattern of incidents of controlling, coercive, threatening behaviour, violence or abuse between those aged 16 or over who are, or have been, intimate partners or family members regardless of gender or sexuality. The abuse can encompass, but is not limited to psychological, physical, sexual, financial or emotional." [1]

This definition also encompasses acts of 'honour' based violence, female genital mutilation (FGM) [cutting] and forced marriage. DVA can manifest in several forms, including child abuse, elder abuse and intimate partner violence (IPV). All of these except IPV can also take non-domestic forms whereas IPV involves only a current or former intimate partner. It is also termed "partner violence". A review found that in the general UK population between 1.8 and 4.5% were victims of IPV in the past year [2]. This was higher in women than men (2.5-6.3% vs 0.9-2.7%). Earlier studies suggest that around a quarter of UK and Australian women are exposed to IPV at some time in their lives [3,4].

IPV is associated with serious physical and psychological harm to its direct victims. According to World Health Organization (WHO) approximately 42% of women who experience physical or sexual IPV, sustain injuries as a result [5]. Sexual IPV can result in unwanted pregnancy, miscarriage, sexually transmitted infections (STI) and other gynaecological problems [6–8].

Psychological effects of IPV may include fear, depression, low self-esteem, anxiety disorders, depression, headaches, obsessive-compulsive disorder,

post-traumatic stress disorder, low self-esteem, disassociation, sleep disorders, shame, guilt, self-mutilation, drug and alcohol abuse and eating disorders [9,10]. IPV is also associated with harm to indirect victims, particularly other family members, such as children [11].

In the light of this, screening and treatment for IPV has potential public health benefit. In the UK, the National Institute for Health and Clinical Excellence (NICE) has produced public health guidance [PH50] and a quality standard [QS116] on DVA [12,13]. These recommend that frontline staff are trained to recognise DVA indicators and to ask relevant questions to support disclosure of IPV/ DVA and effective responses. In addition, they recommend routine questioning about DVA in specific areas such as antenatal, postnatal, reproductive care, sexual health, alcohol or drug misuse, mental health, children and vulnerable adults' services. Routine screening also occurs following certain injuries in Emergency Departments (ED), also called Accident and Emergency (A&E). Routine screening for DVA is not recommended outside of these so-called high-risk areas, in, for example, general practice and most outpatient clinics. NICE has no recommendations specifically for IPV.

Policies in the other big-five areas examined in this review are as follows:

Australia: Screening policies for domestic violence vary between jurisdictions. In New South Wales and in Northern Territory, screening for such violence is routine. In Victoria, there is targeted screening for family violence. There are no universally accepted guidelines on screening.[14,15] The Royal Australian College of General Practitioners says there is insufficient evidence for universal screening in clinical settings but says also there should be a "low threshold" [p.13] for asking about abuse.[16]

Canada: The Public Health Agency of Canada does not currently support routine screening for IPV.[17] This recommendation is based on the review of evidence undertaken for the USPSTF.

Ireland: The Health Service Executive (HSE) does not recommend universal screening for domestic violence.[18] It recommends primary care staff be trained in a practice of recognise, respond and refer.

New Zealand: Guidelines from the Ministry of Health[19] recommend routine enquiry concerning IPV among women of childbearing age, not just those in particular high-risk groups or areas.

United States: On the basis of a report by the US Preventive Services Task Force (USPSTF),[20] guidelines recommend clinicians screen for IPV in all women of reproductive age and provide or refer women who screen positive to ongoing support services. A 2013 Government report sets out the state of practice at that time.[21] Practice varies widely by State; the USA has a highly decentralized system of health care. However, screening rates are low, between 1.5% and 12% in primary care settings.[22]

This current review examined areas outside those deemed high risk. These are areas that are generally not routinely covered by screening in the big-five areas. In relation to these areas, its aims were:

1) To determine the accuracy of screening tools for intimate partner violence (IPV) in women and men, and in sub-groups based on ethnicity and sexual orientation;

2) To determine the effectiveness of such screening and subsequent interventions in terms of, for example, reducing the rate of such violence.

2 Methods

This was a rapid review of the literature as defined in the typology of Grant and Booth (2009). This method was chosen as a requirement of the funders. Here a caveat is required. The technology of rapid reviews is changing, particularly since the establishment in 2015 of the Cochrane Rapid Review

Methodology Group. This published guidance in 2020 [24] This post-dated our review which, therefore, does not meet all its recommendations. This is a limitation of our study. Nonetheless, as a rapid review of the earlier type, it aims to examine a representative range of evidence on IPV in the clinical population that is not routinely screened (rather than all available evidence).

We searched the Medline, PsycINFO, Embase and Cochrane Library databases. using the term "intimate partner violence" and synonyms, such as battered women and spouse abuse combined with terms related to incidence, prevalence and epidemiology. See Appendix 1 for full search strategy. Studies were included if they:

1) concerned IPV affecting men or women aged 16 and above with no obvious signs or symptoms of abuse; (below this age, incidents are likely to be characterised differently, as, for example, child abuse);

2) concerned i) the sensitivity, specificity, and positive and negative predictive values of screening tools designed to detect current or past IPV, including self-and clinician-administered or ii) the effectiveness of screening and subsequent interventions in terms of desired outcomes;

3) were cross-sectional studies or cohort studies;

4) were published in English;

5) were published up until January 16 2019 from: i) 1st January 2007 (for women) or ii) any date (for men and sub-groups of women by sexuality, pregnancy and ethnicity). The distinction between i) and ii) was set because the review was an update of earlier NSC reviews which included figures up to 2007 but which excluded men and only included women unspecified by sexuality, pregnancy or ethnicity;

6) concerned the use of screening in non-high-risk areas defined as those in which NICE already recommends proactively asking patients about IPV; this review was concerned with areas or groups where screening is not routinely undertaken

7) used data from the so-called big five geographic areas: UK and Ireland, USA, Canada, Australia and New Zealand. The big five countries were deemed to have sufficient cultural, health service and language similarities for the results to be relevant to the UK.

There were 12 other relevant systematic reviews; these were hand-searched for additional articles [20,25–35]. For the purposes of this article, an update search to 1st August 2020 was performed in Medline alone (see Results).

Two reviewers undertook quality appraisal of all included papers. The following tools were used: CASP checklist for diagnostic test study [36]; CASP checklist for RCT [37]; and the appraisal tool for cross-sectional studies (AXIS) tool [38]. The appraisals informed the analysis but no exclusion criteria were set on the basis of quality. This decision was made because of the small data set and the need therefore to draw on a broad data set.

Ethics

As this was a review of published evidence, no formal research ethics approval was required or sought. There was, however, an element of patient and public involvement (PPI): first, the review went for public consultation before publication and, second, there were 2 PPI representatives on the UK NSC (the funding body) who were involved in its review and development.

3 RESULTS

After removal of duplicates, the original searches yielded 19186 results. These were divided into two groups: the first related to screening and its direct outcomes; the second, to interventions undertaken following screening in the groups covered by this review. 46 additional papers were

included by citation from other literature reviews. Following title and abstract review, 40 papers met the criteria for full text review in relation to screening and 22 papers in relation to intervention. An additional 66 articles were included from the update search, giving a total of 128. Of these, 106 were not selected for extraction because they were in a high-risk setting (n=17), had no relevant data described (n=18) or were not relevant to our research questions (n=71).

This left 10 papers on screening and 13 on intervention. Of the 10 papers on screening, 6 related to accuracy [39–44] and 4 to effectiveness [45–48]. There were 13 papers on 12 interventions [49–58 59–61]; note that El-Mohandes *et al.*, 2008 and Kiely *et al* 2010 report the same study.

The PRISMA chart shows the reasons for exclusion of the other papers. We report the results in three sections, the first two on the accuracy and effectiveness of screening tools for IPV, the third on the effectiveness of interventions following screening.

Figure 1 PRISMA CHART

3.1 Accuracy of screening tools for IPV

A recent review [20] lists CTS-2, CAS and ISA the three gold standard validated reference tools; and these were used as the reference standard in 5 of the 6 studies [41–43,62,63]. These tools are, however, long and difficult to administer. In general, the aim of the studies used here was to validate a short tool, easy to administer in the clinical area, against the longer gold-standard tools. The tools tested were the GASP, [39] PSQ, [62] HITS, [63], E-HITS [42], [64] and HARK [41]. The results are set out in Table 1.

INSERT TABLE 2 HERE

Positive and negative predictive values (PPV and NPV) are included in the table where available. The key point is that PPV and NPV, unlike the more familiar specificity and sensitivity, take account of the prevalence of the condition. As such, they tell you the probability that someone following a positive or negative test result will truly have the condition. By contrast, specificity and sensitivity tell you the proportion of those who test positive or negative will have or not have the disease. NPV and PPV give a better indication of the clinical usefulness of the test [65].

Sohal was the sole UK study included in this review [41]. It involved the administration of questionnaires to women in GP waiting rooms. It found the four-item HARK questionnaire to have good sensitivity and specificity (against CAS as reference standard); the authors concluded that their study suggests HARK may be an effective tool. Dubowitz looked at the 3-item PSQ used with parents in a paediatric clinic [62]. Sensitivity was low but specificity was high (against CTS-2 as reference standard). The authors note that 1 of the 3 items of the PSQ, the one relating to physical assault, was almost as effective as the 3 items together. They conclude that this item could be used as a reasonably effective one-question quick-scan tool. Iverson (using CAS as reference standard) established that a cut-off score of 6 on the HITS tool gave best overall scores, as shown in the table. The authors conclude that the results are promising for the use of HITS. A similar conclusion concerning a modified HITS tool is drawn by Portnoy in relation to a sample of US women veterans [42]. Finally, Soglin et al look at a tool designed specifically for the South Asian population (as defined in US terms) and find it promising, albeit with a small sample. In addition, the cultural specificity of the US definition of South Asian populations would mean it would need separate testing in other contexts [64].

Only one study reviewed concerned a group other than women. This was a study conducted in Canada which examined screening in gay male relationships [39]. The authors noted that no other research tested an abuse-screening tool with gay males. They developed a tool GASP – Gay Abuse

Screening Protocol. This had two initial questions taken as the screening questions which would be followed up by the clinician if either were positive. The three last questions specifically ask whether the person has suffered physical, psychological or sexual abuse; these were taken as the standard against which the two initial questions were assessed. The authors were primarily concerned with physician and patient comfort with the tool; the comfort scores for both groups were high, although lower in abused rather than non-abused patients. They conclude that the tool merits further investigation.

3.2 Effectiveness of screening tools for IPV

Four papers from two studies were reviewed. One study was a large RCT, [45,46,48] the second, a smaller study [66].

The large RCT looked at screening using the 3-item PVS [45,46,48]. There were three study groups: group 1 received the PVS via Computer-Assisted Self-Interview (CASI) and were provided with a local resource list and shown an information video if they screened positive; group 2 received no screening, but were provided with the local resource list; group 3 received no screening or resource list. At 1-year, the groups were compared for incidents of IPV, quality of life (mental and physical health), hospitalisation, Emergency Department (ED) visits and ambulatory visits (i.e. out-patient visits). At 3-years, the groups were compared for hospitalization, ED visits and ambulatory visits. No significant differences were found across the three groups for any of the outcomes at 1-year or at 3-years.

The researchers also examined knowledge and attitudes regarding IPV at 1 year in the same participants [45]. The data are cut into various groups based on the intervention received plus the women's own experience of IPV. The key finding is that no differences were found on the basis of either type of intervention; this is with one fairly minor exception: "women who were provided a list of IPV resources without screening were significantly less

likely to know that IPV is not the victim's fault than those in the control or list plus screening conditions [i.e., groups]".

The smaller study tested the accuracy of PVS administered face-to-face and by computer assisted self-interview (CASI). If either method resulted in a positive score for PVS the trial went on to examine the effect of three types of support. The first was face-to-face healthcare professional support and referral to relevant agencies – this was provided to those who had completed the PVS face-to-face. Those who completed the CASI either received a printout of local resources and encouragement to contact these or they received a short video clip talking about support and encouraging help seeking, plus the printout of resources. 126 women were randomised to the study (46 face-to-face). At one week, 96% recalled receiving the list: 4/36 (11%) of those screened by healthcare professional had taken up services from the list versus 2/66 (3%) of the comparator group. They conclude that the tool merits further investigation.

3.3 Effectiveness of interventions following screening for IPV

Of the 13 papers on intervention, 7 related to non-pregnant women [52,53,55,56,58–60] and 6 related to pregnant women [49–51,54,57,61]; two of these 6 papers reported on one study [54,57]. Three studies were from Australia [50,55,60], the remainder from the USA.

In line with the objectives of this paper, all the interventions followed screening; they did, however, vary in type. They included motivational interviewing [52], counselling sessions by phone or face-to-face [56,67] which could be provided by trained advocates [67] or clinical staff [53,68]. Table 2 gives a summary of the interventions.

Insert Table 2 here

Effectiveness was measured against various outcomes, particularly IPV exposure, mental health, quality of life, and IPV knowledge and safety promoting behaviours. Taking these in turn, 5 studies looked at the impact of the intervention on IPV exposure in non-pregnant women [52,55,56,58,60] and 6 in pregnant women [50,51,54,57,61,69]. No study found statistically significant effects in non-pregnant women. By contrast, 3 of the 5 studies in pregnant women found an effect [51,54,57,69], 1 study was insufficiently powered [50], whilst one failed to find a statistically significant effect [61].

4 Discussion

Accuracy of screening for IPV

Three tools are considered gold standard: CTS-2, CAS and ISA. Four brief and easy to administer tools were tested in the clinical areas that were the focus of this review. The tools were GASP, HITS, E-HITS and HARK. GASP was aimed at screening in gay male relationships and was the only one not concerned with women in heterosexual relationships. No tools were designed specifically for pregnant women. The tools had no adjustment for cultural or ethnic differences. The small number of studies and limited amount of data mean that it is at present not possible to recommend a particular tool for use in so-called non-high-risk areas. However, they each showed some promise. As such, given the prevalence and impact of domestic and intimate partner violence, there is good reason to continue to test the tools. In addition, the adjustment of the tools and development of new tools based on different ethnicities, sexuality and on pregnancy is indicated by our findings.

Effectiveness of screening for IPV

The search found only two studies reported in four papers on the effectiveness of screening tools as an intervention in itself that might, for example, increase knowledge or reduce violence. This was insufficient to draw clear conclusions on whether screening is effective in this regard. The small amount of evidence found suggested it is plausible that screening *plus* an intervention such as provision of educational materials is more effective

than provision of educational materials alone. We might hypothesize that this is because screening helps better to target the provision of such materials.

Effectiveness of interventions following screening for IPV

Twelve interventions reported in 13 papers were found in this review. The interventions were of various types and were tested against a wide range of outcomes. The key outcome is probably IPV exposure; an intervention for those who had been found by screening to be exposed to IPV and which reduced further exposure would be extremely desirable. The other outcomes measured might be taken as proxies for this main outcome, such as education, or as desirable counter-measures to the harm of IPV, such as improved mental health.

In this regard, the small number of studies and, in some cases, their lack of statistical power, led to disappointing results. In terms of reducing IPV exposure, there is little there is little statistically significant difference between intervention and control groups, although where there are tendencies these favour the intervention groups. One set of researchers caution against using IPV exposure as an outcome as they say it is unlikely to change significantly in the period of a RCT [55]. As such, the signs of improvement in both proxy and counter-measure outcomes might be deemed sufficient evidence to recommend their use. Again, the evidence is insufficient to recommend any particular interventions at a policy level, but is probably sufficient to recommend further research in the clinical areas that are the focus of this review.

Study limitations

A rapid review design was used in accordance with the requirements of the funder and the associated short time frame available. This is less thorough than a systematic review. For example, there was no search for grey or unpublished literature. In addition, quality appraisal of the articles was performed but not used formally in a meta-analysis. Finally, as already

noted, the rapid review was performed under guidelines set out before the most recent update [24].

Despite this, the review shows that there is at present insufficient evidence to support routine use of screening or interventions for IPV in non-high-risk clinical areas or at general population level. However, there are simple screening tools that are promising and which clinicians would be justified in using as part of a research protocol, in particular the screening tools HARK, PSQ and HURT. The same applies *mutatis mutandis* to some interventions, from brochure-based empowerment tools delivered during routine health visits to more intensive counselling or CBT. Given the prevalence and harm caused by IPV, such research is urgently required. The shortfall in evidence is particularly marked in relation to sub-groups such as gay men, lesbians and ethnic minorities.

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JCP-03-2021-0007
Response to reviewers' comments
Thank you to both reviewers for their helpful comments. They are reproduced below with our responses.

Reviewer 1
This is a very well written and well designed review which follows PRISMA guidelines. This study should prove very helpful to researchers in this field and the REA approach was well justified. It is especially good to see that, in addition to a relatively detailed analysis of the articles in Table 2 (possibly too large for publication) that you look at the full range of screening parameters including PPV and NPV in Table 1. It may be worth adding a few words about why PPV and NPV are important and it may be worth
citing https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5701930/ - my only request is that you do either publish or supplement the full search strategy here, the article should be self-contained.

Response
We have added a section on PPV and NPV with the Trevethan reference (thank you for providing it).

We have added more detail re the search – see response to reviewer 2 below.

Reviewer 2
Thank you for your submission - a rapid review of evidence on screening tools in non high-risk environments. Overall, this is presented clearly and has some interesting findings in terms of the gaps in evidence and the gaps in screening tools.

As the papers are mostly outside of the UK, I would like to see more discussion in the background section to provide a backdrop to the protocols and practice in these countries whereas at the moment you only set this out for the UK. Another paragraph would suffice.

Response
This has been done and some references added.

In addition, I would like to see a bit more detail in the methods section. You need to include all search terms (synonyms) so that the search is reproducible.

Response
The full search was quite lengthy. We have therefore included it as an appendix which could be made available online separate to the main publication.

There are a few typing issues that need remedying:
P3 Line 42 suggest not suggested
P4 Line 19 replace 'at present' with 'To date' and remove '(August 2020)'
P4 Line 51 review the sentence 'The work for this…' - it lacks clarity
P5 line 17 remove the second 'Grant and Booth' in the bracketed citation. Just need the publication date.
P5 Line 30 add 'the' before 'earlier type'. The move the bracketed content to after

'IPV'.
P14 line 5 add 'literature' after 'unpublished'.

Response
Thank you – all of these typing issues have been addressed.

IPV screening paper JAVB v6 20022021

Figure 1 PRISMA CHART

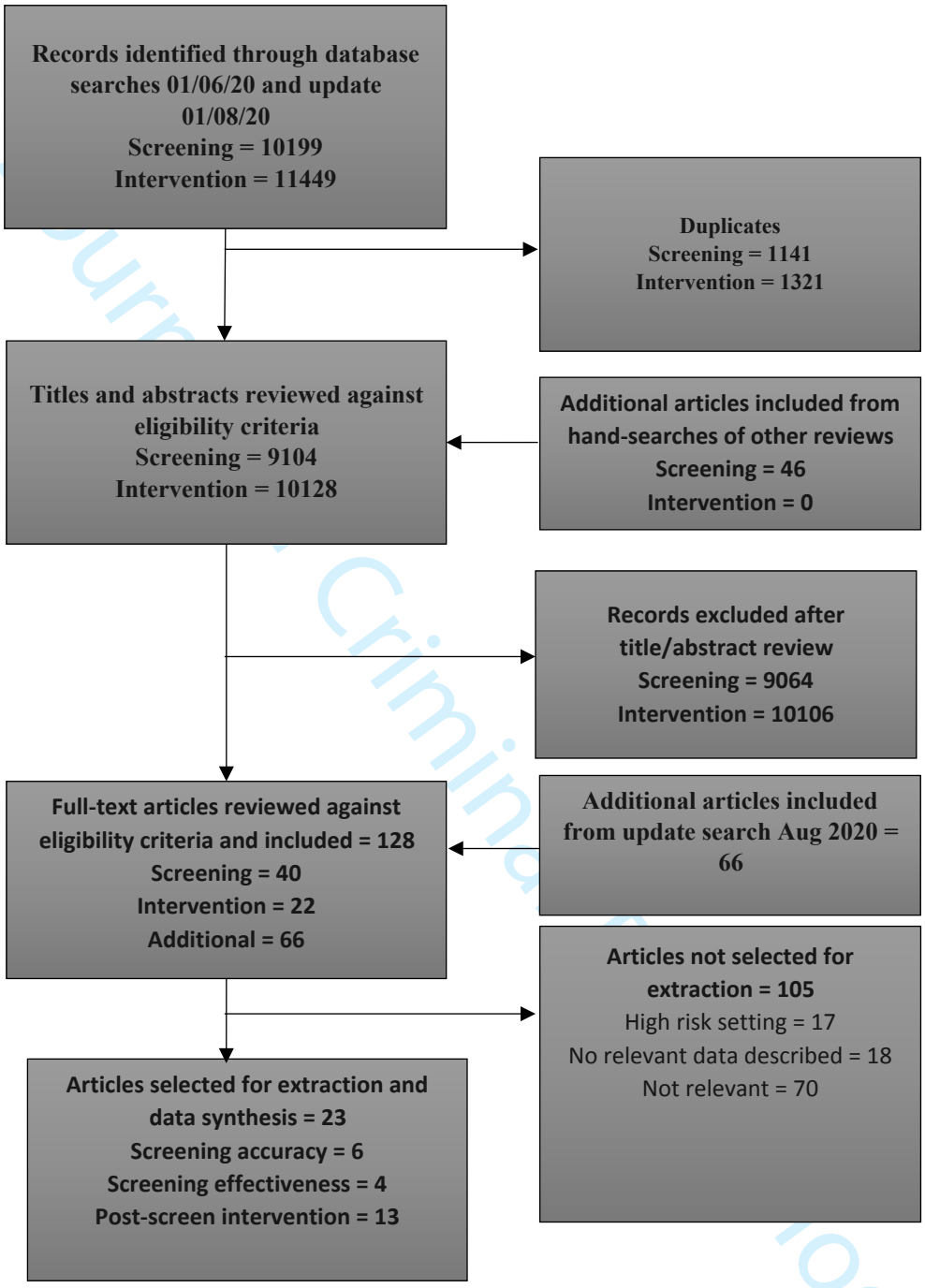

Table 1: Accuracy of IPV Screening Instruments

Author, Year, Setting	Population	N	Screening tool	Reference Standard	Prevalence	Sensitivity % (95% CI – where given)	Specificity % (95% CI – where given)	PPV % (95% CI – where given)	NPV % (95% CI – where given)	Positive Likelihood Ratio (95% CI – where given)	Negative Likelihood Ratio (95% CI – where given
Chan et al., 2008, USA, Primary care	Gay men	40	GASP	WAST	ND	40%	95.5%	80%	77.8%	ND	ND
Dubowitz, et al, 2008, USA, Paediatric primary care	Women	200	PSQ	CTS-2	12%	Any abuse: Physical assault (ever): 19%; Injury (ever): 29% ; Psychological aggression (upper fifth split): 27%	Any abuse: Physical assault (ever): 92.5%; Injury (ever): 91.1%; Psychological aggression (upper fifth split): 92%	Any abuse: Physical assault (ever): 62.5%; Injury (ever): 37.5%; Psychological aggression (upper fifth split): 45.5%	Any abuse: Physical assault (ever): 63.1%; Injury (ever): 87.3%; Psychological aggression (upper fifth split): 83.4%	Any abuse: Physical assault (ever): 2.5 ; Injury (ever): 3.3; Psychological aggression (upper fifth split): 3.3	Any abuse: Physical assault (ever): 0.88; Injury (ever): 0.78; Psychological aggression (upper fifth split): 0.79
Iverson, et al., 2013, USA, Veterans' health clinic	Women	160	HITS	CTS-2	29%	75% (64%-88%)	80% (71%-87%)	61% (47% to 73%)	90% (82% to 95%)	3.9 (2.61 to 5.76)	0.27 (0.16 to 0.47)
Pornoty 2018 USA, Veterans' health clinic	Women veterans	187	E-HITS	CTS-2	17%	Past-6-month perpeatration at cut-off score 7	0.87 (0.81–0.92)	0.51 (0.37–0.65)	0.94 (0.89–0.97)	1.92 (1.41–2.62)	0.12 (0.06–0.24)

						0.71 (0.55–0.84)					
Soglin 2019 **Soglin 2020**	Women	116	SAVS [South Asian Violence Screen]	ISA [Index of spouse abuse]	23% physical 28% non-physical	0.96 physical 0.96 nonphysical	0.87 physical 0.92 nonphysical	0.99 Physical; 0.97 nonphysical	ND	ND	ND
Sohal et al., 2007 **UK, GP Practices**	Women	232	HARK	CAS	23%	81% (69%-90%)	95% (91%-98%)	83% (70% - 91%)	94 %(90% - 97%)	Multilevel LR 16 (8-31)	ND

Table 2: Interventions following screening for IPV

Authors, year country,	Population, setting	Intervention	Outcome	Comments
General group				
Coker et al 2012, USA	751 Women Attending Primary Care (447 intervention, 304 control)	Intervention: In clinic advocacy provided by a clinic-based IPD advocate; Control: Usual care; IPV+ women were given the business card of their health care provider with the coalition hotline number.	IPV exposure – measured by WEB plus follow-up and 17-item Danger Assessment Score: no statistically significant difference over 6 months Mental Health: No differences regarding self-perceived mental health over time but intervention group scored better for depressive symptoms and suicidal ideation over time [6 months] (p= 0.01). Quality of life – not measured Safety seeking behaviour: measured using help-seeking questions in USA National Violence Against Women Survey. Intervention women were more likely to use services provided by the advocate (p=0.03)	Less than 50% response rate; Not a fully cluster-randomised controlled trial (3 out of 8 clinics not randomised); selection bias; high refusal rate (54%); high attrition as only a small number completed follow up

Garcia et al 2019, USA	90 women from Personal Empowerment Programs (PEP) conducted at domestic violence agencies in Orange County, California.	Intervention – PEP plus teaching relaxation techniques. No randomisation.	IPV was assessed with the Revised Conflict Tactics Scale. The Personal Progress Scale–Revised was used to measure empowerment. The Perceived Stress Scale–Short Form was used to assess perceived stress. The Center for Epidemiological Studies–Depression Scale short form was used to assess depressive symptoms. The Derogatis Affects Balance Scale was used to assess mood and affect before and after the PEP class. Current and past experiences with relaxation techniques and exercise were assessed through a six-item questionnaire asking whether the participant had practiced relaxation or exercise (a) currently, (b) ever, and (c) how often.	Non-randomised study with correlational statistics only. Many possibilities for bias or unclear direction of causation. Little longitudinal data therefore findings limited to before and after one session.

			Saliva was collected using Salivettes immediately before and after the 2-hr PEP class. Saliva. Practicing relaxation techniques correlated with more empowerment. For women without sexual abuse experiences only, having completed more classes (>5 classes) in the program was associated with greater empowerment, less stress, and fewer depressive symptoms.	
Gillum et al 2009, USA	41 women screened positive for IPV in past year (21 intervention, 20 control)	Intervention: One on-site and 6 telephone counselling sessions over a 3-month period by a community health worker – average duration 20 minutes Control: Received health information brochures, a list of community resources, and a monthly telephone call to confirm contact information.	IPV exposure – measured using Partner Violence Screen, Partner Abuse Scale and Danger Assessment Score2. No statistically significant difference between groups. Mental health – depression and PTSD measured using Center for Epidemiologic Studies-Depression Scale. No statistically significant difference between groups. Quality of life – not measured	Small sample; selection bias, women may not have reported abuse at true scale; response bias

			Safety promoting behaviour: measured using 15-item checklist. Intervention group significantly more likely to engage in safety-promoting behaviours $p < 0.01$ – on average, those who received the intervention engaged in 3.47 more safety-promoting behaviours.	
Hegarty et al 2013, Australia	Multiple family practice clinics (roughly UK GPs); Women 16-50 who screened positive for fear of their partner in the past 12 months (137 intervention, 135 control)	Intervention: Physician training to respond to women who screen positive for IPV and deliver a brief in-person IPV counselling intervention to screen positive women – average duration 30 minutes – frequency varied by patient need Control: Usual Care	IPV exposure – measured using CAS – no significant differences Mental health – measured using SF12 - no significant differences in anxiety; no significant differences in depression at 6 months – but at 12 months, fewer women in treatment arm had depressive symptoms [Adjusted Odds Ratio 0.4 (95%CI 0.2 to 0.8); p= 0.006. Quality of life – measured using WHO Quality of life – BREF No statistically significant differences Help seeking behaviour: safety planning and	Fair to good quality RCT; lack of masking of providers and patients - low rate of attrition (6% for doctors and 28% for patients); Slightly more women in comparison group were living with partner and had children younger than 18 years.

			behaviour or mental-health SF-12 at 12 months. No statistically significant differences. No adverse events recorded	
Hegarty et al 2019, Australia	422 women aged 16-50 who had screen positive for any type of IPV.	Online interactive healthy relationship tool and safety decision aid (I-DECIDE)	Self-efficacy on General self-efficacy scale Depression on CESD-R Re-exposure to IPV Safety planning behaviour No effect from intervention in terms of depression and possible negative effects in terms of self-efficacy. No effects met pre-specified statistical levels.	RCT – good quality.
Miller et al 2018, USA	25 family planning clinics (17 clusters) 4009 women 16-29 who agreed to a follow-up interview	Clinician and staff training (medical assistants, health educators) to deliver in-person universal screening/ education, and brief counselling (emphasising harm reduction strategies) for IPV/reproductive coercion; additional support, including referrals to victims' services, provided to those who screened positive Control: usual care	Reproductive coercion – measured using ten-item tool: no significant differences at T2 (12-20 weeks) and T3 (12 months) (times pooled) Adjusted Risk Ratio [ARR] (95% CI) 1.5 (0.95 to 2.35) IPV – measured using 3-item tool – unclear which: no significant difference ARR 1.07 (0.84 to 1.38) Mental Health – Not measured	Limited generalisability; lost to follow-up rate high (21% at 12 months); those lost to follow-up had a higher prevalence of IPV at baseline; Analysis controlled for missing data by using imputations; Usual care was not well described

			Quality of life – Not measured Help seeking – Statistically significant difference in knowledge of IPV-related resources in intervention group 4.25 (3.29 to 5.5) but no difference in harm reduction behaviours. Other – no significant differences in pregnancy (unintended or intended), or use of harm reduction behaviours.	
Saftlas et al 2014, USA	2 family planning clinics; women screened positive for IPV by a current partner within the past year and had to be aged 18 years or older, English-speaking, and neither currently pregnant nor incarcerated. 155 intervention (98 completed)/ 155 control (106 completed)	In-person motivational interviewing by trained coordinator or onsite certified domestic abuse advocate focussing on individual goal setting to improve health and increase safety – total around 90 minutes. (Content: physical health, emotional health, social support, quality of work or home life, or their relationship) Control: Provision of written materials and referrals to community-based resources	IPV not measured Only measurements were: Self-efficacy – measured by modified version of Domestic Violence Coping and Self-Efficacy Scale – no statistically significant difference Depressive symptoms – measured using Centre for Epidemiologic Studies Short Depression Scale – no	Recruitment was less than anticipated and made study lack statistical power; lack of masking; High overall attrition but no significant differential attrition (33% including 2 with missing data)

			statistically significant difference Stage-of-readiness-to-change – measured using tool adapted from research in the area – no statistically significant difference	
Pregnant specific group				
El-Mohandes et al 2008 / Kiely et al 2010, USA	African American women ≥18 years, ≤28 weeks' gestation and reporting any of 4 risk factors; Subgroup experiencing IPV screened positive for any IPV in the year prior to pregnancy 150 intervention 156 Control	Intervention: Individual in-person CBT from trained social worker or psychologist aimed at reducing behavioural risks (depression, IPV, smoking, and tobacco exposure); sessions targeted toward specific risks reported by women at that session. **Prenatal:** 3.9 (mean); range 4-8 sessions; Duration: 36±15 min. **Postpartum**:0.8 (mean); range 0-2 sessions; Duration: 38±13 min; Frequency determined by Mothers' attendance at routinely Scheduled perinatal care visits);	IPV exposure – unclear what tool used – may have been disclosure at interview – during pregnancy and postpartum women in the intervention group were statistically less likely to have recurrent episodes of intimate partner violence (adjusted odds ratio 0.48; 95%CI 0.29-0.80); the chance of being an IPV victim at any point in the study was significantly lower in the intervention group (23.3% v 37.8% p=0.006 – no confidence intervals); however postpartum data analysed alone does not reach statistical significance. Pregnancy and birth outcomes – intervention group had fewer very preterm	Risk of selection bias and recall bias; High refusal rate (31% of women approached declined to participate; 15% of those who agreed and met eligibility criteria, declined further participation; Higher attrition rate (26%); imputations were used to control for missing data.

		Control: Usual Care	neonates (1.5% v 6.6%; p=0.03) and an increased mean gestational age (38.2±3.3 vs 36.9±5.9; p=0.16) Mental health outcomes – not measured Quality of life – not measured Help seeking behaviour – measured by resolution of risks in the postpartum period – the intervention group were more successful at resolving all risks (47% v 35% p=0.007) and in resolving some risks (65% v 54% p=0.009).	
Feder et al 2018, USA	Intervention delivered through Nurse Family Partnership (NFP) – a home visiting program for promoting maternal and child health by community nurses to low income, primogenitors. 330 women of 1056 approached took up NFP. Further dropout left a sample	Intervention had three components: nurse training and screening assessment of IPV, a secondary prevention component for those reporting IPV, and a primary prevention component for all participants.	Levels of perpetration of physical, psychological and sexual IPV measured by CTS2. No main effect found on any of these outcomes in those screened and showing IPV. There was an (unexpected) positive effect for women who had not showed IPV on first screening in that those in intervention group showed lower levels of	RCT. Low take up of NFP. Zelen randomization has statistical and ethical concerns. Sample size small given low base rates of IPV in sample.

	of 238 women who were randomised using Zelen randomisation.		physical and psychological IPV.	
Sharps et al 2016, USA	Women ≥14 years, ≤32 weeks' gestation, screened positive for current IPV, low income enrolled in a perinatal HV programme 124 intervention 115 Control	Intervention: (acronym DOVE) Brochure-based IPV empowerment intervention embedded into a perinatal HV programme; tailored to a woman's expressed needs and level of danger; delivered during routine HVs – duration up to 2 years postpartum Control: Standard home-visiting protocol (4–6 prenatal visits, 6–12 postnatal visits over 2 years)	IPV exposure – measured using CTS2 – there was a significant decrease in IPV at all points from baseline to 24 months postpartum (both intervention and control group) $p<0.001$). There was also a significant treatment effect ($F=6.45$; $p<0.01$). Treatment group had larger mean decrease in IPV scores from baseline (mean 40.82 v 35.87). Pregnancy and birth outcomes – not measured Mental health outcomes – measured using Edinburgh Postnatal Depression Scale – mean levels of maternal deprivation did not differ across groups at any time point in the study (all $p>0.05$) Quality of life – not measured Help seeking behaviour – not measured	Risk of selection bias; high overall attrition rate (55% at 24 months); varied randomisation procedures by site. At urban centres randomisation was by participants (computer generated number assignment), at rural health agencies cluster randomisation was used for 6 sites; method of cluster randomisation- not clear
Taft et al 2011, Australia	106 Primary Care clinics; Women aged 16 and over,	Weekly HVs offering non-professional befriending,	IPV exposure – measured using CAS – findings	Enrolled women screened positive for IPV or self-

	pregnant or had at least one child five years or younger, and disclosed IPV or were psychosocially distressed. 167 intervention 91 control	advocacy, parenting support and referrals – Duration 12 months Control: Usual Clinician Care	consistently favoured intervention group but did not reach statistical significance – the closest was reduced partner violence: odds of experiencing violence at follow-up adjusted for baseline abuse were 0.47 (95%CI 0.21-1.05). Pregnancy and birth outcomes – not measured Mental health outcomes – measured using Edinburgh Postnatal Depression Scale – favoured intervention but did not reach statistical difference Adjusted Difference of OR -1.90, 95%CI -4.12 to 0.32. Quality of life – measured using SF-36 difference favouring intervention did not reach statistical significance. Help seeking behaviour – not measured In addition – there seemed to be no difference with regard to the Parenting Stress Index.	disclosure of IPV status; selection bias; intervention and control arm were not of same size; imputations were used to manage missing data; high attrition

Zlotnick et al 2018, USA	Perinatal women, 18 years of age or older, English-speaking, and reported experiencing IPV in the past 12 months – now seeking mental health treatment 28 intervention 25 control	A computerized based intervention (acronym SURE) delivered on a tablet computer. It included a parrot avatar with a female voice that addresses the participant by name, serves as a guide and narrator for the programme. Focused on personalised safety planning. Optional printouts of related materials; This was followed by a telephone/ in-person 10–15-min booster session to review goals and motivators, barriers to increasing safety behaviours and achieving goals. Control: watching brief segments of popular television shows and following up with questions for ratings of their preference.	IPV exposure –measured using CAS – total victimization scores for women in intervention group decreased by 14.8 points at 4-month follow up and was unchanged in the non-intervention group. The reduction was significant on a paired t-test $p<0.001$. Each subscale of CAS showed a reduction but only with statistical significance in the emotional subscale. Pregnancy and birth outcomes – not measured Mental health outcomes – not measured Quality of life – not measured Help seeking behaviour – not measured In addition, the SURE intervention was scored acceptable and helpful by participants.	Small sample size; feasibility study; limited generalisability as single site study; selection bias; response bias; high refusal rate from those invited to participate (32%); attrition rate (8%);