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Screening and intervention for intimate partner violence at trauma centers and emergency departments: an evidence-based systematic review from the Eastern Association for the Surgery of Trauma

Amanda L Teichman ,[1] Stephanie Bonne,[2] Rishi Rattan,[3] Linda Dultz,[4] Farheen A Qurashi,[5] Anna Goldenberg,[6] Nathan Polite,[7] Anna Liveris,[8] Jennifer J Freeman,[9] Christina Colosimo ,[10] Erin Chang,[11] Rachel L Choron,[1] Courtney Edwards,[12] Sandra Arabian,[13] Krista L Haines,[14] D'Andrea Joseph,[15] Patrick B Murphy ,[16] Andrew T Schramm,[16] Hee Soo Jung,[17] Emily Lawson,[18] Kathleen Fox,[18] Hassan Naser A Mashbari ,[19] Randi N Smith[20]

For numbered affiliations see end of article.

Correspondence to
Dr Amanda L Teichman; ateich13@gmail.com

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ABSTRACT

Background Intimate partner violence (IPV) is a serious public health issue with a substantial burden on society. Screening and intervention practices vary widely and there are no standard guidelines. Our objective was to review research on current practices for IPV prevention in emergency departments and trauma centers in the USA and provide evidenced-based recommendations.

Methods An evidence-based systematic review of the literature was conducted to address screening and intervention for IPV in adult trauma and emergency department patients. The Grading of Recommendations, Assessment, Development and Evaluations methodology was used to determine the quality of evidence. Studies were included if they addressed our prespecified population, intervention, control, and outcomes questions. Case reports, editorials, and abstracts were excluded from review.

Results Seven studies met inclusion criteria. All seven were centered around screening for IPV; none addressed interventions when abuse was identified. Screening instruments varied across studies. Although it is unclear if one tool is more accurate than others, significantly more victims were identified when screening protocols were implemented compared with non-standardized approaches to identifying IPV victims.

Conclusion Overall, there were very limited data addressing the topic of IPV screening and intervention in emergency medical settings, and the quality of the evidence was low. With likely low risk and a significant potential benefit, we conditionally recommend implementation of a screening protocol to identify victims of IPV in adults treated in the emergency department and trauma centers. Although the purpose of screening would ultimately be to provide resources for victims, no studies that assessed distinct interventions met our inclusion criteria. Therefore, we cannot make specific recommendations related to IPV interventions.

PROSPERO registration number CRD42020219517.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Intimate partner violence (IPV) is a serious issue with substantial prevalence in the community and is particularly common in the trauma population.
⇒ Identification of victims and effectively providing resources has been a major barrier to reduction in IPV-related morbidity and mortality.

WHAT THIS STUDY ADDS

⇒ Our goal was for these practice management guidelines to serve as a framework for trauma centers and emergency rooms to better identify and provide resources to this patient population.
⇒ We found an overall paucity of data addressing the impact of screening or intervention on IPV in trauma and emergency room patients.
⇒ The included studies do suggest a significant improvement in IPV victim identification when universal screening is implemented.
⇒ No studies that met our inclusion criteria based on the Grading of Recommendations, Assessment, Development and Evaluations methodology assessed outcomes related to IPV intervention, highlighting a deficiency in the literature.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE, OR POLICY

⇒ Our practice management guidelines will hopefully encourage emergency rooms and trauma centers to employ universal IPV screening protocols, as our results provide support for the effectiveness of these practices.
⇒ Despite a lack of data regarding intervention, availability of IPV resources is a critical to breaking the cycle of abuse.
⇒ We hope our work encourages further research in this area to address optimal screening modalities and strategies for intervention.

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INTRODUCTION

Intimate partner violence (IPV) is a public health concern affecting as many as 23% of women and 14% of men in the USA, and has highly consequential adverse effects on the physical, psychosocial and emotional well-being of those injured and their families.[1–3] IPV takes many forms, including sexual, physical, and emotional abuse in addition to other types of abuse such as stalking, financial control, and/or psychological harm from a current or former partner. IPV does not always involve a sexual relationship.[4] Victims of abuse may present with chronic physical or mental health issues as well as injuries due to physical violence.[5] Data from the National Violence Against Women Survey found physical IPV to be associated with poor health, symptoms of depression, substance abuse, and injury.[6] Globally, violence against women by a male partner or ex-partner makes up the majority of IPV, according to WHO.[7] However, IPV affects people of any gender and impacts all races as well as individuals in heterosexual and lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual, and more relationships.[4 8 9]

In fact, ethnic minorities are disproportionately impacted by IPV. Forty-four per cent of non-Hispanic black and 46% of Native American/Alaska Native women experience abuse by an intimate partner during their lifetime. IPV is also significantly more prevalent in Hispanic (35%) and white non-Hispanic (37%) women.[9] Marginalized populations such as immigrants from Mexico, Central America, South America, and the Caribbean are more likely to be victims of IPV as compared with Latinas born in the USA[10 11]; this increased risk may be explained by lower income, reduced education levels, and poor access to healthcare. In addition to greater IPV prevalence, immigrants and ethnic minorities are at disproportionately heightened risk for adverse health outcomes related to IPV.[12] Sexual orientation also significantly impacts the risk of domestic violence. Bisexual women are more likely to be victims of IPV when compared with both lesbian and heterosexual women.[9] For both men and women, IPV can occur at any age, but is most common at ages 18–24 years.[13] Johnson *et al* looked at this age group most commonly impacted by IPV and found that 53% had been in some relationships with IPV and 8% experienced IPV in all of their relationships.[14]

There is a wide range of societal, individual, and relationship issues which place people at risk for domestic violence. For example, education levels are inversely correlated with risk for abuse.[15] That is not to say that highly educated individuals are immune, as demonstrated by a survey of surgeons in which 57.3% reported emotional abuse and 12.1% physical abuse.[16] Additionally, a history of abuse in childhood increases the likelihood of IPV victimization or perpetration as an adolescent or adult.[17] Unemployment, financial hardship, and drug/alcohol abuse are also potential contributors to IPV.[15] According to a National Violence Against Women Survey, married women who lived separately from their husbands were four times more likely to experience IPV (20% vs 5.4%), but only 6.3% of rape victims and 4.2% of physical assault victims report that the abuse began after the end of their relationships. This suggests that the majority of IPV occurs in the context of ongoing intimate relationships, highlighting the need for improved screening and intervention practices to lessen the burden of domestic violence over time.[18]

In addition, 16% of homicide victims and over 40% of female murder victims are killed by an intimate partner, highlighting the importance of identifying and intervening on IPV early.[1] Healthcare providers are uniquely positioned to interact with victims, as up to 41% of women and 20% of men seek healthcare in the year prior to their homicide.[19] Victims of IPV are more likely to suffer from depression, chronic pain disorders, cardiovascular disease, and gastrointestinal disorders.[20] Suicide and suicide attempts are also significantly more prevalent in IPV victims.[21] Based on data from the National Intimate Partner and Sexual Violence Survey, 1 in 4 women and 1 in 10 men have experienced injury, the need for medical care, or post-traumatic stress symptoms as a consequence of IPV. These numbers have remained relatively constant since 2010, highlighting the need for better screening, intervention, and prevention strategies.[22] In addition to the mental and physical burden this places on victims and families, there is a huge financial impact related to IPV. Peterson *et al* found the lifetime cost of IPV to be >US$100 000 per female victim and >US$23 000 per male victim. The cumulative economic burden was found to be nearly US$3.6 trillion. Medical costs account for 59% (US$2.1 trillion), productivity loss 37% (US$1.3 trillion), criminal justice costs 2% (US$73 billion), and other costs such as property loss/damage account for the remaining 2% (US$62 billion).[23] One study found a 10% reduction in annual work hours as a result of IPV.[24]

This topic is particularly pertinent in the context of the recent COVID-19 pandemic. With global lockdowns and curfews, victims were trapped at home with their abusers, socioeconomic instability limited financial independence (contributing to already tenuous situations), and disconnection from community support reduced victims' access to resources for help.[25] These factors likely contributed to the significant rise in IPV-related injuries and emergency room visits during the pandemic.[26 27] One study even found a higher incidence of COVID-19 in trauma patients with injuries due to IPV.[28] While there are many ways in which COVID-19 compounded the struggles faced by IPV victims, it has also highlighted some of the greatest systemic barriers to providing resources for those experiencing or at risk for experiencing abuse.

Existing research suggests that IPV is especially important to consider among trauma patients. For example, one study in female patients with orbital fracture found that identification of IPV significantly increased with screening.[29] Furthermore, an Eastern Association for the Surgery of Trauma (EAST) multicenter trial found that one in nine trauma patients are at risk for intimate partner and sexual violence.[2 8 30] Despite its high prevalence in trauma populations, clinical practices to identify, prevent, and intervene on IPV vary widely from center to center, and there is no current guideline as to the most effective methods to identify IPV victims in this setting and how best to intervene with victims once identified. As members of the trauma community, we are in a unique position to treat injury related to IPV, and to screen and provide early intervention. In order to inform future development of standardized screening and intervention practices, we performed a systematic review and developed an evidence-based recommendation on our population, intervention, control, and outcomes (PICO) questions.

OBJECTIVES

The purpose of this study was to provide an evidence-based review of screening practices for IPV in trauma victims receiving care in emergency departments (EDs) and trauma centers in the USA.

Selection of outcome measures

A multidisciplinary team of both EAST and non-EAST members, including nurses, physicians, social workers, trauma program managers, a trauma psychologist, and public health experts was assembled to conduct this systematic review and formulate

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evidence-based guidelines related to IPV and trauma. The group decided on two PICO questions, each with two different outcomes. Individual outcomes were identified and prioritized according to a 9-point Likert scale where 1 was minimal importance and 7–9 represented critically important outcomes. Each team member voted on outcomes individually and all the outcomes were deemed to be critically important by our workgroup.

PICO questions

PICO 1

- P: Adult trauma victims (≥18 years of age)
- I: Institutional formal IPV screening tool at a trauma center or ED
- C: No formal screening
- O: 1. Increased identification of IPV victims
  2.Identification of IPV victims earlier than without screening

PICO 2

- P: dult trauma victims (≥18 years of age)
- I: nstitutional formal IPV intervention protocol based at a trauma center or ED
- C: o formal intervention
- O: 1. Reduction in mortality related to IPV
  2. Reduction in adverse patient outcomes related to IPV

METHODOLOGY

Identification of references

Our systematic review was registered with PROSPERO (ID CRD42020219517). Two medical librarians searched PubMed, EMBASE, Scopus, CINAHL, Violence and Abuse Abstracts, Web of Science, and Sociological Abstracts and PsycINFO for relevant articles. Included studies were selected for their ability to answer our predetermined PICO questions. Article types in the review comprised randomized controlled trials, prospective cohort studies, retrospective observational studies, and case-control studies published in English between January 1, 1990 and December 21, 2020. Case reports, case series, opinion editorials and abstracts without full articles were excluded. Studies were also excluded if they were performed in non-ED/trauma settings, did not have appropriate comparators, assessed incorrect outcomes, or otherwise lacked the ability to adequately address our PICO questions. We reviewed articles irrespective of races, genders, sexual orientations, religions, insurance, and other demographic characteristics.

Using a comprehensive list of Medical Subject Headings (MeSH) terms and keyword searches, a query of the above-mentioned databases occurred on March 16, 2022 (see online supplemental form for MeSH terms and keyword for specific databases). Two independent reviewers screened each title and abstract for relevance and appropriateness for inclusion based on set criteria. An additional reviewer was used to resolve any conflicts if the initial reviewers had differing opinions regarding inclusion. Covidence was used to support the screening process. Hand searches of the references in each article were also conducted. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram was created to illustrate the study selection process (figure 1).[31] The PRISMA reporting guidelines for systematic reviews were followed (see online supplemental appendix A).

A total of 12 324 articles were identified, from which 4559 duplicates were removed leaving a total of 7765 for review. Seven thousand, five hundred, and fifty-five studies were excluded, leaving 210 studies eligible for full-text review. Of the studies which received full-text review, 204 were excluded for wrong patient population (45), wrong study design (45), wrong outcomes (43), wrong comparator (30), no available full text (23), wrong intervention (8), non-English study (3), wrong setting (2), or other reason (5). Hand searches of the references of each article identified one additional study that proved relevant to the topic and met inclusion criteria.

Grading the literature

Each member of the review team had electronic access to all articles using a web-based database management system (Covidence). The Grading of Recommendations, Assessment, Development and Evaluations (GRADE) methodology was used to determine the quality of evidence.[32] The GRADE framework denotes four levels of quality: high, moderate, low, and very low. Data were abstracted from each article; there were no significant discrepancies in abstracted data between team members. Recommendations were based on the overall quality of evidence. Conditional recommendations were made for weak quality of evidence. Meta-analyses could not be performed given the limited number of available articles and heterogeneity between study design, interventions, and outcomes; restricting our ability to extract and compare numerical data with accuracy.

RESULTS FOR INSTITUTIONAL IPV SCREENING PROTOCOL (PICO 1)

Qualitative analysis

Following title/abstract and full-text screening, seven studies were included in our review. All studies addressed screening for IPV (PICO 1). All seven were published in English. Six were published in the USA and one in Canada. One study assessed both male and female ED patients,[33] five assessed female ED patients,[34–38] and one assessed female trauma patients.[39] Six were single-center prospective cohort studies[34–38] and one was a case-control[33] assessing identification of IPV victims through screening. No studies addressed the other outcomes in question: timeliness of IPV victim identification, reinjury, morbidity, or mortality associated with IPV. Direct questioning about IPV was assessed in six studies (four through clinician interview[34–36 38] and two through computer-based screening[33 37]) and indirect questioning was evaluated in one.[34] All demonstrated significant IPV victim identification and no studies reported immediate adverse effects with screening (table 1).

Direct questioning via telephone surveys was used to improve identification of IPV victims in the study by Sixsmith *et al*. They identified 'high-risk' women seen in an ED over a 2-month period. Increased risk was defined as: substance abuse, complaints related to stress such as anxiety, depression, or panic attacks, complaints of headaches, non-specific abdominal issues, fatigue, or numbness lasting for >1 week. These patients were then contacted by telephone 3 days following their visit. Additional IPV victims were identified through this technique, however it was relatively labor intensive and missed many potential victims who were not 'high risk'.[35] Nurse-administered and physician-administered IPV screening was studied by Morrison *et al* and McLeer and Anwar, respectively through direct questioning techniques.[36 39] McLeer and Anwar instituted a protocol over 1 year in which ED triage nurses elicited a trauma history and directly asked if women were injured by someone. The results of this screening protocol were compared with the incidence of IPV identification based on a retrospective chart review for the prior year. They found a significant increase in victim identification.[39] Similarly, Morrison

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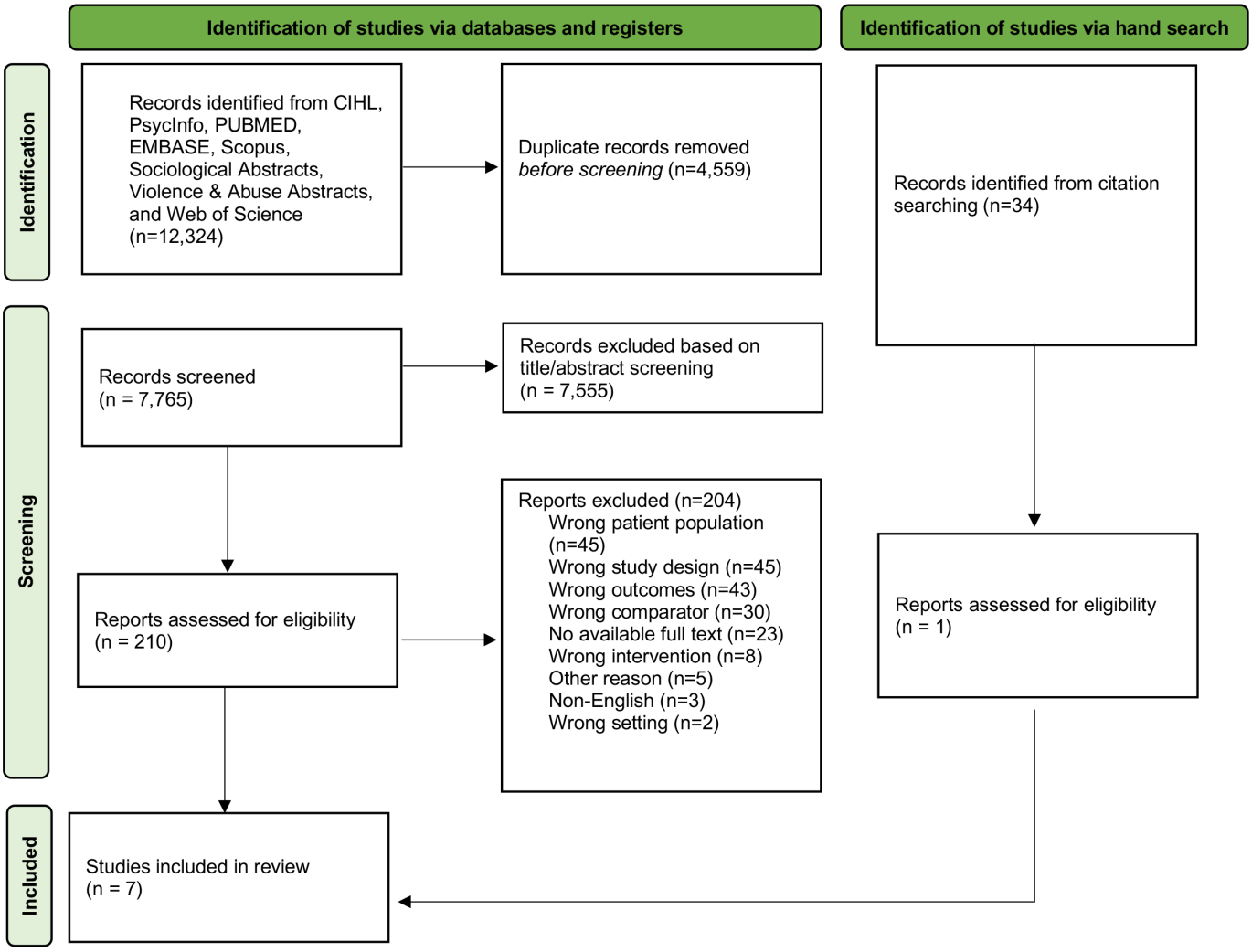

Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram.

et al implemented a physician-driven screening protocol (box 1) and found significantly more victims of IPV than documented on retrospective review.[36] Sixmith *et al* and Morrison *et al* explicitly explain that resources were made available to victims of domestic violence, however long-term follow-up data regarding utilization of the resources are lacking.[35 36] Halpern *et al* looked at a protocol of physician-driven direct questioning with the Partner Violence (PVS) tool (Box 2) in combination with risk assessment using injury pattern (eg, head, neck, or face injuries). This was compared with the 'standard operating procedure' (SOP) of determining injury etiology (ie, domestic violence, accident, etc) through questioning during the triage process. Again, rates of victim identification were significantly higher in the intervention group than SOP.[38]

Computer-based health-risk assessment (CHS) with the PVS was used by Rhodes *et al* and Trautman *et al* in order to identify victims of IPV in the ED (Box 2). Rhodes *et al* performed a case-controlled study to assess rates of physician documentation of IPV in both male and female ED patients screened through CHS versus patients who were not formally screened. Higher rates of victim identification were noted in the CHS group. They also found a significant correlation between substance abuse, depression, and partner alcohol abuse in victims of IPV.[33] Similarly, Trautman *et al* found that CHS significantly improved both screening and identification of IPV victims.[37]

Fulfer *et al* considered the role of indirect questioning ("Secure/comfortable in home/apartment, accepted by husband/partner, family likes husband/ partner, even/calm disposition of husband/partner, talk to resolve differences (SAFE-T) Questionnaire", table 2) to screen for IPV in a two-part study. In part 1, 18 questions regarding IPV were administered to known IPV victims (domestic violence shelter residents) and presumed non-IPV victims (women at a women's health conference). Based on the comparison between the groups, they identified five questions ('SAFE-T Questionnaire') which were both sensitive and specific for victims of IPV. In part 2, the SAFE-T Questionnaire was administered to women in the ED, followed by a direct question about abuse ("had [they] been hit, kicked, punched, or otherwise hurt by a partner or spouse within the past year"). The women who replied 'yes' to the direct question had significantly lower scores on the SAFE-T Questionnaire (were more likely to be abused). The authors note that domestic violence shelter residents were significantly more likely to test 'positive' for abuse on the SAFE-T Questionnaire than ED IPV victims. This is possibly related to the difference in 'readiness' for victims to leave their abusers, and they conclude that optimal screening is best when tailored to the setting and individual patient.[34]

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Table 1 Characteristics of included studies

Study	Study type	Patient population	Intervention (outcome)	Comparison (outcome)	Outcomes	Summary
Sixsmith *et al*[35]	Prospective cohort	ER patients (women)	1500 (15) 1%	1500 (5) 0.33%	IPV identification through direct screening via telephone follow-up	Telephone surveys to ED patients 'at risk' (142/1500, 9%) 3 days postdischarge. Five victims identified before discharge, 10 on phone call.
McLeer, Anwar R[39]	Prospective cohort	Trauma patients (women)	412 (124) 30%	359 (20) 5.6%	Identification of IPV through trauma nurse direct screening protocol	Implementation of a nursing IPV screening protocol. Results compared with the incidence of IPV on retrospective review. IPV identification increased 5.6% to 30%.
Morrison *etal*[36]	Prospective cohort	ED patients (women)	302 (43) 14.2%	1000 (4) 0.4%	Identification of IPV through ED physician direct screening protocol	Compared IPV identification by direct questioning versus historical cohort. Prevalence of IPV with screening was higher than without (14.2% vs 0.4%, p<0.001); 10/11 who screened positive for acute IPV accepted resources for help.
Halpern *et al*[38]	Prospective cohort	ED patients (women)	145 (17) 11.5%	141 (7) 5%	Identification of IPV through formal ED screening protocol	Compared IPV identification using injury pattern and PVS with informal triage SOP. More victims were identified through formal screening protocol (17/145 vs 7/141, p<0.03).
Rhodes *et al*[33]	Case-control	ED patients (men and women)	248 (83) 33.5%	222 (1) 0.4%	Identification of IPV through ED computer-based health-risk assessment	Computer-based health-risk assessment intervention screened patients for IPV (n=248). Compared with control (no screening) (n=222); 83 victims IDed through computer screen. IPV was recorded for one patient in the control group.
Trautman *et al*[37]	Prospective cohort	ED patients (women)	411(80) 19.5%	594 (7) 1.2%	Identification of IPV through ED computer-based health-risk assessment	Comparison between CHS (n=411) vs 'usual care' (n=594); 80 (19.5%) victims by CHS and 7 (1.2%) through usual care (95% CI 13.9% to 21.7%). Of the 87 victims, 46 (53%) were referred to social work. IPV victims identified via CHS were more likely to be referred to social work (10.5% vs 0.5%; 95% CI 6.7% to 12.7%).
Fulfer *et al*[34]	Prospective cohort	ER patients (women), IPV victims	Part 1: (non-victims) 80 (10) 13% Part 2: (SAFE-T) 435 (27) 6.2%	Part 1: (IPV victims) 87 (74) 85% Part 2: (direct screen) 435 (50) 11.6%	Identification of IPV victims through indirect questions	Two-part study: 1. Development of indirect screening tool (18 questions administered to 87 IPV and 80 non-IPV victims. Five questions, 'SAFE-T Questionnaire', were strongly associated with IPV victimization); 85% sensitive, 87% specific in known IPV victims. 2. Validation in ED (435 ED patients administered SAFE-T Questionnaire, followed by direct question about IPV). Those who screened positive for IPV on direct question scored significantly lower on the SAFE-T Questionnaire; 54% sensitive, 81% specific in ED patients.

CHS, computer health screen; ED, emergency department; ER, emergency room; IPV, intimate partner violence; PVS, Partner Violence; SOP, standard operating procedure.

Quantitative analysis

Through direct questioning, IPV was recognized in 1%–33.5% of participants vs 0.3%–5.6% of those receiving usual care (ie, no screening).[33 35–39] The method for administering direct screening varied in all studies as described above. In the study by Sixsmith *et al*, there were 1500 female ED patients over the study period. There were 142 determined to be 'high risk' and were called for follow-up. An additional 10 IPV victims were found (1%, 95%CI 1% to 2%) in addition to five who had already been identified while in the ED.[35] The nurse-driven IPV screening protocol described by McLeer *et al* assessed every fourth female trauma patient retrospectively over 1 year (n=359) and every fourth female trauma patent prospectively for 1 year after the institution of screening (n=412). They found that the rate of IPV victim identification rose significantly from 5.6% to 30% (95% CI 19.5% to 29.5%).[39] Likewise, through implementation of a physician-administered IPV screening protocol, Morrison *et al*, identified significantly more IPV victims than were documented on retrospective chart review (142/302 (14%) vs 4/1000 (0.4%), p<0.001).[36] The protocol developed by Halpern *et al* identified victims through a combination of formal screening and identification of high-risk injury patterns.[38] They demonstrated an 11.7% rate of domestic violence in female ED patients, as compared with 5% in those who underwent SOP (p<0.03).

The impact of the PVS using a CHS was assessed by two studies. Rhodes *et al* confidentially screened 248 patients in the

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Box 1 Emergency department (ED) domestic violence screening questions[36]

1. Does anyone in your family have a violence temper?
2. During an argument at home have you ever worried about your safety or the safety of your children?
3. Many women who present to the ED with similar injuries or complaints are victims of violence at home. Could this be what has happened to you?
4. Would you like to speak to someone about this?
5. Were any of the previous visits to the ED prompted by an injury or symptom suffered as a victim of violence at home?

Outcomes measures

Acute IPV: 'Yes' to question 3 OR 'Yes' to question 1 or 2 and 4

Probable IPV: 'Yes' to question 1 OR 'Yes' to question 2

Past IPV: 'Yes' to question 5

ED via CHS for IPV victimization. Identification and documentation of IPV was compared with a control group of 222 which did not undergo formal screening. There were 83 potential victims identified through computer screening, with 19 of these having IPV documented by ED physician in the medical record. Documentation of IPV was recorded for only one patient in the control group.[33] Similarly, Trautman *et al* found a 17% improvement in IPV victim identification through CHS (19.5% vs 1.2%, 95% CI 13.9% to 21.7%).[37]

The 5-item indirect screening tool used by Fulfer *et al* was developed from an 18-item survey administered to 87 IPV victims at a domestic violence shelter and 80 women attending a women's health conference (presumed to be 'non-victims'). The survey questions were in the format of a 5-point Likert scale with lower scores being more consistent with abuse. Responses to 5 of the 18 items were separated by >2 SD (d=2.38–2.89). Combining these questions became the 'SAFE-T Questionnaire', which was 85% sensitive and 87% specific for IPV identification in the study population. The second part of this study sought to validate the screening instrument in a ED. Four hundred and thirty-five ED patients were administered the SAFE-T Questionnaire. Of those patients who participated, 50 (11.6%) answered affirmatively to the direct question saying they had been 'hit, kicked, punched, or otherwise hurt by their partner or spouse within the past year'. These women scored significantly lower on the SAFE-T Questionnaire than those who replied 'no' to the direct question (mean=3.5 vs 4.2, p=0.001). The indirect questionnaire identified 27 of the 50 patients who responded 'yes' to the direct question. The SAFE-T instrument was 54% sensitive and 81% specific on cross-validation, making it a potentially accurate tool for ruling *out* victims of IPV, but not necessarily identifying them in the ED.[34]

Box 2 Partner violence screen[44]

1. Have you been hit, kicked, punched, or otherwise hurt by someone within the past year? If so, by whom?
2. Do you feel safe in your current relationship?
3. Is there a partner from a previous relationship who is making you feel unsafe now?

Grading the evidence

Due to the heterogeneity in study design, interventions, and outcomes, a meta-analysis was not performed; limited numerical data could not easily be extracted and compared with accuracy. The GRADE methodology was used to determine the quality of evidence. With few studies meeting inclusion criteria, a relatively small sample size, studies occurring at single centers, and the observational nature of included studies, the quality of evidence was assessed as low (table 3). Nevertheless, so long as it is performed in a private and compassionate fashion, patients screened for IPV are unlikely to incur harm and the potential benefit of identifying victims is significant.

Recommendations

Based on the paucity of data and low-quality studies, we conditionally recommend implementation of universal screening to identify victims of IPV in adult trauma and ED patients.

RESULTS FOR INSTITUTIONAL IPV INTERVENTION PROTOCOL (PICO 2)

No studies assessed outcomes following IPV intervention. Three, however, did evaluate victims' acceptance of IPV resources after they were identified. All IPV victims found by telephone screening in the study by Sixsmith *et al* requested social services follow-up and 10 of 11 victims of acute IPV in the the study by Morrison *et al* accepted resources for help.[34 35] Of the 87 victims identified by Trautman *et al*, 46 (53%) were referred to social work. IPV victims identified via CHS were significantly more likely to be referred to social work (10.5% vs 0.5%; 95% CI 6.7% to 12.7%).[37] There were no outcomes documented after resources were administered.[35–37]

Recommendations

There were no studies addressing outcomes related to interventions around IPV. We therefore cannot make recommendations in that regard.

USING THESE GUIDELINES IN CLINICAL PRACTICE

Currently, the Joint Commission mandates hospital-based screening in 'possible victims of abuse… using criteria developed by the hospital', as well as written documentation of IPV. However, guidance on which patients should be screened and method of screening is not specified, and best practices are likely to vary significantly across hospital settings.[40] The purpose of this review was to make recommendations regarding screening and intervention for trauma and ED victims of IPV. Across the subset of patients reviewed, screening identified a significantly greater number of IPV victims who would likely not have been identified using other practices. Based on our systematic review, screening should be universal and incorporate direct questioning around abuse in order to optimize victim identification. Although screening modalities varied across studies, direct questioning appeared to capture the greatest number of victims of IPV. Universal screening can and should be done by nurses, physicians, social workers, and other healthcare practitioners that are equipped to intervene, provide referrals and/or allocate appropriate resources to individuals who screen positive for IPV. In order to reduce the risk for abusers discovering that their violence has been disclosed, screening should be administered when the patient is alone (not in the presence of a potential abuser). The use of normalizing statements such as "Many people who present to the ED with similar injuries or complaints are victims of violence at home. Could this be what has happened

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Table 2 SAFE-T Questionnaire[34]

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
1. I feel comfortable/**S**ecure in my home/apartment					
2. My husband/partner **A**ccepts me just the way I am					
3. My **F**amily likes my husband/partner					
4. My husband/partner has an **E**ven/calm disposition					
5. If my husband/partner and I disagree, we resolve our differences by **T**alking it out					

to you?" may help patients feel that they are not alone and more ready to share their abuse.[12] Examples of evidence-based tools are included in table 1, tables 2 and 4, boxes 1 and 2. There also may be utility in administering confidential screening through computer-based health-risk assessment as it allows patients to feel more comfortable that their responses are private.[33 37] Additionally, it is important to be mindful that many victims of IPV do not present to the ED for injury and that screening should be performed on all patients, regardless of their chief complaint. In the phone surveys conducted by Sixsmith *et al*, only 2 of the 10 patients presented for physical injury.[25] Similarly, Morrison *et al* found that most of those who screened positive for current IPV did not present to the ED for injury.[26] This highlights the systemic, chronic stress-related toll IPV takes on its victims, and the importance of universal screening in all patients.

None of the included studies that met our inclusion criteria assessed outcomes such as reinjury or mortality following victim identification and resource administration, representing an important area for future research. The risk for future violence exposure faced by survivors of IPV (ranging from psychological abuse to homicide) highlights the importance of timely provision of and access to IPV resources in order to interrupt the cycle of abuse.[1] To this end, although there is a paucity of data regarding outcomes of intervention, it is important to note that there are existing recommendations for providers aimed at delivering resources to victims of IPV. In 2019, the American College of Surgeons Trauma Quality Programs issued best practices guidelines regarding IPV. They emphasized the importance of providing care for IPV-related physical and psychological conditions, as well as referrals to social services to provide additional aid. Ultimately, the main objective of IPV intervention is overall safety planning. This may not always involve the victim leaving their abuser imminently, but includes implementation of access to resources and a plan for when they are ready to do so.[41]

LIMITATIONS

This review has several limitations. As it focused solely on emergency room and trauma patients, studies regarding IPV screening and intervention in broader healthcare settings were excluded. It is important to acknowledge that there are data supporting IPV screening across a variety of medical environments. For example, there are several studies in pediatric patients in which screening has been effective to identify adult IPV victims.[42 43] Furthermore, IPV has historically been under-reported and understudied. As a result, there are limited data related to this topic overall. This is possibly due to the inherent difficulty for victims to openly participate in surveys and other types of research. After an expansive literature search, there were only seven observational studies which met inclusion criteria for our review (based on our PICO questions), and only one looked at male IPV victims. There was also no standard screening modality used across studies. With so few studies looking at only a handful of screening tools, more research is needed to standardize our method of victim identification. Additionally, without data regarding interventions once victims were identified, we were unable to comment on the impact of IPV interventions after patients screened positive for IPV.

FUTURE DIRECTIONS

Despite the limited data found in our systematic review, it is evident that screening is impactful for identifying victims of IPV. With one in nine trauma patients at risk for intimate partner or sexual violence, further studies looking at screening and the efficacy of resource administration once victims are identified are critical.[30] Additionally, according to the National Intimate Partner and Sexual Violence Survey 1 in 4 women and 1 in 10 men have experienced injury, the need for medical care, or post-traumatic stress symptoms as a consequence of IPV.[22] This highlights the significance of this issue in men as well as women. Male patients were only included in one of the reviewed studies. Future data incorporating both male and female emergency room and trauma patients will provide a more comprehensive look at those impacted by this issue. Further studies are also necessary regarding methods of IPV intervention, timeliness of identification, and overall effects of screening and intervention on morbidity and mortality. Finally, given evidence that IPV

Table 3 PICO 1 GRADE evidence table

Certainty assessment						
Number of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Certainty
Increased identification of IPV victims—critical outcome						
7	Observational	Serious*	Not serious	Not serious	Serious†	⨁⨁◯◯ Low
Identification of IPV victims earlier than if there was no screening—critical outcome						
0						

*Most data from single centers.
†Relatively small sample size.
GRADE, Grading of Recommendations, Assessment, Development and Evaluations; IPV, intimate partner violence; PICO, population, intervention, control, and outcomes.

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Table 4 HITS instrument[45]

Over the last 12 months how often did your partner:	Never 1	Rarely 2	Sometimes 3	Fairly often 4	Frequently 5
Physically **HURT** you					
INSULT you or talk down to you					
THREATEN you with physical harm					
SCREAM or curse at you					

Score >10 is positive for IPV.
IPV, intimate partner violence.

may disproportionately impact LGBTQ+ individuals, this is an important area for future research.

CONCLUSION

IPV is a major public health concern and sadly common in both the trauma and more general ED patient populations. Implementation of a screening protocol is likely low risk, and available data show consistent results. Our evidence-based systematic review demonstrates that universal and protocolized screening of ED and trauma patients plays an important role, increasing identification of IPV victims and potentially allowing for earlier and effective intervention. We therefore conditionally recommend implementation of a screening protocol to identify victims of IPV in adults treated in the ED and trauma centers. Ultimately, the purpose of screening is to provide resources for victims. However, no studies that met our inclusion criteria have assessed distinct interventions. Consequently, we are unable to make specific recommendations in this regard.

Author affiliations
[1]Division of Acute Care Surgery, Rutgers Robert Wood Johnson Medical School, Piscataway, New Jersey, USA
[2]Trauma and Surgical Critical Care, Hackensack Meridian Hackensack University Medical Center, Hackensack, New Jersey, USA
[3]Trauma Surgery and Critical Care, University of Miami School of Medicine, Miami, Florida, USA
[4]Burns, Trauma, Acute and Critical Care Surgery, The University of Texas Southwestern Medical Center, Dallas, Texas, USA
[5]Trauma, LifeBridge Health, Baltimore, Maryland, USA
[6]Trauma, Acute Care Surgery, and Surgical Critical Care, Cooper University Hospital Regional Trauma Center, Camden, New Jersey, USA
[7]Trauma, Acute Care Surgery & Burns, University of South Alabama, Mobile, Alabama, USA
[8]Trauma and Critical Care Services, Jacobi Medical Center, Bronx, New York, USA
[9]General Surgery, Trauma, and Surgical Critical Care, TCU School of Medicine, Fort Worth, Texas, USA
[10]Trauma, Surgical Critical Care, & Acute Care Surgery, University of Arizona Medical Center-University Campus, Tucson, Arizona, USA
[11]Acute Care Surgery, Loma Linda University Medical Center, Loma Linda, California, USA
[12]Burns, Trauma, Acute and Critical Care Surgery, Parkland Health and Hospital System, Dallas, Texas, USA
[13]Trauma and Emergency Surgery, Tufts Medical Center, Boston, Massachusetts, USA
[14]Trauma, Critical Care, and Acute Care Surgery, Duke University Hospital, Durham, North Carolina, USA
[15]Surgery, NYU Langone Hospital-Long Island, Mineola, New York, USA
[16]Trauma & Acute Care Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin, USA
[17]Acute Care Surgery and Regional General Surgery, University of Wisconsin-Madison School of Medicine and Public Health, Madison, Wisconsin, USA
[18]Woodruff Health Sciences Center Library, Emory University Woodruff Health Sciences Center, Atlanta, Georgia, USA
[19]Surgery, Jazan University, Jazan, Saudi Arabia
[20]Trauma/Surgical Critical Care, Emory University School of Medicine, Atlanta, Georgia, USA

Contributors Each author contributed in a significant capacity to this project. ALT was the work group lead, responsible for overall content and accepts full responsibility for the work in this study, had access to data, and controlled the decision to publish. ALT contributed to PICO development, abstract/full-text review, data extraction, data analysis/grading the evidence, and significant manuscript writing and revisions. RNS and HNAM provided senior mentorship and oversight for the project. EL and KF conducted an expansive and complete search of the literature to identify studies for screening. Work group members that were involved with abstract and/or full-text screening include: SA. ALT, SB, RR, LD, FAQ, AG, CE, NP, CC, NC, RNS, and HNAM. Data extraction contributions were made by ALT, SB, RR, LD, FAQ, AG, CE, NP, AL, JJF, KLH, CC, EC, RLC, and HNAM. ALT, LD, FAQ, AG, CE, NP, ATS, PBM, HNAM, and RNS participated in data analysis and grading the evidence. The following authors were involved with writing and/or significant revisions of the manuscript: ALT, SB, RR, FAQ, AG, CE, NP, AL, JJF, KLH, CC, DA'J, ATS, PBM, HSJ, HNAM, and RNS.

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ORCID iDs
Amanda L Teichman http://orcid.org/0000-0003-4120-8345
Christina Colosimo http://orcid.org/0000-0002-4722-2984
Patrick B Murphy http://orcid.org/0000-0002-6086-8966
Hassan Naser A Mashbari http://orcid.org/0000-0002-8107-1542

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REVIEW QUESTION *Provide the full review question in sentence format; then break up the question according to the PICO(TT) framework (or other frameworks if appropriate).*
The purpose of this study is to provide an evidence-based review of screening practices for intimate partner violence in trauma victims receiving care in Emergency Departments and Trauma Centers in the US.

Final Search Statements

PubMed

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1	"Trauma Centers"[Mesh] OR "Emergency Nursing"[Mesh] OR "Emergency Treatment"[Mesh] OR "Emergency Medicine"[Mesh] OR "Emergency Service, Hospital"[Mesh] OR "Emergency Medical Services"[Mesh:NoExp] OR Triage[Mesh] OR triage[tw] OR ((emergenc*[tw] OR emergicent*[tw] OR casualty[tw] OR trauma[tw]) AND (center*[tw] OR centre*[tw] OR room*[tw] OR department*[tw] OR ward[tw] OR wards[tw] OR unit*[tw] OR visit*[tw]))
2	(domestic[tw] or partner*[tw] or spouse*[tw] or spousal[tw] or wife*[tw] or wives[tw] or husband*[tw] OR dating[tw]) AND (violence[tw] or abuse[tw] or injur*[tw] or wound*[tw] or battered[tw] or traumatic[tw] OR "gender based violence"[tw] OR "Domestic Violence"[MeSH:NoExp] OR "Intimate Partner Violence"[MeSH Terms] OR "Spouse Abuse"[Mesh] OR "Battered Women"[Mesh])
3	"Surveys and Questionnaires"[Mesh] OR "Risk Assessment"[MeSH] OR "Mass Screening"[MeSH] OR "Sensitivity and Specificity"[Mesh] OR "Epidemiology"[Mesh] OR screen*[tw] OR assess*[tw] OR detect*[tw] OR recog*[tw] OR measure*[tw] OR question*[tw] OR survey*[tw] OR checklist*[tw] OR identif*[tw] OR tool*[tw] OR scale*[tw] OR rate*[tw] OR rating*[tw] OR scan*[tw] OR instrument*[tw] OR sensitiv* OR specific*[tw] OR epidemiolog*[tw]
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3	SU “Surveys and Questionnaires” OR “Risk Assessment” OR “Mass Screening” OR “Sensitivity and Specificity” OR “Epidemiology” OR screen* OR assess* OR detect* OR recog* OR measure* OR question* OR survey* OR checklist* OR identif* OR tool* OR scale* OR rate* OR rating* OR scan* OR instrument* OR sensitiv* OR specific* OR epidemiolog*

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3	(TITLE-ABS-KEY ((emergency OR emergicent OR casualty OR trauma) AND (center OR centre OR room OR department OR ward OR wards OR unit OR visit))) AND (TITLE-ABS-KEY ((domestic OR partner OR spouse OR spousal OR wife OR wives OR husband OR dating) AND (violence OR abuse OR injury OR wound OR battered OR traumatic OR {gender based violence}))) AND (TITLE-ABS-KEY (screen OR assess OR detect OR recognize OR measure OR question OR survey OR checklist OR identify OR tool OR scale OR rate OR rating OR scan OR instrument OR sensitive OR specific OR epidemiology))
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3	screen OR assess OR detect OR recognize OR measure OR question OR survey OR checklist OR identify OR tool OR scale OR rate OR rating OR scan OR instrument OR sensitive OR specific OR epidemiology
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5	#3 AND #2 AND #1 and English (Languages) and 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 or 2013 or 2012 or 2011 or 2010 or 2009 or 2008 or 2007 or 2006 or 2005 or 2004 or 2003 or 2002 or 2001 or 2000 (Publication Years)

EMBASE

('patient admission'/exp OR 'patient admission' OR 'patient readmission'/exp OR 'patient readmission' OR 'hospital admission'/exp OR 'hospital admission' OR 'hospital readmission'/exp OR 'hospital readmission' OR 'hospitalization'/exp OR 'hospitalization' OR hospitaliz* OR admission* OR readmission*) AND (screen* OR assess* OR detect* OR recog* OR measure* OR identif* OR 'questionnaire' OR 'questionnaire'/exp OR questionnaire OR 'survey' OR 'survey'/exp OR survey OR 'checklist' OR 'checklist'/exp OR checklist OR 'surveys and questionnaires'/exp OR 'surveys and questionnaires' OR 'risk assessment'/exp OR 'risk assessment' OR 'mass screening'/exp OR 'mass screening' OR 'health survey'/exp OR 'health survey') AND ('domestic violence'/exp OR 'domestic violence' OR 'battered woman'/exp OR 'battered woman' OR 'partner violence'/exp OR 'partner violence' OR 'domestic abuse'/exp OR 'domestic abuse' OR 'spousal abuse' OR 'spouse abuse'/exp OR 'spouse abuse' OR 'intimate partner violence'/exp OR 'intimate partner violence' OR 'intimate partner abuse' OR battered OR 'violence against women'/exp OR 'violence against women') AND [english]/lim AND [2000-2021]/py

Scopus

(TITLE-ABS-KEY("domestic violence" OR "battered woman" OR "partner violence" OR "domestic abuse" OR "spousal abuse" OR "spouse abuse" OR "intimate partner violence" OR "intimate partner abuse" OR battered OR "violence against women")) and (TITLE-ABS-KEY(screen* OR assess* OR detect* OR recog* OR measure* OR identif* OR "questionnaire" OR "survey" OR "checklist" OR "surveys and questionnaires" OR "risk assessment" OR "mass screening" OR "health survey")) and (TITLE-ABS-KEY("patient admission" OR "patient readmission" OR "hospital admission" OR "hospital readmission" OR "hospitalization" OR hospitaliz* OR admission* OR readmission*)) AND (LIMIT-TO (LANGUAGE,"English")) AND (LIMIT-TO (PUBYEAR,2020) OR LIMIT-TO (PUBYEAR,2019) OR LIMIT-TO (PUBYEAR,2018) OR LIMIT-TO (PUBYEAR,2017) OR LIMIT-TO (PUBYEAR,2016) OR LIMIT-TO (PUBYEAR,2015) OR LIMIT-TO (PUBYEAR,2014) OR LIMIT-TO (PUBYEAR,2013) OR LIMIT-TO (PUBYEAR,2011) OR LIMIT-TO (PUBYEAR,2010) OR LIMIT-TO (PUBYEAR,2009) OR LIMIT-TO (PUBYEAR,2008) OR LIMIT-TO (PUBYEAR,2007) OR LIMIT-TO (PUBYEAR,2006) OR LIMIT-TO (PUBYEAR,2005) OR LIMIT-TO (PUBYEAR,2004) OR LIMIT-TO (PUBYEAR,2003) OR LIMIT-TO (PUBYEAR,2002) OR LIMIT-TO (PUBYEAR,2001) OR LIMIT-TO (PUBYEAR,2000))

Sociological Abstracts

(MAINSUBJECT.EXACT("Surveys") OR MAINSUBJECT.EXACT("Risk Assessment") OR ab((Screen*) OR (assess*) OR (detect*) OR (recog*) OR (measure*) OR (questionnaire) OR (survey) OR (checklist) OR (identif*))) AND (MAINSUBJECT.EXACT("Family Violence") OR (ab(intimate partner violence) OR (Domestic Violence) OR (Spouse Abuse)

OR (domestic abuse) OR (spousal abuse) OR (Intimate partner abuse) OR (battered) OR (violence against women))) AND ((MAINSUBJECT.EXACT("Hospitalization") OR MAINSUBJECT.EXACT("Admissions")) OR ab(hospitaliz* OR admission OR admit* OR readmission OR readmit*))

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	page 3 of this document
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	7-10
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	10
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	11-12
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	11
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	11-12
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	11-12
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	12
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	12
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	12
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	13
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	12
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	12
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	12
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	13, 32
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	13
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	13
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	13
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	13
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	13

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	13
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	13, 28
Study characteristics	17	Cite each included study and present its characteristics.	13-17, 28
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	32
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	28.32
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	13-17, 28, 32
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	13, 32
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	13, 32
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	13, 32
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	13, 32
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	13, 32
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	18-22
	23b	Discuss any limitations of the evidence included in the review.	21
	23c	Discuss any limitations of the review processes used.	21
	23d	Discuss implications of the results for practice, policy, and future research.	19, 21-22
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	11
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	11
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	4, 23
Competing interests	26	Declare any competing interests of review authors.	4, 23
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	N/A

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

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PRISMA 2020 for Abstracts Checklist

Section and Topic	Item #	Checklist item	Reported (Yes/No)
TITLE			
Title	1	Identify the report as a systematic review.	5
BACKGROUND			
Objectives	2	Provide an explicit statement of the main objective(s) or question(s) the review addresses.	5
METHODS			
Eligibility criteria	3	Specify the inclusion and exclusion criteria for the review.	5
Information sources	4	Specify the information sources (e.g. databases, registers) used to identify studies and the date when each was last searched.	5
Risk of bias	5	Specify the methods used to assess risk of bias in the included studies.	5
Synthesis of results	6	Specify the methods used to present and synthesise results.	5
RESULTS			
Included studies	7	Give the total number of included studies and participants and summarise relevant characteristics of studies.	5
Synthesis of results	8	Present results for main outcomes, preferably indicating the number of included studies and participants for each. If meta-analysis was done, report the summary estimate and confidence/credible interval. If comparing groups, indicate the direction of the effect (i.e. which group is favoured).	5
DISCUSSION			
Limitations of evidence	9	Provide a brief summary of the limitations of the evidence included in the review (e.g. study risk of bias, inconsistency and imprecision).	5
Interpretation	10	Provide a general interpretation of the results and important implications.	5
OTHER			
Funding	11	Specify the primary source of funding for the review.	4, 23
Registration	12	Provide the register name and registration number.	5

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

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