QUERI

Intimate Partner Violence: Prevalence Among U.S. Military Veterans and Active Duty Servicemembers and a Review of Intervention Approaches

August 2013

Prepared for:
Department of Veterans Affairs
Veterans Health Administration
Quality Enhancement Research Initiative
Health Services Research & Development Service
Washington, DC 20420

Prepared by:
Evidence-based Synthesis Program (ESP) Center
Durham Veterans Affairs Healthcare System
Durham, NC
John W. Williams Jr., M.D., M.H.Sc., Director

Investigators:
Principal Investigator:
Jennifer M. Gierisch, Ph.D., M.P.H.

Co-Investigators:
Abigail Shapiro, M.S.P.H.
Nicole N. Grant, M.D.
Heather A. King, Ph.D
Jennifer R. McDuffie, Ph.D.
John W. Williams Jr., M.D., M.H.Sc.

Research Associate:
Avishek Nagi, M.S.

Medical Editor:
Liz Wing, M.A.

VA HEALTH CARE Defining EXCELLENCE in the 21st Century

PREFACE

Quality Enhancement Research Initiative's (QUERI's) Evidence-based Synthesis Program (ESP) was established to provide timely and accurate syntheses of targeted healthcare topics of particular importance to Veterans Affairs (VA) managers and policymakers, as they work to improve the health and healthcare of Veterans. The ESP disseminates these reports throughout VA.

QUERI provides funding for four ESP Centers and each Center has an active VA affiliation. The ESP Centers generate evidence syntheses on important clinical practice topics, and these reports help:

- develop clinical policies informed by evidence,
- guide the implementation of effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures, and
- set the direction for future research to address gaps in clinical knowledge.

In 2009, the ESP Coordinating Center was created to expand the capacity of QUERI Central Office and the four ESP sites by developing and maintaining program processes. In addition, the Center established a Steering Committee comprised of QUERI field-based investigators, VA Patient Care Services, Office of Quality and Performance, and Veterans Integrated Service Networks (VISN) Clinical Management Officers. The Steering Committee provides program oversight, guides strategic planning, coordinates dissemination activities, and develops collaborations with VA leadership to identify new ESP topics of importance to Veterans and the VA healthcare system.

Comments on this evidence report are welcome and can be sent to Nicole Floyd, ESP Coordinating Center Program Manager, at nicole.floyd@va.gov.

Recommended citation: Gierisch JM, Shapiro A, Grant NN, King HA, McDuffie JR, Williams JW. Intimate Partner Violence: Prevalence Among U.S. Military Veterans and Active Duty Servicemembers and a Review of Intervention Approaches. VA-ESP Project #09-010; 2013.

This report is based on research conducted by the Evidence-based Synthesis Program (ESP) Center located at the Durham VA Medical Center, Durham, NC, funded by the Department of Veterans Affairs, Veterans Health Administration, Office of Research and Development, Health Services Research and Development. The findings and conclusions in this document are those of the author(s) who are responsible for its contents; the findings and conclusions do not necessarily represent the views of the Department of Veterans Affairs or the United States government. Therefore, no statement in this article should be construed as an official position of the Department of Veterans Affairs. No investigators have any affiliations or financial involvement (e.g., employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties) that conflict with material presented in the report.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

BACKGROUND

In the United States, intimate partner violence (IPV) poses a significant public health burden that affects both men and women. Over a third (35.6%) of women and a fourth (28.5%) of men in the United States have experienced rape, physical violence, or stalking by an intimate partner in their lifetime. Outcomes associated with IPV include a wide range of social, physical, and mental issues such as family dissolution, adverse pregnancy outcomes, mental health issues (depression, posttraumatic stress disorder [PTSD], anxiety), incarceration, and death. IPV affects many facets of society including medical, mental health, social services, and criminal justice systems. Moreover, productivity losses and costs attributable to IPV are significant.

Military service has unique psychological, social, and environmental factors that may contribute to elevated risk of IPV among active duty servicemembers and Veterans. Multiple deployments, family separation and reintegration, demanding workloads at home and while on duty, histories of head trauma, mental illness, and substance abuse can contribute to partner conflict and elevated risk of IPV among active duty servicemembers, Veterans, and their intimate partners.

Currently the VA does not have a comprehensive national program to address IPV. Thus, the VA convened the Domestic Violence Task Force to define the scope of, and design a plan for evaluating domestic violence among Veterans. In order to support the goals and mission of this task force, the Durham VA Evidence-based Synthesis Program conducted a systemic review of the literature to synthesize the evidence on the prevalence of IPV among active duty servicemembers and Veterans and to conduct an evidence synthesis of the systematic review (SR) literature on intervention strategies to address IPV.

Key Question 1. What is the prevalence of intimate partner violence among Veterans and active duty servicemembers, and does the prevalence vary by cohort (e.g., Vietnam era, OEF/OIF/OND era), gender, or race?

Key Question 2. For persons who are at risk for, experience, or commit intimate partner violence, what interventions are associated with decreased exposure to intimate partner violence and its associated physical harms, mental harms, or mortality?

METHODS

This review was commissioned by the VA's Evidence-based Synthesis Program. The topic was nominated after a topic refinement process that included a preliminary review of published peer-reviewed literature, consultation with internal partners and investigators, and consultation with key stakeholders. We further developed and refined the key questions (KQs) based on a preliminary review of published peer-reviewed literature in consultation with VA and non-VA experts.

We used different literature search strategies for KQ 1 and KQ 2. Prevalence of IPV (KQ 1) was approached using primary research articles so that we could compare populations and trends over time. Treatment interventions (KQ 2) were approached through a synthesis of SRs because

there were numerous potential intervention strategies and several current, high-quality SRs available on this topic. For prevalence, we searched MEDLINE® (via PubMed®), CINAHL®, PsycINFO®, and Social Sciences Citation Index (a subset of Web of Science) from inception through December 2012 for peer-reviewed publications providing prevalence rates for IPV. We then updated our PubMed, CINAHL, PsycINFO searches in June 2013. (We did not update the Social Sciences Citation Index in June 2013 because this database did not yield any relevant citations not identified in the other databases during the initial search.) For treatment intervention strategies, we searched PubMed, EMBASE®, CINAHL, PsycINFO, and the Cochrane Database of Systematic Reviews for peer-reviewed SRs from January 2007 through December 2012. We used the National Library of Medicine's Medical Subject Headings (MeSH) keyword nomenclature and text words for populations of interest, types of intimate partner abuse, intervention strategies, and validated search terms for both prevalence statistics and SRs.

Using prespecified inclusion and exclusion criteria, two reviewers assessed titles and abstracts for relevance to the KQs. Full-text systematic reviews identified by either reviewer as potentially relevant were retrieved for further review. Select data from published reports were then abstracted into the final abstraction form by a trained reviewer. All data abstractions were confirmed by a second reviewer. We also abstracted data necessary for assessing study quality. For prevalence studies, we adapted a previously published tool developed to assess the quality of prevalence studies, and for systematic reviews we used a tool adapted from the AMSTAR criteria. Based on these criteria, studies were categorized as good, fair, or poor quality.

DATA SYNTHESIS

To assess prevalence, we critically analyzed the included primary studies to compare their characteristics, methods, and findings. We then determined the feasibility of completing a quantitative synthesis (i.e., meta-analysis) by exploring the volume of relevant literature, the completeness of the results reporting, and the conceptual homogeneity of the studies (or inconsistency across the studies). When a meta-analysis was appropriate, we used random-effects models to quantitatively synthesize the available evidence for prevalence rates. For meta-analysis, we excluded studies that were conducted in special populations, such as cohorts recruited from prenatal clinics and mental health clinics. When studies gave results only by subgroup (males, females), we combined subgroups only when the combined group represented the total study population. We anticipated heterogeneity of effects; thus, we conducted subgroup analyses by key variables hypothesized to influence prevalence estimates (i.e., gender, race, IPV severity, era of service) and pooled subgroup estimates using mixed-effects models where appropriate. We tested for statistical heterogeneity using graphical displays and test statistics (I^2 statistics). We also conducted an influence analysis to assess the individual effects of each included study in the meta-analyses. In an influence analysis, each study is systematically removed one at a time, and a new pooled estimate is calculated to provide an estimate of the pooled prevalence without the study. When quantitative synthesis was not possible (less than three studies), we summarize findings qualitatively. All quantitative analyses were conducted using OpenMeta[Analyst] software (http://www.cebm.brown.edu/open_meta).

For SRs, quantitative analysis was not possible due to the limited number (n=6) and diversity of the included studies and outcomes. Instead, we grouped reviews by intervention strategy

and then summarized the key characteristics, methods, and findings. If findings or conclusions differed importantly across reviews, we analyzed potential reasons for discrepancies such as review inclusion/exclusion criteria, the primary studies included, differences in outcome definition, analytic approach, and conflict of interest. When synthesizing results, we gave more qualitative weight to recent reviews of higher overall quality (e.g., good vs. fair) and to reviews that included higher quality study deigns (e.g., RCTs vs. retrospective observational studies).

RATING THE BODY OF EVIDENCE

In addition to rating the quality of individual studies, we evaluated the overall quality of the evidence for KQ 2. In brief, this approach requires assessment of four domains: risk of bias, consistency, directness, and precision. For risk of bias, we considered study design using the quality assessments of the primary literature reported in the systematic reviews. We used results from meta-analyses when evaluating consistency, precision, strength of association, and whether publication bias was detected.

PEER REVIEW

A draft version of the report was reviewed by technical experts and clinical leadership. A transcript of their comments can be found in the appendix, which elucidates how each comment was considered in the final report.

RESULTS

For prevalence (KQ 1), our search of MEDLINE via PubMed, CINAHL, PsycINFO, and Social Sciences Citation Index, as well as a manual search of relevant review articles, yielded a total of 669 unique citations. After applying inclusion and exclusion criteria at the title-and-abstract and full-text review levels level, we identified 39 articles, representing 25 unique primary studies and 14 companion articles, for data abstraction.

For intervention strategies (KQ 2), our search of MEDLINE via PubMed, EMBASE, CINAHL, PsycINFO, and the Cochrane Database of Systematic Reviews yielded 2486 unique articles. After applying inclusion and exclusion criteria at the title-and-abstract and full-text review levels, we identified 6 SRs of fair or good quality.

Key Question 1. What is the prevalence of intimate partner violence among Veterans and active duty servicemembers, and does the prevalence vary by cohort (e.g., Vietnam era, OEF/OIF/OND era), gender, or race?

Key Points

- The overall prevalence of 12-month IPV perpetration among active duty servicemembers was 22 percent, and victimization was 30 percent. Both estimates had high heterogeneity.
- Among active duty populations, moderator analysis by era of service, IPV severity, and gender all showed group differences, but each pooled subgroup estimate also had high

heterogeneity. Thus, the variability in prevalence is likely due to a combination of factors.

- Of the 12 studies that assessed IPV among Veterans, only 5 assessed IPV perpetration. Populations and outcomes were too heterogeneous to meta-analyze. The prevalence of IPV perpetration within the last year ranged considerably (15% to 60%). However, samples consisted of specialized populations (e.g., Veterans seeking relationship help, newly retuning OEF/OIF Veterans referred to behavioral health) with a high mental health burden, or were gender-specific samples.
- Only eight studies assessed IPV victimization among Veterans. None of these studies provided estimates for male Veterans, and only two provided an estimate of 12-month prevalence; estimates ranged from 7 percent to 12 percent. Among women Veterans, the prevalence of lifetime IPV victimization was 35% percent. The estimate had high heterogeneity, but limited data precluded moderator analysis to query for subgroup differences.

Description of Included Studies

Our evidence synthesis identified 39 articles encompassing 25 unique studies of IPV prevalence among U.S. active duty and Veteran populations. Of the 25 studies, 13 (25 articles) evaluated prevalence among active duty servicemembers and 12 (14 articles) among Veterans. Most of the military studies were assembled from surveys conducted on bases and consisted of broad populations of soldiers and, in some instances, their spousal dependents. The majority of participants in the active duty studies were male and white, with a median age of 28. In contrast, the majority of Veteran studies were conducted among populations exclusively comprising VA users (i.e., clinical samples). Moreover, many Veteran studies were conducted in specialized populations; four were conducted through mental health clinics, one study focused on IPV among World War II prisoners of war, and seven were conducted among gender-specific populations. The majority of participants in the Veteran studies were women and white, with a median age of 46. Most of the 25 studies were rated fair quality; however, a quarter of the Veteran studies were rated poor quality compared with none of the active duty studies. Estimating the pooled prevalence rates of IPV was challenging due to variations in definitions of IPV, measurement instruments used to detect IPV, timing of IPV reports (e.g., 12-month, lifetime), and limitations in available population data across studies. These factors likely contributed to the underlying heterogeneity we found across studies as well as in our summary estimates.

IPV Among Active Duty Servicemembers

We identified 13 studies that assessed IPV prevalence among U.S. active duty populations. Of these, 10 assessed perpetration outcomes and 10 assessed victimization outcomes. The most common metric of IPV across studies was prior exposure to physical violence in last year; thus, we used this outcome to summarize prevalence estimates.

We were able to pool six studies of IPV perpetration in the last year. Pooled estimates yielded a weighted estimated mean prevalence rate of 22 percent (95% confidence interval [CI], 17% to 27%) with significant heterogeneity (I^2>90%). Influence analysis yielded a range of 18 percent to 23 percent for IPV perpetration among active duty servicemembers.

We identified four studies that assessed victimization by physical IPV among active duty servicemembers and that met criteria for a meta-analysis. The 12-month weighted estimated mean prevalence rate of physical IPV victimization of active duty servicemembers yielded a point estimate of 30 percent (95% CI, 17% to 43%) significant heterogeneity (I^2>90%). Influence analysis yielded a range of 25 percent to 33 percent of exposure to IPV victimization of active duty servicemembers.

We conducted subgroup analyses by (1) era of cohort recruitment (pre-2001 versus post-2001), (2) IPV severity, and (3) gender to probe for group differences. All analyses showed group differences, but each pooled subgroup estimate also had high heterogeneity. Variability in prevalence is likely due to a combination of factors, including the small number of pooled studies.

IPV Among Veterans

We identified 12 studies that assessed IPV prevalence among Veterans. In total, five studies assessed perpetration and eight studies assessed victimization. Populations and outcomes were too heterogeneous to meta-analyze across the perpetration studies. Samples comprised specialized populations (e.g., Veterans seeking relationship help, newly returning OEF/OIF Veterans referred to behavioral health) with a high mental health burden, or were gender-specific samples. Moreover, IPV perpetration was defined inconsistently across studies, ranging from physical abuse as measured on the CTS to any form of domestic abuse. Thus, the prevalence of IPV perpetration within the last year ranged considerably (15% to 60%) across these five studies.

Of the eight victimization studies, two reported on sexual violence only and none provided estimates for male Veterans. The most common estimate of exposure to IPV was lifetime abuse; thus, we used lifetime estimates as the main outcome to syntheses theses data. Four of the eight studies were amenable to meta-analysis. The pooled lifetime weighted estimated mean prevalence rate of physical IPV victimization among women Veterans yielded a point estimate of 35 percent (95% CI, 25% to 47%). Influence analysis yielded a range of 30 percent to 41 percent victimization of women Veterans. The overall prevalence estimate had high heterogeneity, but limited data precluded moderation analysis to query for subgroup differences. Two studies reported on also reported on the on the prevalence of IPV victimization in the last year among women Veterans. Prevalence estimates in these two studies ranged from 7 percent to 12 percent.

KEY QUESTION 2. For persons who are at risk for, experience, or commit intimate partner violence, what interventions are associated with decreased exposure to intimate partner violence and its associated physical harms, mental harms, or mortality?

Key Points

- We did not identify any SRs that evaluated primary prevention strategies for IPV.
- Most secondary interventions focused on reducing victimization. Only one SR focused on perpetration and synthesized the evidence for the use of cognitive behavioral therapy (CBT) with male perpetrators of IPV; this study identified one weakly favorable study and otherwise had inconclusive results.

- Standardized IPV screening interventions in health care settings increased the identification of victims of IPV when compared with nonstandard or nonuniversal screening. Screening interventions may decrease recurrence of IPV, though the effect is not sustained over time.
- Multicomponent screening interventions that included institutional support, effective screening protocols, initial and ongoing training of providers, and immediate access to referral services increased rates of IPV screening, disclosure, and identification. Using multicomponent screening interventions also has the potential to increase provider self-efficacy to perform IPV screening.
- Other interventions (counseling and advocacy) showed decreases in IPV victimization; however, the evidence is weak and often inconsistent.
- Secondary intervention research is largely inconclusive and faces many limitations, for several reasons, including high heterogeneity of samples, attrition, short followup periods, weak intervention effects, and small sample sizes.

We identified four good-quality and two fair-quality SRs that evaluated interventions aimed at decreasing exposure to IPV and its associated harms. No primary prevention interventions were identified. All six SRs evaluated studies that were secondary or tertiary interventions focused on populations with prior exposure to IPV. Four SRs compared screening interventions with usual care. Two SRs compared behavioral interventions for female victims with usual care or control groups; one SR examined CBT for male perpetrators of IPV against their female partners. One SR assessed brief, intensive advocacy interventions for female victims versus usual care or control condition. Below we summarize the results of these SRs and the strength of the evidence for these interventions.

Screening for IPV Victimization

Screening women can accurately identify those who have been exposed to IPV, can increase disclosure of IPV victimization, and incurs few adverse effects. Specific results, however, vary by screening tool, populations, and setting. Repeated screenings during pregnancy increase identification of IPV victimization. Screening interventions that included institutional support, ongoing training, and immediate access to referral services significantly increase rates of IPV screening, disclosure, and identification compared with screening interventions using a less comprehensive approach. In an emergency room environment, computerized IPV screening had high feasibility and acceptability. Screening interventions may decrease recurrence of IPV and physical and mental harms associated with IPV, but the evidence is limited. Overall based on multiple studies, there is high strength of evidence that IPV screening can detect women exposed to IPV. There is insufficient to low strength of evidence that IPV screening alone influences all other outcomes (i.e., rates of IPV, IPV-related physical or mental harms, referrals and treatment for IPV, mortality).

Behavioral Interventions

We identified three SRs evaluated behavioral interventions. Two of these synthesized the evidence on behavioral interventions among women exposed to IPV, and one focused on male

perpetrators of IPV. The SR that focused on perpetration synthesized the evidence on CBT for men who abuse their female partners. Compared with nonintervention controls, CBT for men who physically abuse their female partners reduced rates of IPV but did not demonstrate a statistically significant improvement across four RCTs (RR 0.86; 95% CI, 0.54 to 1.38). Overall, the evidence around interventions focusing on reducing and treating perpetration is limited; the strength of evidence is low due to imprecise estimates (wide confidence internals) and inconsistent results across the four included studies.

Of the two SRs that focused on women victims of IPV, one focused on pregnant women and identified four studies, and the other SR identified six RCTs, three of which were conducted in pregnant or postpartum women. Some studies were included in both SRs, thus there were only five unique studies among pregnant or postpartum women across the two SRs. The behavioral interventions tested in these studies were heterogonous and included home visitation, nurse management, unspecified counseling interventions plus resource card, or mentor support. Among pregnant and postpartum women, behavioral interventions that include counseling reduced IPV and improved birth outcomes. However, strength of evidence was graded as insufficient. Across these SRs, there were few studies identified, and the types of behavioral interventions were quite different from each other, which hampered drawing conclusions across this category of interventions.

Advocacy Interventions

We identified one SR that assessed 10 advocacy intervention studies. Again, intervention approaches were heterogeneous and included education and support to enhance provision of legal, housing, and financial advice; promote access and use of community shelters, emergency housing, and psychological interventions; and provide safety planning. Intensive advocacy interventions (>12 hours in duration) for women recruited in domestic violence shelters reduced physical abuse 12 to 24 months postintervention (odds ratio 0.43; 95% CI, 0.43 to 0.83) but not in the year immediately following intervention. Brief interventions (<12 hours) increased the use of safety behaviors. No significant effects were found for mental harm (e.g., PTSD, depression) or use of IPV-related services. There is low strength of evidence that intensive advocacy interventions reduced IPV; results were consistent, but confidence internals were wide.

CLINICAL AND POLICY IMPLICATIONS

Compared with population-based studies conducted in samples not selected for active duty or Veteran status, we report higher rates of 12-month IPV perpetration and victimization among active duty women servicemembers; considerably higher 12-month IPV victimization rates for active duty men; and comparable rates of both 12-month IPV perpetration among active duty men and lifetime IPV victimization among Veteran women. We also found that the 12-month victimization estimate is higher among active duty men than active duty women—a pattern that has also been observed in civilian studies. Some differences between civilian and active duty or Veteran populations can be attributed to dissimilar distribution of population characteristics between the two groups (e.g., age distribution, greater proportion of African Americans and Hispanics among active duty and Veteran populations). However, factors unique to military life such as military deployments that result in family separation and reintegration issues and combat-related health issues (e.g., PTSD, head injuries) likely contribute to relationship stress

and IPV among active duty servicemembers, Veterans, and their intimate partners.

Evidence from our synthesis of SRs assessing IPV interventions demonstrates that standardized IPV screening interventions in a health care setting increases identification of IPV victimization. Moreover, Nelson et al. found minimal adverse effects and low levels of harm related to IPV screening for women receiving health care services. Coupled with the prevalence of IPV we report here, these findings support the need to consider adopting standardized IPV screening for use in the VA. However, our review also highlights the need to take a comprehensive approach to implementing such screening programs in the VA.

Our meta-synthesis finds that multicomponent screening interventions that include institutional support, use effective screening protocols, thorough initial and ongoing training of providers, and immediate access to referral services increase provider use of screening, patient disclosure, and, ultimately, identification of IPV. This finding suggests that establishing a screening program without building provider self-efficacy to screen and establishing sufficient support for referral and treatment mechanism will undermine the effectiveness of IPV screening programs. Our synthesis of the SR literature found some evidence to support behavioral counseling and advocacy interventions for women who screen positive for IPV; however, the evidence was often inconsistent—likely due to the wide variability in strategy, content, and intensity.

While primary care physicians and mental health clinicians may be ideally positioned to implement screening, successful IPV screening programs must also consider educating and enlisting the services of the entire health care team, including other providers, nurses, and social workers, to create a seamless system from screening to timely referral to appropriate services. The development of resource toolkits for clinicians that include (1) appropriate community or Veteran resources, (2) information on local and state laws regarding IPV, and (3) availability of counseling, legal, and advocacy referrals could help overcome some of the provider and institutional barriers to providing IPV screening throughout the VA healthcare system. Due to the sensitive nature of IPV screening, cultural sensitivity and confidentiality concerns would also need to be considered in the development of any IPV screening program. The Institute of Medicine recommends that women be screened about current and past violence and abuse in a culturally sensitive and supportive manner, and assuring patient confidentiality and safety is paramount.

Another consideration when planning an IPV screening program is how often to make assessments. Most screening tools were designed to detect IPV in the previous year. Thus, an annual interval may be optimal. Any screening program will need to consider the optimal use of provider and staff resources in addition to the benefit from screening for IPV victimization obtained from repeated followup screenings.

While the evidence we report here on effectiveness of screening for IPV was conducted among female populations, we also report considerable rates of IPV victimization among male populations. The U.S. armed services and the Veteran healthcare system currently remain largely male in population despite the growing number of female servicemembers and Veterans. The Veterans Health Administration (VHA) provides medical and mental health care for an estimated 8.6 million Veterans each year, and only an estimated 6 percent to 8 percent of the Veterans cared for are women. Indeed, our data suggest that the overall rates of IPV victimization among male active duty servicemembers are at least equal to if not higher than rates of overall IPV

victimization among female active duty servicemembers. However, women are more likely to be injured or murdered as a result of IPV. This fact raises the question of whether IPV screening programs in the VA should be extended to men as well. In constructing a comprehensive national program to address IPV, consideration should be given to the prevalence of IPV victimization and perpetration, the effectiveness of interventions to decrease exposure to IPV and decrease the associated mental and physical harms, the potential benefits and harms of screening, and if universal or women-only screening should be adopted. Currently, a number of organizations recommend some form of screening to detect IPV victimization. Our results broadly support these recommendations; however, our review highlights the need for developing an a priori detailed plan of action for treatment and followup of positive IPV screening results.

RECOMMENDATIONS FOR FUTURE RESEARCH

We used a recommended framework to identify gaps in evidence and classify why these gaps exist (Table 1). This approach considers PICOTS (population, intervention, comparator, outcomes, timing, and setting) to identify gaps and classifies them as due to (1) insufficient or imprecise information, (2) biased information, (3) inconsistency or unknown consistency, and (4) not the right information. VA and other healthcare systems should consider their clinical and policy needs when deciding whether to invest in research to address gaps in evidence. Specific research questions can be evaluated quantitatively, using value-of-information analysis, which uses Bayesian methods to estimate the potential benefits of gathering further information through research.

Table 1. Evidence gaps and future research

Evidence Gap	Reason	Type of Studies to Consider
Limited to no evidence for these populations and behaviors: • Male Veteran IPV perpetration • Male Veteran IPV victimization • Female Veteran IPV victimization in last year • Nationally representative samples of Veterans for both perpetration and victimization	Insufficient information	High-quality cross-sectional studies in broad populations
Studies that address primary prevention of IPV	Insufficient information	RCTs Observational comparative effectiveness studies
Effectiveness of screening techniques to identify males with exposure to IPV *victimization*	Insufficient information	Studies of diagnostic accuracy RCTs Observational comparative effectiveness studies
Effectiveness of screening techniques to identify perpetrators of current or past IPV	Insufficient information	Studies of diagnostic accuracy RCTs
Studies on interventions to reduce IPV in screen-detected populations	Insufficient information	RCTs Observational comparative effectiveness studies

CONCLUSION

Our review highlights that IPV victimization and perpetration are prevalent among active duty servicemembers and Veterans. Overall, IPV screening interventions for women in health care settings increase identification of victimization and appear to be feasible and acceptable. Screening programs are maximized when adequate support for clinicians and screen-detected women are provided. Other secondary prevention interventions provide insufficient evidence to demonstrate significant changes in IPV or IPV-related mental or physical harms. Our review points to gaps in the existing evidence. No identified studies reported on IPV victimization among male Veterans; however, we report high rates of victimization among male active duty servicemembers. Thus, it is likely that male Veterans would also have elevated rates of IPV victimization. Only three studies of IPV among Veterans were conducted among national samples. Many Veteran studies were conducted in specialty mental health clinics or highly selected populations. Future research on IPV should be conducted among nationally representative samples of Veterans. Moreover, we identified no SRs of primary IPV prevention strategies; all SRs summarized literature on secondary prevention strategies (e.g., IPV screening). These findings demonstrate gaps in the evidence; future studies are needed. However, current evidence suggests that screening women for IPV can identify women who have been exposed to IPV. In the absence of strong evidence to support any single strategy to reduce risks associated with IPV in screen-detected populations, behavioral and advocacy interventions should be considered as adjuncts to IPV screening programs because they have some partial impact on IPV-related mental or physical health outcomes and show limited evidence that they are associated with harms.

ABBREVIATIONS TABLE

AMSTAR	measurement tool to assess the methodological quality of systematic reviews
CI	confidence interval
IPV	intimate partner violence
KQ	key question
MeSH	medical subject heading
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OND	Operation New Dawn
PICOTS	population, intervention, comparator, outcome, timing, setting
PTSD	posttraumatic stress disorder
RCT	randomized controlled trial
RD	risk difference
RR	risk ratio
SR	systematic review
VA	Department of Veterans Affairs
VHA	Veterans Health Administration

EVIDENCE REPORT

INTRODUCTION

Intimate partner violence (IPV) encompasses a range of physical, sexual, or psychological harms or stalking behavior by a current or former partner across a continuum of severity. In the United States, IPV poses a significant public health burden that affects both men and women. Over a third (35.6%) of women and a fourth (28.5%) of men in the United States have experienced rape, physical violence, or stalking by an intimate partner in their lifetime.[1]

Outcomes associated with IPV include a wide range of social, physical, and mental issues such as family dissolution, adverse pregnancy outcomes, mental health issues (depression, posttraumatic stress disorder [PTSD], anxiety), incarceration, and death.[1-5] IPV affects many facets of society including medical, mental health, social services, and criminal justice systems. Moreover, productivity losses and costs attributable to IPV are significant; estimates exceed 13.5 million workdays lost and $8.3 billion spent in the United States each year for violence perpetrated against women.[6]

Military service has unique psychological, social, and environmental factors that may contribute to elevated risk of IPV among active duty servicemembers and Veterans. Multiple deployments, family separation and reintegration,[7] demanding workloads at home and while on duty, histories of head trauma, mental illness, and substance abuse[8] can contribute to partner conflict and elevated risk of IPV among active duty servicemembers, Veterans, and their intimate partners.[9-12] Several studies have estimated the prevalence of IPV among active duty servicemembers and Veterans; rates of past-year perpetration of IPV ranged from 13.3 percent to 47 percent among male active duty servicemembers and 13.5 percent to 42 percent among male Veterans.[10,13-15] Thus, IPV presents a common and important problem among potential users of the VA healthcare system. Rates of IPV among military and Veteran populations likely vary by gender and race, as they do with civilian populations. Additionally, era of service may be a unique moderator of IPV prevalence among Veterans.[16]

Currently the VA does not have a comprehensive national program to address IPV. Thus, the VA convened the Domestic Violence Task Force to define the scope of, and design a plan for evaluating, domestic violence and IPV among Veterans. In order to support the goals and mission of this task force, the Durham VA Evidence-based Synthesis Program conducted a systemic review of the literature to synthesize the evidence on the prevalence of IPV among active duty servicemembers and Veterans and to conduct an evidence synthesis of the systematic review (SR) literature on intervention strategies to address IPV.

METHODS

TOPIC DEVELOPMENT

This review was commissioned by the VA's Evidence-based Synthesis Program. The topic was nominated after a topic refinement process that included a preliminary review of published peer-reviewed literature, consultation with internal partners and investigators, and consultation with key stakeholders. We further developed and refined the key questions (KQs) based on a preliminary review of published peer-reviewed literature in consultation with VA and non-VA experts.

The final KQs were:

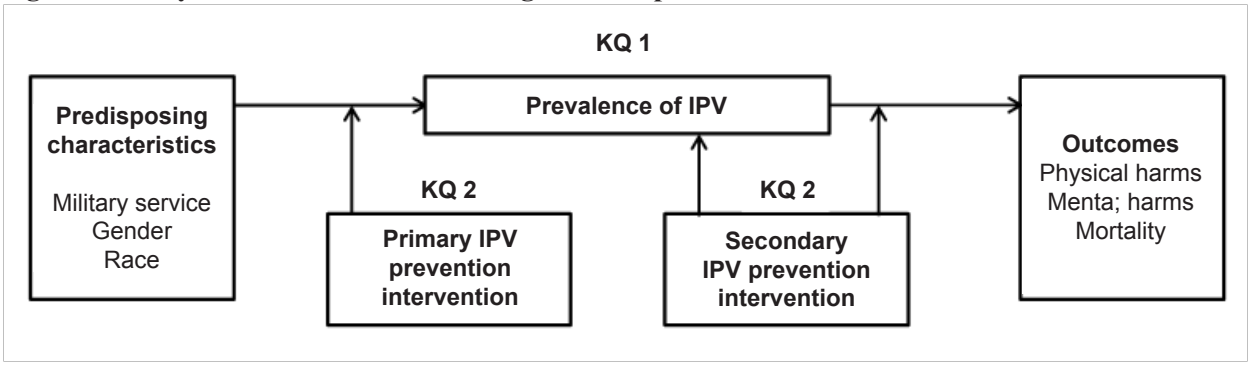
KQ 1. What is the prevalence of intimate partner violence among Veterans and active duty servicemembers, and does the prevalence vary by cohort (e.g., Vietnam era, OEF/OIF/OND era), gender, or race?

KQ 2. For persons who are at risk for, experience, or commit intimate partner violence, what interventions are associated with decreased exposure to intimate partner violence and its associated physical harms, mental harms, or mortality?

ANALYTIC FRAMEWORK

We followed a standard protocol for all steps of this review; certain methods map to the PRISMA checklist.[17] Our approach was guided by the analytic framework shown in Figure 1.

Figure 1. Analytic framework for assessing intimate partner violence



Abbreviations: IPV=intimate partner violence; KQ=key question

SEARCH STRATEGY

We used different literature search strategies for KQ 1 and KQ 2. Prevalence of IPV (KQ 1) was approached using primary research articles so that we could compare populations and trends over time. Treatment interventions (KQ 2) were approached through a synthesis of SRs because there were numerous potential intervention strategies and several current, high-quality SRs available on this topic. For prevalence, we searched MEDLINE® (via PubMed®), CINAHL®, PsycINFO®, and Social Sciences Citation Index (a subset of Web of Science) from inception through

December 2012 for peer-reviewed publications providing prevalence rates for IPV. However, through the peer review process we were alerted to one citation that was not identified in our original search strategy. Consequently, we broadened our search strategy such that it would identify this new citation. We then updated our PubMed, CINAHL, PsycINFO searches in June 2013. (We did not update the Social Sciences Citation Index in June 2013 because this database did not yield any relevant citations not identified in the other databases during the initial search.) For treatment intervention strategies, we searched PubMed, EMBASE®, CINAHL, PsycINFO, and the Cochrane Database of Systematic Reviews for peer-reviewed SRs from January 2007 through December 2012.

We developed our search strategy in consultation with an experienced search librarian. We used the National Library of Medicine's Medical Subject Headings (MeSH) keyword nomenclature and text words for populations of interest, types of intimate partner abuse (Spouse Abuse [Mesh], Domestic Violence[Mesh]), intervention strategies (screening, counseling, rehabilitation), and validated search terms for both prevalence statistics and SRs. We limited both searches to articles published in the English language involving human subjects 18 years of age and older. The KQ 1 search was limited to Veterans and military and active duty populations. The KQ 2 search was limited to SRs with search dates on or after January 1, 2007. The full search strategy is provided in Appendix A.

We supplemented the electronic searches with a manual search of citations from a set of key primary and review articles.[2,13,18-32] The reference list for identified pivotal articles was hand-searched and cross-referenced against our library in order to retrieve additional articles. All citations were imported into two electronic databases (for referencing, EndNote® Version X5, Thomson Reuters, Philadelphia, PA; for data abstraction, DistillerSR; Evidence Partners Inc., Manotick, ON, Canada).

STUDY SELECTION

Using prespecified inclusion and exclusion criteria, two reviewers assessed titles and abstracts for relevance to the KQs. Full-text articles identified by either reviewer as potentially relevant were retrieved for further review and examined by two reviewers against the eligibility criteria. Disagreements on inclusion, exclusion, or the major reason for exclusion were resolved by discussion or by a third reviewer. The criteria to screen articles for inclusion or exclusion at both the title-and-abstract and full-text screening stages for KQ 1 and KQ 2 are detailed in Table 2. Appendix B contains bibliographic information for all included studies.

Table 2. Summary of inclusion and exclusion criteria

Study Characteristic	Inclusion Criteria	Exclusion Criteria
Population	KQ 1: U.S. Veterans and active duty servicemembers KQs 1 and 2: Adults (≥18 years of age)	KQs 1 and 2: • <18 years of age • Incarcerated populations
Interventions	KQ 1: Not applicable KQ 2: • Primary IPV prevention strategies (e.g., marital conflicts, communication, interaction-style counseling) • Secondary IPV prevention strategies focused on reducing rates of IPV among those who commit or experience IPV (e.g., screening, counseling to reduce perpetration or victimization, emergency shelters, training of health care or law enforcement personnel)	KQ 2: Changes to federal, state, or local laws
Comparators	KQ 1: Not applicable KQ 2: Usual care or other primary or secondary IPV prevention interventions	None
Outcomes	KQ 1: • Proportion of U.S. military servicemembers or Veterans who have committed IPV • Proportion of U.S. military servicemembers or Veterans who have experienced IPV • Outcomes measured by self-report or interviewer-based assessment KQ 2: Study must report at least one of the following: • Change in IPV perpetration • Rates of IPV victimization • Identification of IPV • Referral for services related to IPV • Treatment or services received for IPV • Change in attitudes toward IPV (for primary prevention only) KQ 2: Secondary outcomes of interest: • IPV-associated physical harms (e.g., injuries, sexual assault) or mental harms (e.g., PTSD) • IPV-related mortality • Markers of healthy relationship norms (e.g., satisfaction, communication, conflict-resolution skills) Outcomes measured by self-report or interviewer-based assessment, except referrals and treatment rates, which may be assessed by chart reviews	KQ 1: Assessment of any aspect of IPV based only on chart review or assessment of administrative data KQ 2: Reports only relationship outcomes (e.g., conflict-resolution skills), physical harms (e.g., gastrointestinal distress, chronic pain), or mental health harms (e.g., depression, PTSD) and does not provide outcome data on rates of IPV, intermediate IPV screening outcomes of interest, or attitudes toward IPV

Study Characteristic	Inclusion Criteria	Exclusion Criteria
Timing	KQ 1: • Lifetime exposure to IPV • IPV exposure that occurred during service in the military • IPV exposure that occurred after discharge from the military KQ 2: End of treatment or longer	KQ 2: No postintervention exposure assessments
Setting	KQ 1: • Military settings (domestic or abroad) • Population or community settings KQs 1 and 2: • Outpatient general medical settings (e.g., internal medicine, family medicine, etc.) • VA health care settings for outpatient care • Emergency medicine • Outpatient mental health • Mixed clinical settings (if of interest) • Community settings	KQs 1 and 2: Correctional facilities and hospital inpatient setting
Study designs	KQ 1: • Original data • Prospective and retrospective observational studies • Cross-sectional studies KQ 2: Systematic review (i.e., methods section has search strategy and data synthesis plan)	KQ 1: • Not a research study (e.g., editorial, letter) • N ≤99 KQ 2: Not a systematic review (e.g., narrative review)
Publications	KQ 1: • Peer-reviewed research articles[a] • English-language[b] • Full publications KQ 2: • English-language • Peer-reviewed articles • Full publications • Relevant good- or fair-quality systematic review • Published from January 1, 2007 forward[c]	KQs 1 and 2: • Abstract only • Not English-language KQ 2: • Abstract only • Not English-language • Poor-quality systematic review • Published prior to 2007

Abbreviations: KQ=key question; RCT=randomized controlled trial

[a]Peer-reviewed article is defined as a published article of original research that has been written by scientists or professionals in a field of study; has been evaluated for scientific quality and correctness by other experts in the same field who are outside of the publishing or sponsoring organization; and has been reviewed either by the author's identity being blinded or the reviewers' identity being blinded, or both.

[b]Given the high volume of English-language publications (including the majority of known important studies), we have excluded non-English-language articles because the resources required to translate non-English-language articles would not be justified by the low potential likelihood of identifying relevant data unavailable from English-language sources.

[c]We originally searched MEDLINE from January 1, 2002, to the present. Results of earlier reviews were captured in the findings of more recent reviews. Thus, we revised our search strategy to include systematic reviews only from January 1, 2007, forward.

DATA ABSTRACTION

Before general use, the abstraction form templates, designed specifically for this report, were piloted on a sample of included articles and revised to ensure that all relevant data elements were captured and that there was consistency and reproducibility between abstractors. We gave particular attention to how IPV was defined in each study, the study setting, the measurements used to assess outcomes and mode of administration, and the characteristics of the patient (KQ 1) or study (KQ 2). Select data from published reports were then abstracted into the final abstraction form by one trained reviewer. All data abstractions were confirmed by a second reviewer. Disagreements were resolved by consensus or by obtaining a third reviewer's opinion when consensus could not be reached.

We abstracted the following key information for each included study, if reported:

- Study design
- Population characteristics
- Inclusion criteria
- Exclusion criteria
- Funding source
- Outcomes

Specifically for the prevalence studies for KQ 1, we abstracted:

- Enrollment (for prevalence data, including recruitment dates)
  - Assessed for eligibility
  - Number eligible
  - Completed survey or other primary strategy
  - Completed followup
- Study site, setting, and/or geographic location
- Assessment of IPV measurement
  - Name of IPV survey instrument
  - Mode of administration for IPV survey instrument
  - Types of abuse captured by IPV survey instrument
  - Description of person reporting IPV on survey
  - Definition of IPV recorded by the survey
  - Time points of IPV occurrence recorded (e.g., past year, lifetime, etc.)
- Applicability to populations and settings of interest

Specifically for the SRs for KQ 2, we abstracted:

- SR design features
  - Databases searched and search date
  - Study-level inclusion and exclusion criteria
  - Number of primary studies included for each KQ
  - Methods of analysis, assessment of heterogeneity, and publication bias
  - Strength of evidence assessment
- Results of the review
  - Range of mean age
  - Range of sex distribution
  - Range of race distribution for white, African American, and Hispanic

- Number of studies and participants for each KQ
- Synthesis of pertinent outcomes
- Subgroup analysis by gender, race, or era of service
- Publication bias
- Sensitivity analysis
- Strength of evidence
- Author conclusions

QUALITY ASSESSMENT

We abstracted data necessary to assess the quality of included studies. Across all included studies, quality criteria were applied for each study by two independent reviewers. Disagreements were resolved between the two reviewers or, when needed, by arbitration from a third reviewer. For prevalence studies, we adapted a previously published tool[33] developed to assess the quality of prevalence studies. Key domains of quality assessed were selection bias, nonresponse bias, measurement bias, and biases related to analysis. Based on these criteria, a summary judgment of low, moderate, or high risk of bias was assigned to each study (Appendix C).

We also assessed the quality of SRs using criteria adapted from the AMSTAR measurement tool.[34] These included the following key criteria: review assesses a focused clinical question, search methods are adequate for replication and are comprehensive, selection bias is avoided, data are abstracted reliably, characteristics of primary literature are reported and quality is assessed appropriately, results are synthesized using appropriate methods, publication bias is assessed, conflict of interest is reported, and conclusions are supported by results. Based on these criteria, SRs were categorized as good, fair, or poor quality (Appendix C). Poor-quality SRs were excluded.

DATA SYNTHESIS

Studies of IPV Prevalence (KQ 1)

To assess prevalence, we critically analyzed the included primary studies to compare their characteristics, methods, and findings. We then determined the feasibility of completing a quantitative synthesis (i.e., meta-analysis) by exploring the volume of relevant literature, the completeness of the results reporting, and the conceptual homogeneity of the studies. When a meta-analysis was appropriate, we used random-effects models to quantitatively synthesize the available evidence for prevalence rates. For meta-analysis, we excluded studies that were conducted in special populations, such as cohorts recruited from prenatal clinics and mental health clinics. When studies gave results only by subgroup (males, females), we combined subgroups only when the combined group represented the total study population. We estimated pooled prevalence with 95% confidence intervals (95% CIs) using a random-effects model when study designs and outcomes reported were similar.

We anticipated heterogeneity of effects; thus, we conducted subgroup analyses by key variables hypothesized to influence prevalence estimates (i.e., gender, race, IPV severity, era of service) and pooled subgroup estimates using mixed-effects models where appropriate.[35] To assess if prevalence rates varied by era of service (e.g., OEF/IOF/OND), we conducted moderator

analysis by date of cohort recruitment (i.e., era of cohort). Date of cohort recruitment was used as a proxy for era of service and was dichotomized as pre-2001 and post-2001.We tested for statistical heterogeneity using graphical displays and test statistics (I^2 statistics). The I^2 describes the percentage of total variation across studies due to heterogeneity (or inconsistency across studies) rather than to chance.[36] Heterogeneity was categorized as low, moderate, or high based on I^2 values of 25 percent, 50 percent, and 75 percent, respectively. We also conducted an influence analysis to assess the individual effects of each included study in the meta-analyses. In an influence analysis, each study is systematically removed one at a time, and a new pooled estimate is calculated to provide an estimate of the pooled prevalence without the study. When quantitative synthesis was not possible (less than three studies), we summarize findings qualitatively. All quantitative analyses were conducted using OpenMeta[Analyst] software (http://www.cebm.brown.edu/open_meta).

Systematic Reviews of IPV Intervention Strategies (KQ 2)

Quantitative analysis of the SRs was not possible due to the limited number (n=6) and diversity of the included studies and outcomes. Instead, we grouped reviews by intervention strategy and then summarized the key characteristics, methods, and findings. If findings or conclusions differed importantly across reviews, we analyzed potential reasons for discrepancies such as review inclusion/exclusion criteria, the primary studies included, differences in outcome definition, analytic approach, and conflict of interest. When synthesizing results, we gave more qualitative weight to recent reviews of higher overall quality (e.g., good vs. fair) and to reviews that included higher quality study deigns (e.g., RCTs vs. retrospective observational studies).

RATING THE BODY OF EVIDENCE

In addition to rating the quality of individual prevalence studies and SRs of treatment strategies, we evaluated the overall quality of the evidence for each KQ as described in the Agency for Healthcare and Research Quality's (AHRQ's) "Methods Guide for Effectiveness and Comparative Effectiveness Studies."[37] In brief, this approach requires assessment of four domains: risk of bias, consistency, directness, and precision. Additional domains considered were strength of association (magnitude of effect) and publication bias. For risk of bias, we considered basic (e.g., RCT) and detailed study design (e.g., adequate randomization). We used results from meta-analyses when evaluating consistency (forest plots, tests for heterogeneity), precision (CIs), strength of association (odds ratios), and publication bias (clinicaltrials.gov survey). These domains were considered qualitatively, and a summary rating of high, moderate, low, or insufficient strength of evidence was assigned after discussion by two reviewers. This four-level rating scale consists of the following definitions:

- **High**—Further research is very unlikely to change our confidence on the estimate of effect.
- **Moderate**—Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
- **Low**—Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

- **Insufficient**—Evidence on an outcome is absent or too weak, sparse, or inconsistent to estimate an effect.

When a rating of high, moderate, or low was not possible or was imprudent to make, a grade of insufficient was assigned.[38] We also considered the risk of publication bias. Publication bias was addressed through graphical analysis (e.g., funnel plots) for KQ 1 (prevalence of IPV) and a careful search of www.ClinicalTrials.gov (March 2013) for identification of any study completed but unpublished or ongoing for both KQs (prevalence studies and SRs on intervention strategies).

PEER REVIEW

A draft version of the report was reviewed by technical experts and clinical leadership. A transcript of their comments can be found in the appendix, which elucidates how each comment was considered in the final report.

RESULTS

LITERATURE SEARCH

The flow of articles through the literature search and screening process is illustrated in Figure 2 (IPV prevalence) and Figure 3 (IPV interventions). We identified 654 unique citations from a combined search MEDLINE via PubMed (n=123), CINAHL (n=42), PsycINFO (n=59), and Social Sciences Citation Index (SSCI), a subset of the Web of Science database (n=430), from inception through December 2012. All databases except SSCI were updated in June 2013. Manual searching of included study bibliographies and review articles identified 15 more citations for a total of 669 citations. After applying inclusion and exclusion criteria at the title-and-abstract level, 106 full-text articles were retrieved for further evaluation. Of these, 67 were excluded at the full-text screening stage, leaving 39 articles representing 25 unique primary studies and 14 companion articles for data abstraction.

For intervention strategies (KQ 2), we searched MEDLINE via PubMed (n=1404), EMBASE (n=562), CINAHL (n=254), PsycINFO (n=37), and the Cochrane Database of Systematic Reviews (n=229) for peer-reviewed SRs from January 2007 through December 2012; an updated search was conducted in March 2013 for a total of 2486 articles. After applying inclusion and exclusion criteria at the title-and-abstract level, 96 full-text SRs were retrieved for further evaluation. Of these, 90 were excluded at the full-text screening stage, leaving 6 SRs for data abstraction.

Figure 2. Literature flow for IPV prevalence studies (KQ 1)

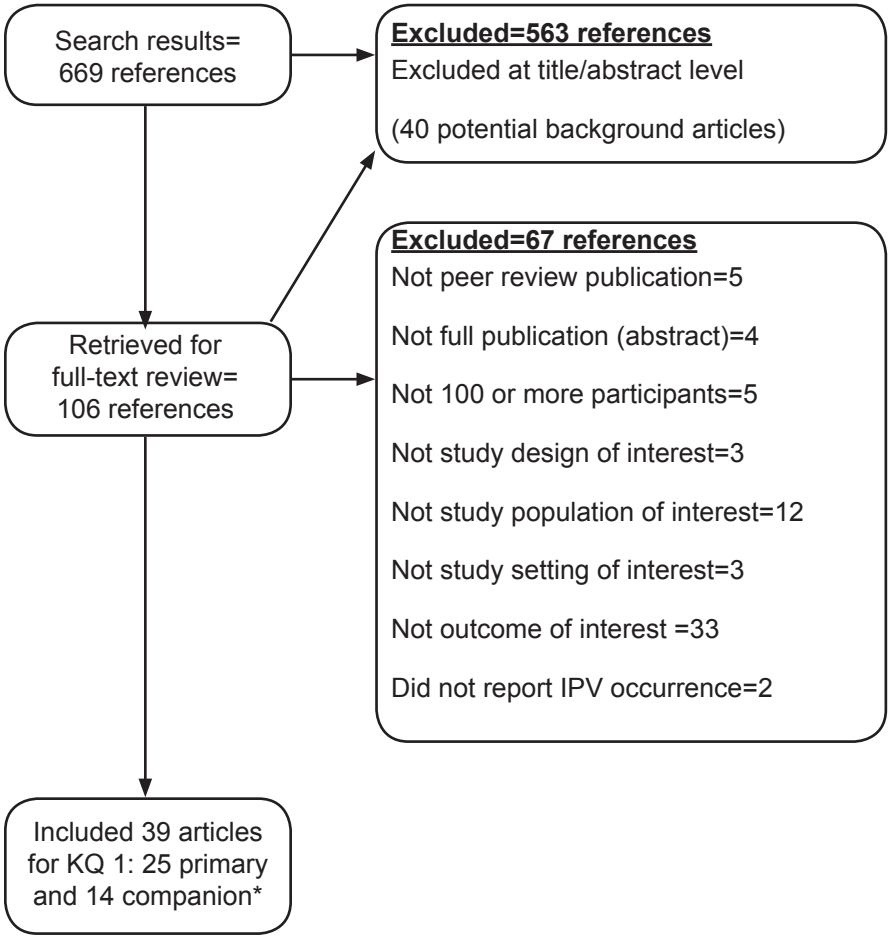
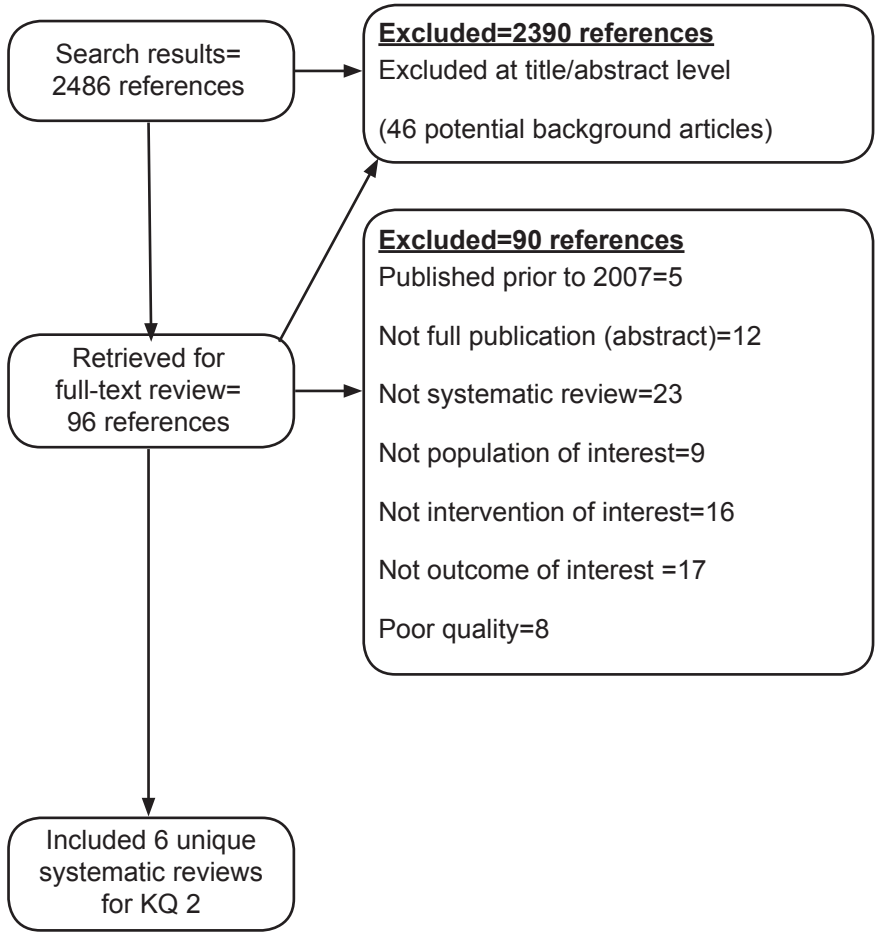


Figure 3. Literature flow for IPV systematic reviews (KQ 2)



*See glossary for definition of companion articles.
Abbreviations: KQ=key question

KEY QUESTION 1. What is the prevalence of intimate partner violence among Veterans and active duty servicemembers, and does the prevalence vary by cohort (e.g., Vietnam era, OEF/OIF/OND era), gender, or race?

Key Points

- The overall prevalence of 12-month IPV perpetration among active duty servicemembers was 22 percent, and victimization was 30 percent. Both estimates had high heterogeneity.
- Among active duty populations, moderator analysis by era of service, IPV severity, and gender all showed group differences, but each pooled subgroup estimate also had high heterogeneity. Thus, the variability in prevalence is likely due to a combination of factors.
- Of the 12 studies that assessed IPV among Veterans, only 5 assessed IPV perpetration. Populations and outcomes were too heterogeneous to meta-analyze. The prevalence of IPV perpetration within the last year ranged considerably (15% to 60%). However, samples consisted of specialized populations (e.g., Veterans seeking relationship help, newly returning OEF/OIF Veterans referred to behavioral health) with a high mental health burden, or were gender-specific samples.
- Only eight studies assessed IPV victimization among Veterans. None of these studies provided estimates for male Veterans, and only two provided an estimate of 12-month prevalence; estimates ranged from 7 percent to 12 percent. Among women Veterans, the prevalence of lifetime IPV victimization was 35 percent. The estimate had high heterogeneity, but limited data precluded moderator analysis to query for subgroup differences.

Description of Included Studies

We identified 25 primary studies (with 14 linked companion articles, for a total of 39) for IPV prevalence (details shown in Table 3). Thirteen of these (encompassing 25 articles[12,13,15,18,39-59]) evaluated IPV prevalence among U.S. active duty servicemembers (n=88,568). Twelve (encompassing 14 articles[7,27,60-71]) evaluated IPV prevalence among Veterans (n=25,497). Of the 12 Veteran studies, 10 were conducted among populations exclusively comprising VA users (i.e., clinical samples).

Most of the military studies were assembled from surveys conducted on bases and consisted of broad populations of soldiers and, in some instances, their spousal dependents. The majority of participants in the active duty studies were male and white, with a median age of 28. In contrast, the majority of Veteran studies were conducted among populations exclusively comprising VA users (i.e., clinical samples). Moreover, many Veteran studies were conducted in specialized populations; four[7,61,65,69] were conducted through mental health clinics, and one[27] focused on IPV among World War II prisoners of war. The majority of participants in the Veteran studies were women and white, with a median age of 46. Most of the 25 studies were rated fair quality; however, a quarter of the Veteran studies were rated poor quality compared with none of the active duty studies. While a variety of measurement tools were used to assess IPV, the most common tool was self-reported via the Conflict Tactics Scale (CTS). Details of the participants are shown in Table 4.

Table 3. Study characteristics of the IPV prevalence studies

Primary Article (Companion Article)	Geographic Location Setting Recruitment Total N	Population Age in Years (SD) % Female % White	Outcomes Timing of Outcome	Measurement Tool Type of Violence	Included in Meta-analysis? If No, Reason for Exclusion	Quality
Bohannon, 1995[18]	Southeastern US General internal medicine Not reported N=188	Active duty 29.2 (NR) 50% 73.4%	Perpetration and victimization 12 months	CTS Physical	No Study assessed couples but did not report separate estimates for active duty participants	Fair
Campbell, 2003[13] (O'Campo, 2006[55])	Washington, DC General internal medicine Jan 1998–Oct 2000 N=616	Active duty Categorical 100% 75.6%	Victimization Lifetime	AAS Psychological, emotional, physical, sexual, stalking	No No 12-month outcome data	Fair
Campbell, 2005[66] (Campbell, 2008[71])	Midwestern US General internal medicine Not reported N=268	Veteran Majority >45 100% 0%	Victimization Lifetime	SES Sexual	No Reported sexual violence only	Fair
Caralis, 1997[68]	Miami, FL General internal medicine Jun 1995–Aug1995 N=406	Veteran 50.4 (16) 100% 57%	Victimization 12 months, lifetime	AAS Psychological, emotional, physical, sexual	Yes	Fair
Coyle, 1996[64]	Baltimore, MD General internal medicine Jul 1994–Dec 1994 N=429	Veteran 42.3 (NR) 100% 0%	Victimization Lifetime	STS Physical, sexual	Yes	Poor
Dichter, 2011[60]	BRFSS General internal medicine 2006 N=21,162	Veteran Categorical 100% 67.8%	Victimization Lifetime	STS Physical, sexual	Yes	Poor
Dobie, 2004[63]	Seattle, WA General internal medicine Oct 1996–Jan 1998 N=1206	Veteran 46.0 (15.0) 100% 73.0%	Victimization Lifetime	STS Physical	Yes	Fair
Dutra, 2012 [70]	USA General internal medicine 1984-1988 N=178	Veteran 24.8 (5.0) 50% 95.6%	Perpetration and Victimization 12 months	CTS Physical, psychological	No Too few studies to preform meta-analysis	Fair
Fonseca, 2006[12] (Schmaling, 2011[52])	Fort Bliss, TX General internal medicine Mar 2003–Nov 2003 N=2926	Active duty 35.0 (8.86) 9.1% 64.3%	Perpetration 12 months	CTS Physical	Yes	Good

Primary Article (Companion Article)	Geographic Location Setting Recruitment Total N	Population Age in Years (SD) % Female % White	Outcomes Timing of Outcome	Measurement Tool Type of Violence	Included in Meta-analysis? If No, Reason for Exclusion	Quality
Forgey, 2006[56] (Forgey, 2010[50])	Not reported General internal medicine Jul 2001–Sep 2001 N=248	Active duty 29.8 (7.0) 100% 37.1%	Perpetration and victimization 12 months	CTS Psychological, emotional, physical, sexual	Yes Gender subgroup meta-analysis only	Fair
Heyman, 1999[45] (Newby, 2003;[57] McCarroll, 2000;[15] McCarroll, 2010[58])	Army, US General internal medicine 1990–1994 N=33,762	Active duty Categorical 8.2% 58.6%	Perpetration and victimization 12 months	CTS Physical	Yes	Good
Luterek, 2011[65]	Seattle, WA Mental health Not reported N=208	Veteran 51.1 (NR) 50% 75%	Victimization Lifetime	TLEQ Physical	No Not broad population (PTSD and other mental health clinics)	Fair
Lutgendorf, 2009[41]	Portsmouth, VA OB-GYN Jan 2007–Mar 2008 N=1104	Active duty Median=24 100% 56.1%	Victimization 12 months, lifetime	AAS Psychological, emotional, physical, sexual	No Not broad population (pregnant women)	Fair
Lutgendorf, 2012[39]	Portsmouth, VA OB-GYN Oct 2008–Jun 2009 N=461	Active duty Median=24 100% 54.7%	Victimization 12 months, lifetime	AAS Psychological, emotional, physical, sexual	No Not broad population (pregnant women)	Fair
McCarroll, 2003[44]	Not reported General internal medicine Jun 1999–Jun 1999 N=1025	Active duty 28.44 (NR) 0% 57.0%	Perpetration Lifetime	CTS Physical	No No 12-month outcome data	Good
Merrill, 1998 [59]	Orlando, FL General internal medicine NR N=2987	Active duty 20.3 (2.5) 52.2% 69.7%	Perpetration and victimization 12 months	CTS Physical, psychological	Yes	Fair
Merrill, 2005[42] (Crouch, 2009;[54] Stander, 2011[53])	Greater Lakes, IL General internal medicine Jun 1996–June 1997 N=963	Active duty 19.81 (2.79) 56.3% 57.0%	Perpetration and victimization 12 months	CTS Physical	Yes	Fair
Newby, 2005[43]	Not reported General internal medicine May 2000–Aug 2000 N=896	Active duty 31.0 (NR) 100% 70.0%	Perpetration 12–15 months, lifetime	CTS Physical	Yes Gender subgroup meta-analysis only	Fair

Return to Contents

Primary Article (Companion Article)	Geographic Location Setting Recruitment Total N	Population Age in Years (SD) % Female % White	Outcomes Timing of Outcome	Measurement Tool Type of Violence	Included in Meta-analysis? If No, Reason for Exclusion	Quality
O'Donnell, 2006[27]	California General internal medicine Not reported N=331	Veteran 80 (3.2) 0% NR	Perpetration 12 months	CTS Physical	No Not broad population (WWII prisoners of war)	Poor
Rosen, 2002[49] (Rosen, 2002;[47] Rosen, 2002;[46] Rosen, 2003[51])	USARAK, Alaska General internal medicine Jun 1998–Sep 1998 N=648	Active duty Categorical 0% 58.2%	Perpetration 12 months	CTS Psychological, emotional, physical	Yes	Good
Sadler, 2003[67]	DVA WHCCR General internal medicine Sep 1996–May1997 N=506	Veteran 40 (9) 100% 73.9%	Victimization Not reported	STS Sexual	No Reported only sexual violence during service	Fair
Sayers, 2009[7]	Philadelphia, PA Mental health April 2006–Aug 2007 N=199	Veteran 32.7 (9.1) 10.6% 53.3%	Perpetration 6 months	STS Psychological, emotional, physical	No Not broad population (returning OEF/OIF Veterans referred for behavioral health for evaluation)	Poor
Slep, 2010[40] (Foran, 2011[48])	Air Force, International General internal medicine Apr 2006–Jun 2006 N=42,744	Active duty Age not reported 19.0% 74.1%	Perpetration and victimization 12 months	STS Psychological, emotional, physical, stalking	Yes	Good
Taft, 2009 [69]	Boston, MA Mental health Jan 2003–Jan 2008 N=236	Veteran NR (NR) 0% NR	Perpetration 12 months	CTS Physical, psychological	No Not broad population (combat-exposed Veterans seeking PTSD evaluation and/or treatment)	Fair
Teten, 2009[61] (Sherman, 2006[62])	Houston, TX Mental health Sep 1997–Nov 2003 N=368	Veteran 47.5 (NR) 50% 87.5%	Perpetration 12 months	CTS Physical, sexual	No Not broad population (couples seeking family therapy for relationship issues)	Fair

[a] Determination of the outcome was from the perspective of the Veteran. For example, a study of IPV among civilian spouses of active duty servicemembers would be coded as a perpetration outcome.
Abbreviations: AAS=Abuse Assessment Screen; BRFSS=Behavioral Risk Factor Surveillance System; CTS=Conflict Tactics Scale; DVA WHCCR=Department of Veterans Affairs Women's Health Care Centers Registries; NR=not reported; OB-GYN=obstetrics and gynecology; OEF=Operation Enduring Freedom; OIF=Operation Iraqi Freedom; SD=standard deviation; STS=Sexual Trauma Scale; TLEQ=Traumatic Life Events Questionnaire; USARAK=United States Army in Alaska

Return to Contents

Table 4. Participant characteristics of the IPV prevalence studies

Study Characteristic	Active Duty	Veteran
N studies (n participants)	13 (88,568)	12 (25,497)
Age: median (range)	28.44 (19.8–35)[a]	45.5 (24.8–80)[b]
Sex: n (%)[c]		
Female	16,590 (18.7%)	24,375 (95.6%)
Male	69,247 (78.2%)	1047 (4.1%)
Race: n (%)		
Black	15,975 (18.0%)	392 (1.5%)
Hispanic	5337 (6.0%)	80 (0.31%)
White	59,141 (66.8%)	16,597 (65.1%)
Other	5336 (6.0%)	6921 (27.1%)
Not reported	2779 (3.1%)	1364 (5.3%)
Setting: n studies (% of studies)		
General medical	11 (84.6%)	8 (66.7%)
Mental health	0	4 (33.3%)
Obstetrics-gynecology	2 (15.4%)	0
IPV measurement tool: n studies (% of studies)		
AAS	3 (23.1%)	1 (8.3%)
CTS	9 (69.2%)	4 (33.3%)
SES	0	1 (8.3%)
TLEQ	0	1 (8.3%)
Study-specific	1 (7.7%)	5 (41.7%)
Study quality: n (%)		
Good	5 (38.5%)	1 (8.3%)
Fair	8 (61.5%)	8 (66.7%)
Poor	0	3 (25%)

[a] N=grand mean of 10 means and medians that were reported or could be calculated; NR=1.
[b] N=grand mean of 12 means and medians that were reported or could be calculated; NR=2.
[c] Missing data=2731.
Abbreviations: AAS=Abuse Assessment Screen; CTS=Conflict Tactics Scale; IPV=intimate partner violence; SES=Sexual Experiences Survey; TLEQ=Traumatic Life Events Questionnaire

Prevalence of IPV Among Active Duty Servicemembers

We identified 13 studies that assessed IPV prevalence among active duty populations.[12,13,18,39-46,56,59] Of these, 10 assessed IPV perpetration[12,18,40,42-46,56,59] and 10 assessed IPV victimization.[13,18,39-42,45,46,56,59] All but two studies[13,44] assessed prevalence in the last year. Two[39,41] were conducted among patients seeking prenatal care. One[18] assessed IPV among couples but did not report separate estimates for active duty participants. Because of the unique design characteristics of these studies, they were excluded from analyses for IPV prevalence among active duty servicemembers. Two studies were conducted among gender specific populations (e.g., male soldiers only);[43,56] these two studies were included in the gender subgroup meta-analysis only.

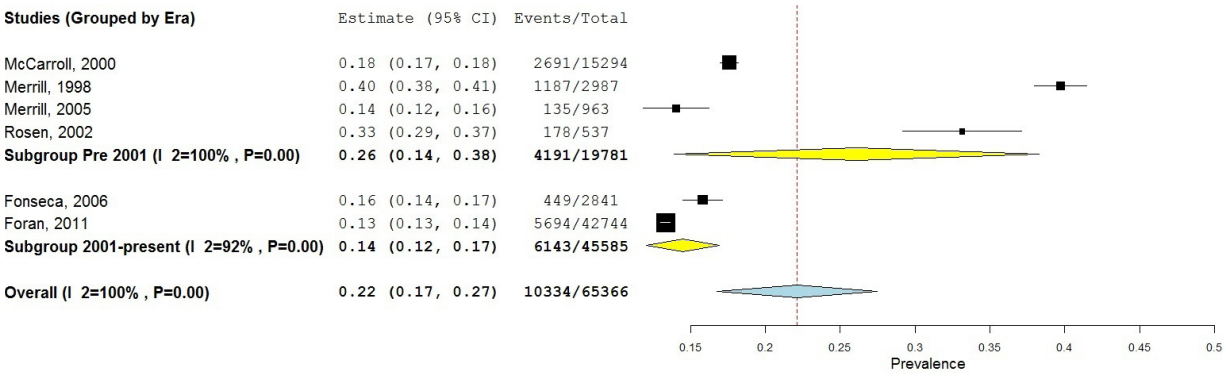
For the purpose of this review, IPV perpetration is defined as committing emotional, physical, or sexual abuse on an intimate partner (e.g., girlfriend, spouse). IPV victimization is defined as the experience of emotional, physical, or sexual abuse by an intimate partner. Below we report the results for perpetration and victimization separately and focus on the most common metric of IPV reported across included studies: 12-month *physical* abuse. When studies reported multiple estimates of IPV (e.g., any IPV vs. severe IPV only), we used the more inclusive prevalence estimate.

IPV Perpetration

We identified 6 studies that met criteria for a random-effects meta-analysis assessing perpetration of physical IPV among active duty servicemembers (n=65,366).[12,15,42,47,48,59] Figure 4 shows the forest plot of the 12-month weighted estimated mean prevalence rate of physical IPV perpetration. Pooled estimates across the 6 studies yielded a point estimate of 22 percent (95% CI, 17% to 27%); this estimate had significant heterogeneity (I^2=100%).

Estimates varied by era of service. For servicemembers enrolled before 2001, the weighted estimated mean prevalence was 26 percent (n=19,781 from 4 studies; 95% CI, 14% to 38%), and for those enrolled from 2001 forward, the prevalence was 14% (n=45,585 from 2 studies; 95% CI, 12% to 17%). Both subgroups exhibited significant heterogeneity (I^2>90%). We further queried heterogeneity by conducting an influence analysis. Influence analysis yielded a range of 18 percent to 23 percent for perpetration of IPV among active duty servicemembers.

Figure 4. Prevalence of physical IPV perpetration among active duty servicemembers by era of service

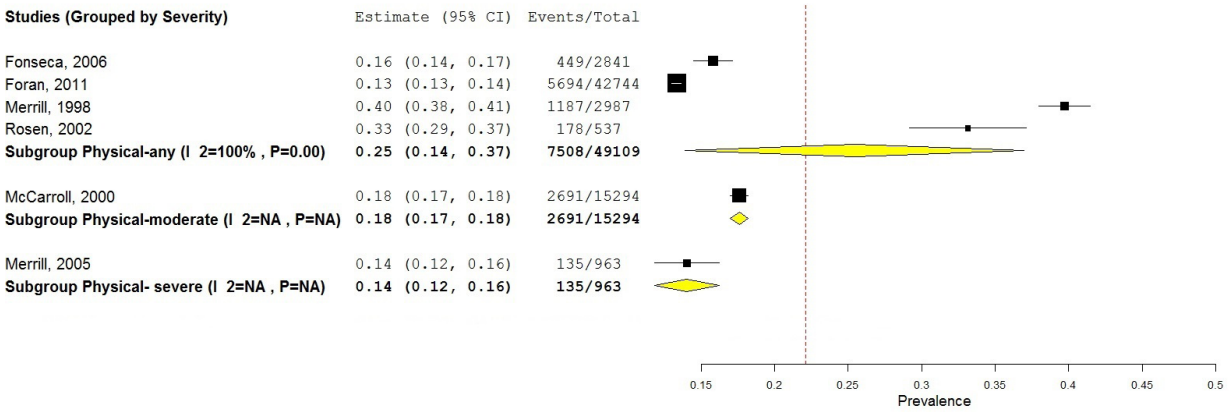


Severity Effects

We then grouped studies by severity of IPV because how physical IPV was defined (e.g., at least moderate vs. any physical IPV) likely was a source of heterogeneity in the overall estimate of prevalence. For severity, we categorized violence using the same classification presented in the original studies when possible. The category of *any* physical violence could include a variety of physical abuse ranging from restraining and grabbing to sexual assault. *Moderate* physical violence included acts like shoving, kicking, and hitting with a fist. *Severe* physical violence included such acts as being "beaten up," choking, or threatening to use (or using) a knife or gun.

Prevalence estimates varied by IPV severity with the broadest definition of IPV (any physical violence) yielding the highest estimates (25%), and the more restrictive definition yielding much lower point estimates (14% to 18%) (Figure 5). For the one IPV subgroup with more than one study (any physical violence), heterogeneity remained high (I^2>90%).

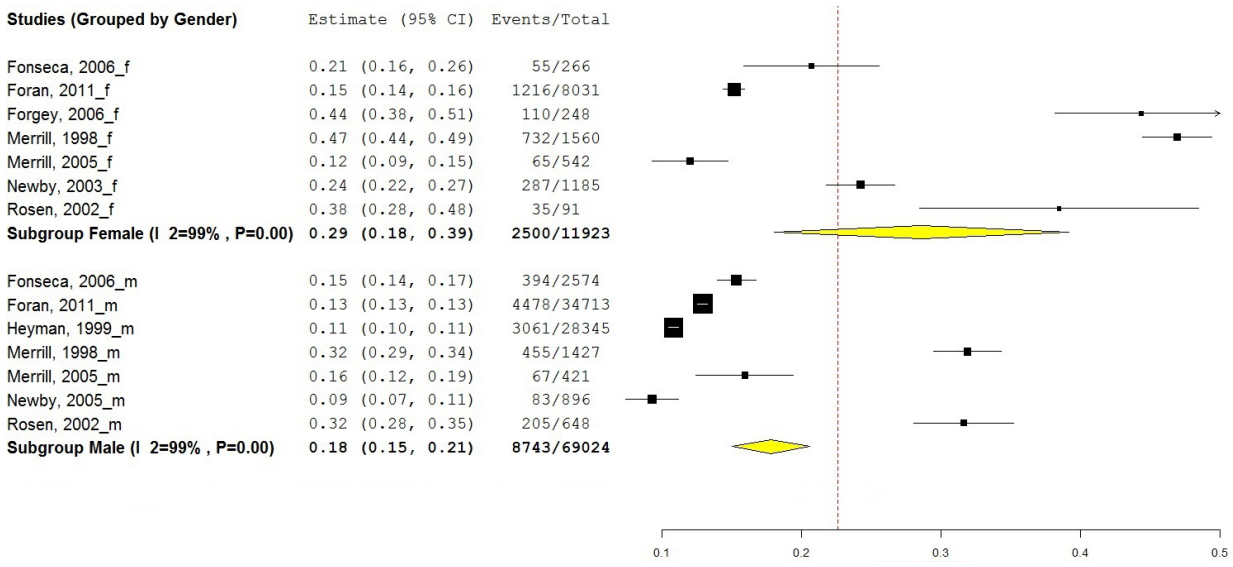
Figure 5. Prevalence of physical IPV perpetration among active duty servicemembers by severity



Gender Effects

To test the effect of gender on 12-month prevalence estimates for IPV perpetration, we conducted a subgroup analysis (Figure 6). Five studies provided separate prevalence estimates by gender of the perpetrator,[12,42,43,46-48,59] and two studies were conducted in gender-specific populations.[45,56] Among women (n=11,923 in 7 studies), the point prevalence of IPV perpetration was 29 percent (95% CI, 18% to 39%) with significant heterogeneity (I^2=99%). For men (n=69,024 in 7 studies), the point prevalence of IPV perpetration was 18 percent (95% CI, 15% to 21%) with significant heterogeneity (I^2=99%).

Figure 6. Prevalence of physical IPV perpetration among active duty servicemembers by gender



Race Effects

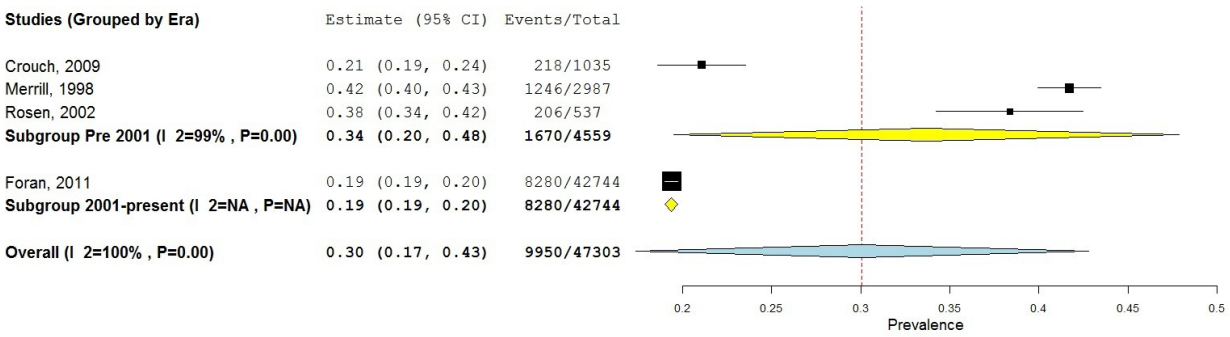
There were insufficient studies to conduct subgroup analysis by race. Only two studies[12,48] provided 12-month prevalence estimates for IPV perpetration by race or ethnicity in broad populations. Across these two studies, perpetration estimates did not appear to vary by race; prevalence ranged from seven percent (black populations) to nine percent (white populations).

IPV Victimization

We identified four studies that met criteria for a random-effects meta-analysis assessing physical IPV victimization among active duty servicemembers (n=47,303).[47,48,54,59] Figure 7 shows the forest plot of the 12-month weighted estimated mean prevalence rate of physical IPV victimization. Pooled estimates across studies yielded a point estimate of 30% percent (95% CI, 17% to 43%); this estimate had significant heterogeneity (I^2=100%).

To assess if prevalence rates varied by era of service, we conducted moderator analysis by date of recruitment. The weighted estimated mean prevalence rate of IPV victimization was 34 percent (n=4,559 from 3 studies; 95% CI, 20% to 48%) for servicemembers enrolled before 2001 and 19 percent (n=42,744 from 1 study; 95% CI, 19% to 20%) for those enrolled from 2001 to present. Both subgroups exhibited significant heterogeneity (I^2>90%). We further queried heterogeneity by conducting an influence analysis. Influence analysis yielded a range of 25 percent to 33 percent for IPV victimization of active duty servicemembers.

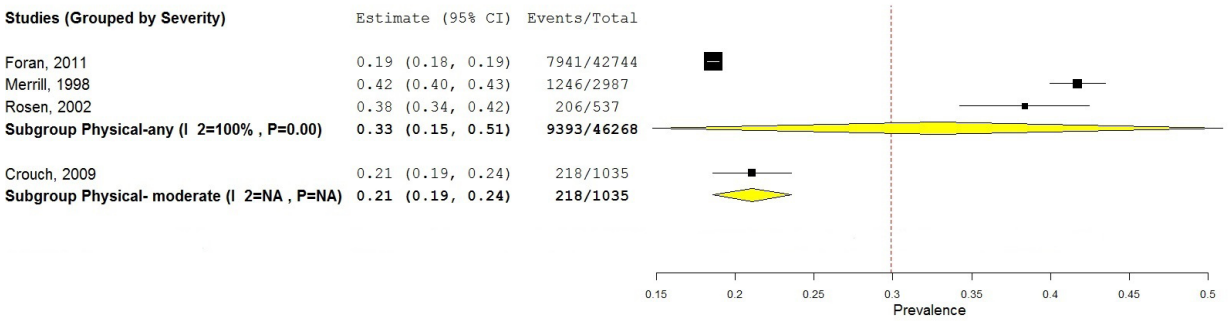
Figure 7. Prevalence of physical IPV victimization among active duty servicemembers by era of service



Severity Effects

We grouped studies by severity of IPV because how IPV was defined was a likely source of heterogeneity in prevalence estimates. Prevalence estimates of IPV victimization varied by IPV severity with the most inclusive definition of IPV (any physical violence) yielding the highest estimates (33%), and the more restrictive definition yielding much lower point estimates (Figure 8). For the one IPV subgroup with more than one study (any physical violence), heterogeneity remained high (I^2>90%)

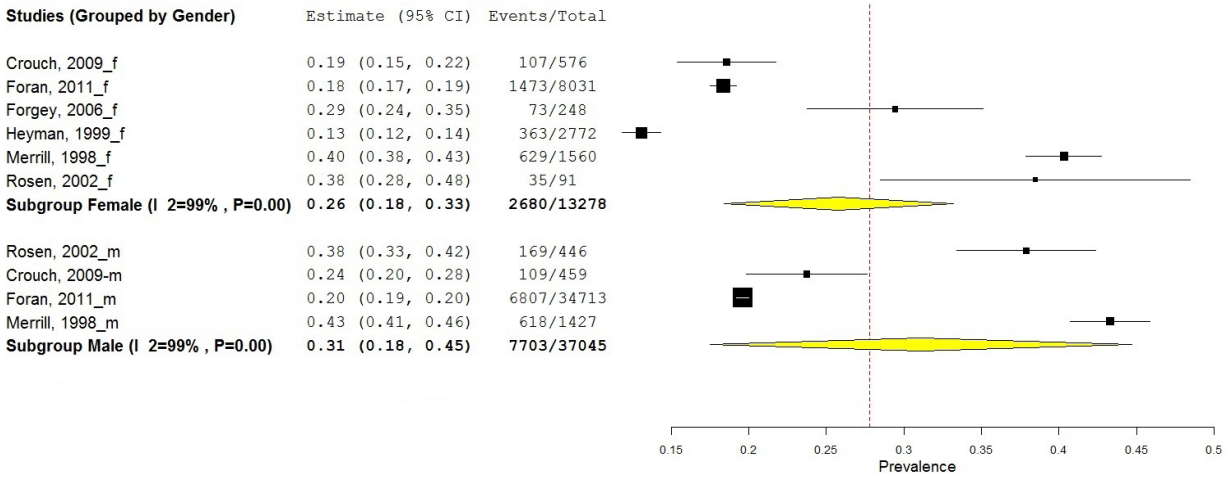
Figure 8. Prevalence of physical IPV victimization among active duty servicemembers by severity



Gender Effects

To test the effect of gender on prevalence of IPV victimization, we conducted a subgroup analysis. Five studies provided separate prevalence estimates by gender,[45,47,48,54,59] and one study was conducted in an all-female population[56] (Figure 9). Among women, the point prevalence of IPV victimization was 26 percent (n=13,278 in 6 studies; 95% CI, 18% to 33%) with significant heterogeneity (I^2=99%). For men, the point prevalence of IPV victimization was 31 percent (n=37,045 in 4 studies; 95% CI, 18% to 45%) and had significant heterogeneity (I^2=99%).

Figure 9. Prevalence of physical IPV victimization among active duty servicemembers by gender



Race Effects

There were insufficient studies to conduct subgroup analysis by race. Only one study48 provided 12-month prevalence estimates for IPV perpetration by race or ethnicity in broad populations. In this study, IPV victimization estimates did not appear to vary by race; prevalence ranged from 10 percent (black and white populations) to 11 percent (Hispanic populations).

Summary of Prevalence of IPV Among Active Duty Servicemembers

Among active duty servicemembers, the prevalence of 12-month perpetration of physical abuse was 22 percent, and the prevalence of 12-month victimization of physical abuse was 30 percent (Table 5). Both estimates had high heterogeneity. Moderator analysis by era of service and gender all showed subgroup differences, but each pooled subgroup estimate also had high heterogeneity. There were insufficient studies to query subgroup differences by race and ethnicity. High heterogeneity can be partially explained by the inclusion of few studies in the pooled analysis (as described in "Expanded Guidance on Selected Quantitative Synthesis Topics" of the "Methods Guide"[37]). However, variability in prevalence is likely due to a combination of factors, including the small number of pooled studies.

Table 5. Prevalence of IPV among active duty servicemembers

Overall		Era of Service		Gender	
		Pre-2001	Post-2001	Female	Male
Perpetration	22%	26%	14%	29%	18%
Victimization	30%	34%	19%	26%	31%

Prevalence of IPV Among Veterans

We identified 12 studies that assessed IPV prevalence among Veteran populations.[7,27,60,61,63-70] Of these, five assessed perpetration[7,27,61,69,70] and eight assessed victimization.[60,63-68,70] Below we report the results for perpetration and victimization separately.

IPV Perpetration

Of the five studies,[7,27,61,69,70] prevalence of IPV perpetration among Veterans ranged from 15 to 60 percent. However, populations and outcomes were too heterogeneous to conduct a meta-analysis; thus we synthetized results qualitatively.

One fair-quality study[61] focused on IPV between 184 heterosexual couples seeking therapy for relationship issues at an outpatient VA family therapy clinic. In all couples, the Veterans were male; 88 percent of the sample was white. Veterans had a primary diagnosis of PTSD (32%), depression (42%), or adjustment disorder (26%). The Veteran and partner separately completed the Conflict Tactic Scale (CTS) to assess perpetration of verbal or physical aggression towards an intimate partner in the past year. Overall prevalence of IPV perpetration by male Veterans was 30%. Additionally, couples data were used to create three violence profiles based on Veteran and female partners' self-reporting of IPV: (1) nonviolent couples (44%), (2) mutually violent couples (26%), and (3) one-sided violent couples (30%). Male Veterans with PTSD were significantly more likely to be in mutually violent couples than male Veterans in one-sided violence or nonviolent couples (p=0.007).

A fair-quality study[70] assessed IPV perpetration among 89 female Vietnam Veterans and their male partners who completed the family interview component of the National Vietnam Veterans Readjustment Study.[72] Most of the women Veterans were white (96%), and only 6 percent met diagnostic criteria of PTSD. The 8-item physical assault subscale was used to assess IPV prevalence. The CTS was administered to the male partners only; thus, this study only reports on female-perpetrated IPV as reported by male partners. According to reports from male partners, 22 percent of the female Veterans perpetrated physical IPV against their partners in the last year.

In another fair-quality study,[69] 236 combat-exposed male Veterans screened at a PTSD clinic for possible evaluation and treatment were queried for IPV perpetration using the 12-item physical assault subscale of the revised CTS (CTS2). Most of the men were white (76%) and served in the Vietnam War era (63%). Of the 161 partnered Veterans, 33 percent reported engaging in physical aggression toward their partner in the previous year.

A poor-quality study[7] assessed IPV perpetration among 199 recently returning Afghanistan and Iraq Veterans referred for behavioral health evaluations. Most of the sample was male (89%), and most were white (53%). Based on nonmutually exclusive diagnosis codes, 72 percent had depression, 47 percent had PTSD, 35 percent had risky alcohol use, 46 percent had generalized anxiety disorder, and 12 percent had mania. This study assessed IPV using a study-developed tool to assess family readjustment and domestic abuse in the prior 6 months with the partnered, separated, or divorced Veterans (n=134). The measurement of domestic abuse included both low-intensity behaviors (e.g., psychological intimidation) and more severe physical violence. Overall, 60 percent of partnered, separated, or divorced Afghanistan and Iraq Veterans reported some

domestic abuse in the last 6 months; however, this estimate included both physical IPV (e.g., shoving, pushing) and psychological aggression (e.g., shouting).

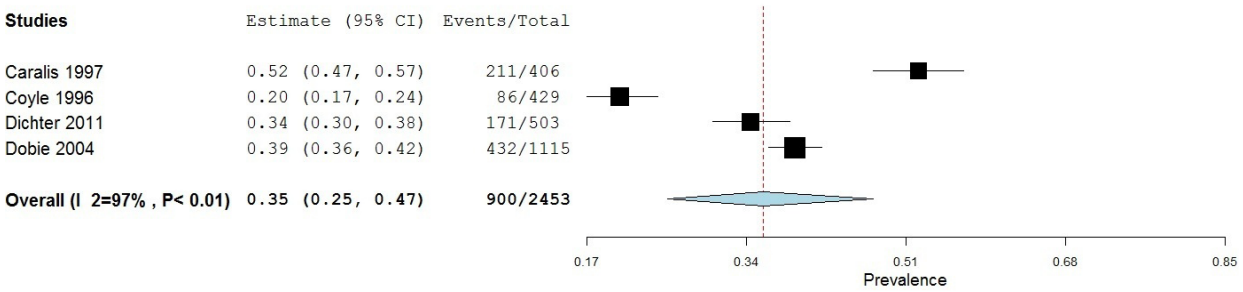
Another poor-quality study[27] reported on verbal and physical IPV among World War II prisoners of war (n=331). The mean age of the sample was 80 years, and over half (57%) reported some depressive symptoms. The CTS was used to assess verbal and physical aggression. Overall, 15 percent reported physical IPV perpetration in the last year.

IPV Victimization

We identified eight studies that assessed victimization among Veterans.[60,63-68,70] Of these, three[65-67] were too heterogeneous to be combined in a summary estimate of IPV victimization due to differences in populations or outcomes. One study[65] recruited from general mental health and specialty PTSD clinics. One reported on marital sexual violence,[66] and another[67] reported on rape committed by an intimate partner during service. These three studies were excluded from summary estimates. One study[70] estimated prevalence of IPV in the last 12 months and could not be combined with the most common metric of IPV reported in other studies (i.e., lifetime IPV victimization). Results of this study are summarized qualitatively.

Four studies, comprising women-only samples, met criteria for a random-effects meta-analysis (n=2453) of exposure to lifetime IPV victimization.[60,63,64,68] Figure 10 shows the forest plot of the *lifetime* weighted estimated mean prevalence of physical IPV victimization among Veterans. Pooled estimates across studies yielded a point estimate of 35 percent (95% CI, 25% to 47%) and had significant heterogeneity (I^2=97%). No studies reported separate estimates by race or era of service.

Figure 10. Prevalence of lifetime physical IPV victimization among women Veterans



Two studies[68,70] also reported on the on the prevalence of IPV victimization in the last year. Both studies were conducted among all-female populations. In one fair-quality study,[68] 406 women Veterans seeking primary care at a VA medical center were assessed for domestic violence using the Abuse Assessment Screen. Most of these women were white (57%), and only 19 percent had obtained any education beyond high school. Of these women Veterans, 7 percent reported being abused by a partner in the last year. In another fair-quality study described above,[70] male partners of 89 female Vietnam Veterans were administered the CTS. According to self-reports from male partners, 12 percent of the female Veterans experienced physical IPV by their partners in the last year.

Summary of Prevalence of IPV Among Veterans

The prevalence of IPV perpetration within the last year ranged considerably (15% to 60%) across the five studies. However, most samples consisted of specialized clinical populations with a high mental health burden, and IPV perpetration was defined inconsistently across studies, ranging from physical abuse as measured on the CTS to any form of domestic abuse. Of the eight victimization studies, two reported on sexual violence only and none provided estimates for male Veterans. Four studies provided data amenable to meta-analysis. The pooled lifetime weighted estimated prevalence rate of physical IPV victimization among female Veterans yielded a point estimate of 35 percent (95% CI, 25% to 47%). The overall prevalence estimate had high heterogeneity, but limited data precluded moderation analysis to query for subgroup differences. Two studies reported on also reported on the on the prevalence of IPV victimization in the last year among women Veterans. Prevalence estimates in these two studies ranged from 7 percent to 12 percent.

KEY QUESTION 2. For persons who are at risk for, experience, or commit intimate partner violence, what interventions are associated with decreased exposure to intimate partner violence and its associated physical harms, mental harms, or mortality?

Key Points

- We did not identify any SRs that evaluated primary prevention strategies for IPV.
- Most secondary interventions focused on reducing victimization. Only one SR focused on perpetration and synthesized the evidence for the use of cognitive behavioral therapy (CBT) with male perpetrators of IPV; this study identified one weakly favorable study and otherwise had inconclusive results.
- Standardized IPV screening interventions in health care settings increased the identification of victims of IPV when compared with nonstandard or nonuniversal screening. Screening interventions may decrease recurrence of IPV, though the effect is not sustained over time.
- Multicomponent screening interventions that included institutional support, effective screening protocols, initial and ongoing training of providers, and immediate access to referral services increased rates of IPV screening, disclosure, and identification. Using multicomponent screening interventions also has the potential to increase provider self-efficacy to perform IPV screening.
- Other interventions (counseling and advocacy) showed decreases in IPV victimization; however, the evidence is weak and often inconsistent.
- Secondary intervention research is largely inconclusive and faces many limitations, for several reasons, including high heterogeneity of samples, attrition, short followup periods, weak intervention effects, and small sample sizes.

Description of Included Studies

We identified four good-quality[2,73-75] and two fair-quality[76,77] SRs that evaluated interventions aimed at decreasing exposure to IPV and its associated harms. No primary prevention interventions were identified. All six SRs evaluated studies that were secondary or tertiary interventions focused on populations with prior exposure to IPV. Four SRs compared screening interventions with usual care. Two SRs compared behavioral interventions for female victims with usual care or control groups; one SR examined CBT for male perpetrators of IPV against their female partners. One SR assessed brief, intensive advocacy interventions for female victims versus usual care or control condition. Characteristics of the six SRs are summarized in Table 6. Detailed quality assessments are presented in Appendix C.

All literature strategies included MEDLINE (via PubMed) and PsycINFO, and all but one SR included some aspect of the Cochrane Library. Additional sources of information were peer-reviewed literature databases (6), meeting abstracts and conference papers (2), clinical trial registries (2), unpublished theses and dissertations (2), grey literature reports (1) and manual searches of primary articles and reviews (2). Language limits were placed in four of the six SRs.

Two of the six SRs[2,75] limited their primary studies to RCTs only; one SR[74] included RCTs as well as studies with quasi-random allocation; and three studies[73,76,77] assessed both experimental and observational studies. Five SRs used the qualitative approaches of narrative review[2,73,75,77] and realist review.[74] Two SRs[74,75] used meta-analysis techniques with applicable data. All SRs except one[77] completed quality assessments of included primary studies. Overall primary study quality was fair, with the most common quality problems unclear allocation concealment in RCTs and potential selection bias with quasi-experimental and observational studies.

All six SRs reported no conflicts of interest. Five SRs reported on funding sources. Of these, two were funded entirely by government agencies, one each in the United States and Canada. One was partially funded by a government agency in Norway with additional private funding. One study received private funding, and one study was unfunded.

Information on the populations studied was somewhat limited in all six SRs (Table 6). The number of primary articles included ranged from 6 to 35. Sample sizes varied widely and demographic data were reported sparely across the included SRs. No study reported whether active duty servicemembers (or their dependents) or Veterans were included in the sample. However, our review of the primary studies found that one study of CBT for perpetrators of IPV in the SR by Smedslund et al.,[75] was conducted with Veterans at a Veterans Affairs Medical Center.

Table 6. Study characteristics of the IPV systematic reviews

Study	Ramsay, 2009[74]	O'Reilly, 2010[77]	O'Campo, 2011[76]	Smedslund, 2011[75]	Choo, 2012[73]	Nelson, 2012[2]
Quality	Good	Fair	Fair	Good	Good	Good
Population	Women ≥15 years of age who have experienced IPV	Pregnant women	Patients presenting to a health care setting	Men who are physically violent toward their female wife, partner, or ex-partner	Patients presenting to emergency departments	Women in health care settings without problems directly related to abuse, such as physical injuries
Intervention and Comparator	**Intervention:** Brief (>12h) or intensive (≤12h) advocacy interventions including safety planning or facilitation of access to refuges or shelters, emergency housing, or psychological care **Comparator:** Usual care or minimal additions such as IPV resource card or pamphlet	**Intervention:** (1) IPV screening for pregnant women (2) Counseling interventions for pregnant women who had experienced domestic violence **Comparator:** Heterogeneous group of comparison conditions (historical controls, usual care, screening with a different tool)	**Intervention:** IPV screening **Comparator:** Studies with no control, pre/post intervention control, and a defined control group	**Intervention:** Cognitive behavioral therapy, or recognizable elements thereof, delivered individually, couple/conjoint, or as group-based therapy **Comparator:** Studies were included with no treatment control and with other types of treatment as control	**Intervention:** Computer-based technologies for behavioral screening, interventions, or referrals **Comparator:** Heterogeneous group of comparison conditions (usual care, non-computer based IPV screen, computerized screen without IPV screening questions)	**Intervention:** (1) IPV screening (2) Heterogeneous counseling interventions for women positively detected by IPV screening **Comparator:** (1) Control group (2) Usual care
Setting	Various settings including health care or criminal justice facilities, domestic violence agencies, shelters or refuges, and community locations in the US (n=9) and Hong Kong (n=1)	Prenatal health clinics and hospitals in the US (n=7), Hong Kong (n=1), and Japan (n=1)	Health care settings in the US (n=10), Canada (n=2), United Kingdom (n=1), Australia (n=2), and New Zealand (n=2)	Various settings including prisons, individuals' homes, and community settings in the US (n=6)	Emergency departments in the US (n=4) and Canada (n=1)	Screening study Health care settings in the US (n=11), Canada (n=2), Brazil (n=1) and the United Kingdom (n=1) Intervention study Health care settings and home visits in the US (n=7) and Australia (n=1) Harms study Various settings including health care and community settings in the US (n=4), Canada (n=1), the United Kingdom (n=1), Australia (n=1), and not reported (n=7)[a]

Return to Contents

Study	Ramsay, 2009[74]	O'Reilly, 2010[77]	O'Campo, 2011[76]	Smedslund, 2011[75]	Choo, 2012[73]	Nelson, 2012[2]
Databases Searched	ASSIA British Nursing Index (CRCT and DARE) CINAHL EMBASE (Elsevier) Health Management Information Consortium IBBS MEDLINE metaRegister of Controlled Trials Midwives Information and Resource Index National Research Register PsycINFO SSCI	Cochrane Library EMBASE (Elsevier) MEDLINE PsycINFO	ASSIA EBM Reviews MEDLINE PsycINFO Social Sciences Abstracts SSCI Social Services Abstracts Sociological abstracts Violence and Abuse Abstracts Manual searches	Bibliography of Nordic Criminology CINAHL Cochrane Library (CRCT) Criminal Justice Abstracts EMBASE (Elsevier) ERIC Medline PsycINFO SIGLE Social Care Online Sociological Abstracts	Academic Search Premier CINAHL Cochrane Library (CRCT, DARE CDSR) EMBASE (Elsevier) Grey Literature Report Health Technology Assessments Database Nursing at OVID ProQuest PsycINFO PubMed SocINDEX	Cochrane Library (CRCT, CDSR) MEDLINE PsycINFO Scopus
Search Date	Only 2008 reported	November 2009	No search date reported; SR included articles up to July 2010	January 2010	February 2011	January 2012
Language Limits	None	English	English	None	English, Spanish, or French	English

Return to Contents

Study	Ramsay, 2009[74]	O'Reilly, 2010[77]	O'Campo, 2011[76]	Smedslund, 2011[75]	Choo, 2012[73]	Nelson, 2012[2]
Study Designs (n)	Patient-level or cluster RCT (n=5) Quasi-randomized controlled trial (n=5)	Comparative studies using any methodology Patient-level or cluster RCT (n=4) Historical control study (n=3) Case-control study (n=2)	RCT (n=0), case-control (n=0),case series (n=0), cohort (n=0), interrupted time series (n-0) Qualitative plus retrospective pre/post chart audit (n=2) Pre/post chart audit (n=1) Retrospective pre/post chart audit (n=1) Pre/post (n=2) Cross-sectional chart audit (n=2) Multicomponent evaluation (n=2) Multicomponent evaluation with pre/post (n=1) Multicomponent evaluation with nonrandomized controlled trial (n=3) Nonrandomized controlled trial (n=1)	RCT (n=6)	All observational and experimental studies Cross-sectional (n=1) Prospective cohort (n=1) Quasi-experimental (n=2) RCT (n=2)	RCT (n=35)
Range of Sample Sizes	36 to 329	246 to 1440	16 to 46,929	64 to 861	87 to 7681	20 to 6743
Analytic Approach	Meta-analysis Qualitative summary	Meta-analysis Qualitative summary	Qualitative summary	Meta-analysis Qualitative summary	Qualitative summary	Qualitative summary
Primary Outcomes of Interest	Treatment/services received for IPV Rates of IPV victimization	IPV identification Rates of IPV Victimization Referral for treatment/ services related to IPV	IPV identification Rates of IPV victimization	Change in IPV perpetration rates	IPV identification	Rates of IPV victimization
Secondary Outcomes of Interest	IPV-associated physical and mental harms	IPV-associated physical and mental harms	None	None	None	None
Source of Funding	Socialforsksnings Institut Nordic Campbell Centre, Denmark (private)	None	Ontario Ministry of Health and Long-Term Care (government)	Norwegian Knowledge Centre for the Health Services, Norway (government) Nordic Campbell Centre, Denmark (private)	Not reported	AHRQ

[a] Two U.S.-based studies were used for both screening and harms studies.

Abbreviations: AHRQ=Agency for Healthcare Research and Quality; ASSIA=Applied Social Sciences Index and Abstracts; CINAHL=Cumulative Index to Nursing and Allied Health Literature; CRCT=Central Registry of Controlled Trials (Cochrane); DARE=Database of Abstracts of Reviews of Effects; EBM=Evidence-Based Medicine; ERIC=Education Resources Information Center; IBBS=International Bibliography of the Social Sciences; IPV=intimate partner violence; SIGLE=System for Information on Grey Literature in Europe; SSCI=Social Sciences Citation Index.

Qualitative Synthesis of IPV Intervention Strategies

We categorized the six SRs according to intervention strategy (e.g., screening, counseling). For each comparison, we focus our discussion on the SR having the highest quality and the most recent search date. We organize findings by outcomes of interest. The other SRs are described briefly when their findings differed importantly or they reported other relevant outcome analyses.

Screening Interventions

We identified four SRs that explored IPV screening interventions.[2,73,76,77] Of these, the most recent and highest quality was the study by Nelson et al., 2012,[2] with a search date of January 2012. This SR was commissioned by AHRQ to update the U.S. Preventive Services Task Force (USPSTF) recommendations for screening women for IPV. Overall, USPSTF recommends IPV screening for asymptomatic women of childbearing age and, further, that women who screen positive should be offered a referral for services.[78] Below we focus on the findings of the SR by Nelson et al.[2] that are relevant to outcomes of interest for this report.

Identification of IPV

Nelson et al.[2] identified 12 fair- and 3 good-quality studies (15 total) that evaluated the diagnostic accuracy of 13 screening instruments in populations of asymptomatic women in a health care setting. Six instruments (i.e., HARK, HITS [English and Spanish versions] modified CTQ-SF, OVAT, StaT, and WAST) had sensitivity and specificity of greater than 80 percent for detecting women exposed to interpersonal violence (median number of items, 5; range, 4 to 28).[2] This SR also reported adverse effects (e.g., feeling judged by provider, feeling uncomfortable being asked about IPV) that were identified in 3 RCTs, 11 descriptive studies, and 2 SRs. Findings indicated minimal adverse effects and low levels of harm (e.g., verbal abuse) related to IPV screening in women receiving health care services.

Treatment or Services Received for IPV

Nelson et al. identified 1 fair-quality cluster RCT with 6743 asymptomatic women who were randomly assigned to IPV screening or to usual care (i.e., no screening). Women were recruited at outpatient medical clinics in Canada and interviewed at baseline and 6, 12, and 18 months. Though 12-month prevalence of IPV differed a little at baseline between screened and nonscreened groups (13% vs. 12%), women who received screening were more likely to discuss IPV with their clinicians (44% vs. 8%). During the 18-month followup, screened and nonscreened women both had statistically similar increases in access to additional health care services.[2]

Changes in IPV-related Physical or Mental Harms

In the same fair-quality cluster RCT with 6743 asymptomatic women, screening versus usual care reduced IPV and improved health outcomes for both groups, but there was no statistically significant difference between groups. Women were recruited at outpatient medical clinics in Canada and interviewed at baseline and 6, 12, and 18 months. During the 18-month followup, screened and nonscreened women both had statistically similar decreases in IPV recurrence, PTSD symptoms, and alcohol problems. Further, both groups had improved scores for quality of life, depression, and mental health. These findings are limited because of the high loss to

followup (43% screened, 41% unscreened) and significant differences between the individuals lost to followup and those included in all followups.

Other Findings Addressing Screening Interventions

The other three SRs[73,76,77] were generally in agreement with the results of Nelson et al.[2] Where differences occurred, they were largely due to different timing for outcomes, populations, and settings or differences in approach to data analysis. We summarize below the notable findings from the other three SRs:

- A good-quality SR with a February 2011 search date[73] identified one good- and four moderate-quality studies of computerized IPV screening in emergency departments (sample size range, 87 to 7681), which reported on the use of computers to screen for IPV in emergency departments. This SR found high feasibility and acceptability of computerized screening in emergency departments, with few adverse effects reported and few negative consequences.
- One fair-quality realist review SR with a July 2010 search date[76] identified 23 studies of 17 programs (sample size range, 16 to 46,929) that implemented IPV screening. Six of the 17 were deemed "comprehensive" interventions with multiple components of institutional support, use of effective screening protocols, thorough initial and ongoing training of providers, and immediate access to referral services. Multicomponent interventions successfully increased rates of IPV screening, disclosure, and identification and sustained these rates over time; the noncomprehensive sites (11 of 17) found no significant differences compared with control.
- Another fair-quality SR with a November 2009 search date[77] identified five studies (sample size range, 246 to 1440) of screening women for domestic violence during pregnancy. Three of these studies used historical controls, one was a case control, and one was an RCT. Four studies were completed in the United States and one in Japan. Their qualitative analysis of the five screening studies found that the identification of domestic violence was significantly higher in standardized screening groups compared with a nonstandardized screening or no screening. There was also evidence that repeated screening during pregnancy increased identification rates.

Behavioral Interventions

We identified one good-quality SR[75] that focused on male perpetrators of IPV and two SRs[2,77] (one good quality, one fair) that synthesized evidence on behavioral interventions for female victims of IPV. Within the SRs, the group of behavioral strategies was heterogeneous (e.g., CBT, home visitations, general counseling). We summarize below the findings of the two good-quality SRs[2,75] as they relate to the key outcomes of this report. We summarize the findings of the fair-quality SR[77] when they add new information or contrast with those from the other two SRs.

Changes in IPV Perpetration

Smedslund et al.[75] (January 2010 search date) examined six RCTs of CBT interventions for male perpetrators of physically violent behavior toward a female partner, wife, or ex-partner (sample size range, 64 to 861). Overall, the included studies were of low quality in this SR[75]

commissioned by the Cochrane Collaboration to assess whether CBT reduces violence in men who are physically violent toward their female partners. Four studies evaluated CBT versus a no-treatment control group, and two studies evaluated CBT versus other forms of treatment. Only one study (n=420) showed a statistically significant effect of CBT compared with no treatment on physical violence. A meta-analysis involving 1771 men showed a decrease in violence, but the estimate was not significant (relative risk 0.86; 95% CI, 0.54 to 1.38) and had high heterogeneity (I^2=79%). For the two studies where CBT was compared with another form of treatment, the results were inconclusive. This SR rated the strength of evidence as insufficient for CBT as a treatment for IPV perpetrators.

Changes in IPV Victimization and IPV-related Physical or Mental Harms

The good-quality SR by Nelson et al.[2] (January 2012 search date) assessed 6 RCTs (1 good quality, 4 fair, and 1 poor) of behavioral interventions for women who had screened positive for IPV in a health care setting. Overall 4169 women participated in these interventions (range, 174 to 1044). Three RCTs assessed interventions for pregnant and postpartum women, and three targeted women regardless of pregnancy status, all in health care settings. The intervention methods were heterogeneous and included paraprofessional postpartum home visitation versus usual care, nurse case management versus usual care, counseling intervention during or after pregnancy versus usual care, counseling intervention at a family planning clinic versus usual care, wallet-sized referral card versus 20-minute nurse management protocol, and trained mentor home visitation versus usual care.

An RCT of counseling versus usual care during pregnancy reported decreases in IPV events during pregnancy and postpartum period (adjusted odds ratio, 0.48; 95% CI, 0.29 to 0.80) and better birth outcomes (i.e., birth weight <1500 g, gestational age) in the counseling group. One of two RCTs of home visitation versus usual care for young mothers resulted in improved IPV outcomes with visitation. Another study of home visitation versus usual care showed a decrease in IPV victimization, but depression, physical well-being, mental well-being, and parental stress were not statistically significantly better in the home visitation group. Two RCTs showed improved outcomes in intervention and control groups with no statistically significant differences between groups (counseling vs. referral cards; nurse management vs. usual care in pregnancy). Another RCT of counseling versus usual care found decreased pregnancy coercion at followup (adjusted odds ratio 0.29; 95% CI, 0.09 to 0.91) and discontinuation of unsafe relationship when compared with usual care. Overall, these studies show a positive signal for a heterogeneous group of behavioral interventions; however, Nelson et al.[2] found limited statistically significant evidence to support interventions. Findings should be interpreted with caution due to small sample sizes and high attrition across included studies.

Other Findings Addressing Behavioral Interventions

We identified one fair-quality SR[77] that included four intervention studies (one case-control and three RCTs) with a total of 859 participants. Behavioral interventions included (1) prenatal and postnatal counseling using trained counselors, nurses, and midwives and (2) an enhanced intervention of counseling plus a trained peer mentor. Both interventions were compared with usual care or with receipt of a wallet-sized community resource card. The results for effectiveness of counseling were mixed, with significant within-group decreases in physical harm

from baseline to followup in two of the four studies but no significant between-group differences within each study. The counseling intervention compared with the enhanced counseling plus mentoring intervention showed a significant decrease in threat of physical harm reported by the enhanced group compared with the counseling-only group at 2 months. The SR by O'Reilly et al.[77] supports the findings of the good-quality SRs and also concludes that there is limited evidence for the effectiveness of identified interventions with the present quantity and quality of intervention studies available.

Advocacy Interventions

We identified one good-quality SR[74] with a search date of July 2008 that evaluated 10 advocacy intervention studies having a total of 1527 participants. This SR, funded by Socialforsksnings Institut at the Nordic Campbell Centre in Denmark, had the objective of assessing effects of advocacy interventions conducted in diverse settings on women who have experienced abuse by an intimate partner. For the purpose of this SR, advocacy interventions were defined as interventions with the following core activities: education and support to enhance provision of legal, housing, and financial advice; facilitating access and use of community shelters and emergency housing and psychological interventions; and guidance on safety planning. This SR included a diverse group of interventions, categorized into brief (<12 hours duration) or intensive (≥12 hours duration), with heterogeneous outcome measures and durations of followup (ranging from immediate postintervention to 3 years). Settings included domestic violence shelters; emergency departments; in-home visits (recruited from shelter); general community settings (recruited from shelter); antenatal clinics; the family violence unit of a district attorney's office; general public health clinics; and Women, Infants, and Children clinics.

Treatment or Services Received for IPV

The use of services related to IPV exposure (e.g., use of counseling, protection orders, use of shelters) was measured only in two primary studies, both of which assessed brief advocacy interventions compared with controls. Neither study show statistically significant differences in use of services between the advocacy intervention and control participants. However, one study showed a positive trend in use or services related to advocacy interventions both in short-term and longer term followup assessments (12 months followup standard mean difference [SMD] 0.22; 95% CI, 0.00 to 0.44; and at 12-24 months followup SMD 0.15; 95% CI, -0.07 to 0.37).[74]

Changes in IPV Victimization and IPV-related Physical or Mental Harms

Six interventions identified physical abuse outcomes; of these, three evaluated brief advocacy interventions and three evaluated intensive interventions compared with usual care. Five of the six studies found no significant differences in rates of physical abuse between intervention and control groups. Three pooled studies of intensive advocacy intervention (n=295) found a significant reduction in physical abuse at 24 months but not at shorter or longer time periods (odds ratio 0.43; 95% CI, 0.23 to 0.80). The one good-quality intervention study (n=106) observed a reduction in minor physical abuse among pregnant women in the intervention group but no change in severe abuse. No significant effects were found at 12 months followup for level of sexual abuse (n=106) (change-score SMD -0.11; 95% CI, -0.49 to 0.26) or overall abuse (2 studies, total n=131).[74] Across two pooled studies (n=232), brief interventions increased use of

safety behaviors (e.g., use of coded telephone messages to a friend, keeping clothes at a friend's house, hiding emergency money) at 12 months (weighted mean difference [WMD] 0.60; 95% CI, 0.14 to 1.06) and at 12 to 24 months followup (WMD 0.48; 95% CI, 0.04 to 0.92).

No significant effects were found for depression (3 studies, n=308) (WMD -0.05; 95% CI, -0.19 to 0.09), anxiety/psychological distress (4 studies, n=231) (SMD -0.16; 95% CI, -0.39 to 0.06), or PTSD (n=53) (SMD -0.45, 95% CI -1.00 to 0.11). Overall, advocacy interventions show promise in reducing IPV victimization, but the effects on other physical and mental harms were inconclusive.[74] Authors of this SR rated the strength of evidence for advocacy interventions as insufficient.

Summary of IPV Intervention Strategies

- Screening interventions improve identification of IPV victimization in women.
- Screening interventions may improve other physical and mental harms when paired with behavioral interventions for women who screen positive for IPV, but there is insufficient evidence to support this conclusion.
- Other secondary prevention interventions, including behavioral and advocacy, show a positive but weak signal for improving IPV victimization outcomes and related physical and mental harms; evidence is insufficient at this time.
- Available data are limited due to the small number of studies available, the heterogeneity of interventions and outcome measures, and the quality of the studies completed.

SUMMARY AND DISCUSSION

Our evidence synthesis identified 39 articles encompassing 25 unique studies of IPV prevalence among U.S. active duty and Veteran populations. Of these, 13 studies (25 articles[12,13,15,18,39-59]) evaluated prevalence among active duty servicemembers, and 12 studies (14 articles[7,27,60-71]) among Veterans. Estimating the pooled prevalence of IPV was challenging due to variations in definitions of IPV, measurement instruments used to detect IPV, timing of IPV reports (e.g., 12-month, lifetime), and limitations in available population data across studies. These factors likely contributed to the underlying heterogeneity we found across studies as well as in our summary estimates. However, our findings provide support that IPV is a prevalent health concern among active duty servicemembers and Veterans.

We also identified six SRs that evaluated interventions aimed at decreasing exposure to IPV.[2,73-77] None of these SRs assessed primary IPV prevention strategies; all summarized literature on secondary prevention strategies such as screening for IPV. Overall, screening in health care settings increases identification of IPV victimization and appears to be feasible and acceptable. Screening alone, however, does not decrease rates of IPV victimization. Other secondary prevention strategies (behavioral interventions, advocacy interventions) provide insufficient evidence to demonstrate significant changes in IPV or IPV-related mental or physical harms. In the next section, we summarize the main findings by KQ.

SUMMARY OF EVIDENCE BY KEY QUESTION

KQ 1: Prevalence of IPV

IPV Among Active Duty Servicemembers

We identified 13 studies that assessed IPV prevalence among U.S. active duty populations.[12,13,18,39-46,56,59] Of these, 10 assessed perpetration outcomes[12,18,40,42-46,56,59] and 10 assessed victimization outcomes.[13,18,39-42,45,46,56,59] The most common metric of IPV across studies was prior exposure to physical violence in last year; thus, we used this outcome to summarize rates.

We were able to pool 6 studies[12,15,42,46,48,59] of IPV perpetration in the last year. Pooled estimates yielded a weighted estimated mean prevalence rate of 22 percent (95% CI, 17% to 27%) with significant heterogeneity (I^2>90%). Influence analysis yielded a range of 18 percent to 23 percent for IPV perpetration among active duty servicemembers.

We identified 4 studies[47,48,54,59] that assessed victimization by physical IPV among active duty servicemembers and that met criteria for a meta-analysis. The 12-month weighted estimated mean prevalence rate of physical IPV victimization of active duty servicemembers yielded a point estimate of 30 percent (95% CI, 17% to 43%) significant heterogeneity (I^2>90%). Influence analysis yielded a range of 25 percent to 33 percent of exposure to IPV victimization of active duty servicemembers.

We conducted subgroup analyses by (1) era of cohort recruitment (pre-2001 versus post-2001), (2) IPV severity, and (3) gender to probe for group differences. All analyses showed group differences, but each pooled subgroup estimate also had high heterogeneity. Variability in prevalence is likely due to a combination of factors, including the small number of pooled studies.

IPV Among Veterans

We identified 12 studies that assessed IPV prevalence among Veterans.[7,27,60,61,63-70] Eight of the 12 studies comprised clinical samples of VA users. In total, 5 studies assessed perpetration[7,27,61] and 8 studies assessed victimization.[60,63-70] Populations and outcomes were too heterogeneous to meta-analyze across the perpetration studies. Samples comprised specialized populations (e.g., Veterans seeking relationship help, newly returning OEF/OIF Veterans referred to behavioral health) with a high mental health burden, or were gender-specific samples. Moreover, IPV perpetration was defined inconsistently across studies, ranging from physical abuse as measured on the CTS to any form of domestic abuse. Thus, the prevalence of IPV perpetration within the last year ranged considerably (15% to 60%) across these five studies.

Of the eight victimization studies, two reported on sexual violence only and none provided estimates for male Veterans. The most common estimate of exposure to IPV was lifetime abuse; thus, we used lifetime estimates as the main outcome to syntheses the data. Four of the eight studies were amenable to meta-analysis (n= 2453).[60,63,64,68] The pooled lifetime weighted estimated mean prevalence rate of physical IPV victimization among women Veterans yielded a point estimate of 35 percent (95% CI, 25% to 47%). Influence analysis yielded a range of 30 percent to 41 percent victimization of women Veterans. The overall prevalence estimate had high heterogeneity, but limited data precluded moderation analysis to query for subgroup differences. Two studies reported on also reported on the on the prevalence of IPV victimization in the last year among women Veterans. Prevalence estimates in these two studies ranged from 7 to 12%.

Table 7 summarizes the prevalence of IPV for both Veteran and active duty populations.

Table 7. Summary of IPV prevalence

Population	IPV Perpetration (12-month)	IPV Victimization (12-month)	IPV Victimization (lifetime)
Active duty	19%	23%	---
Veterans	15% to 60%	7% to 12% (women only)	35% (women only)

KQ 2: Intervention Strategies for IPV

We identified four good-quality[2,73-75] and two fair-quality[76,77] SRs that evaluated interventions aimed at decreasing exposure to IPV and its associated harms. We identified no SRs that evaluated primary prevention interventions; all six SRs assessed secondary prevention interventions. Most focused on reducing victimization; only one study focused on perpetration. Four[2,73,76,77] of the six SRs assessed IPV screening interventions, three[2,75,77] assessed behavioral interventions, and one[74] assessed advocacy interventions. Below we summarize the results of these SRs and the strength of the evidence for these interventions.

Screening for IPV Victimization

Screening women can accurately identify those who have been exposed to IPV,[2] can increase disclosure of IPV victimization,[2,76] and incurs few adverse effects.[2,73] Specific results, however, vary by screening tool, populations, and setting. Repeated screenings during pregnancy increase identification of IPV victimization.[77] Screening interventions that included institutional support, ongoing training, and immediate access to referral services significantly increase rates of IPV

screening, disclosure, and identification compared with screening interventions using a less comprehensive approach.[76] In an emergency room environment, computerized IPV screening had high feasibility and acceptability.[73] Screening interventions may decrease recurrence of IPV and physical and mental harms associated with IPV, but the evidence is limited (one RCT[2]). Overall based on multiple studies, there is high strength of evidence that IPV screening can detect women exposed to IPV. There is insufficient to low strength of evidence that IPV screening alone influences all other outcomes (i.e., rates of IPV, IPV-related physical or mental harms, referrals and treatment for IPV, mortality).

Behavioral Interventions

We identified three SRs[2,75,77] that evaluated behavioral interventions. Two of these synthesized the evidence on behavioral interventions among women exposed to IPV, and one[75] focused on male perpetrators of IPV. The SR that focused on perpetration synthesized the evidence on CBT for men who abuse their female partners. Compared with nonintervention controls, CBT for men who physically abuse their female partners reduced rates of IPV but did not demonstrate a statistically significant improvement across four RCTs (RR 0.86; 95% CI, 0.54 to 1.38). Overall, the evidence around interventions focusing on reducing and treating perpetration is limited; the strength of evidence is low due to imprecise estimates (wide confidence internals) and inconsistent results across the four included studies.

For the two SRs that focused on women victims of IPV, one[77] focused on pregnant women and identified four studies, and the other SR[2] identified six RCTs, three of which were conducted in pregnant or postpartum women. Some studies were included in both SRs, thus there were only five unique studies among pregnant or postpartum women across the two SRs. The behavioral interventions tested in these studies were heterogonous and included home visitation, nurse management, unspecified counseling interventions plus resource card, or mentor support. Among pregnant and postpartum women, behavioral interventions that include counseling reduced IPV[2,77] and improved birth outcomes.[2] However, strength of evidence was graded as insufficient. Across these SRs, there were few studies identified, and the types of behavioral interventions were quite different from each other, which hampered drawing conclusions across this category of interventions.

Advocacy Interventions

We identified one SR[74] that assessed 10 advocacy intervention studies. Again, intervention approaches were heterogeneous and included education and support to enhance provision of legal, housing, and financial advice; promote access and use of community shelters, emergency housing, and psychological interventions; and provide safety planning. Intensive advocacy interventions (>12 hours in duration) for women recruited in domestic violence shelters reduced physical abuse 12 to 24 months postintervention (OR 0.43; 95% CI, 0.43 to 0.83) but not in the year immediately following intervention. Brief interventions (<12 hours) increased the use of safety behaviors. No significant effects were found for mental harm (e.g., PTSD, depression) or use of IPV-related services. There is low strength of evidence that intensive advocacy interventions reduced IPV; results were consistent, but confidence internals were wide.

CLINICAL AND POLICY IMPLICATIONS

Compared with population-based studies conducted in samples not selected for active duty or Veteran status, we report higher rates of 12-month IPV perpetration and victimization among active duty women servicemembers; considerably higher 12-month IPV victimization rates for active duty men; and comparable rates of both 12-month IPV perpetration among active duty men and lifetime IPV victimization among Veteran women. We also found that the 12-month victimization rate is higher among active duty men than active duty women—a pattern that has also been observed in civilian studies (Table 8).[79] Some differences between civilian and active duty or Veteran populations can be attributed to dissimilar distribution of population characteristics between the two groups (e.g., age distribution, greater proportion of African Americans and Hispanics among active duty and Veteran populations). However, factors unique to military life such as military deployments that result in family separation and reintegration issues,[7] and combat-related health issues (e.g., PTSD, head injuries) likely contribute to relationship stress and IPV among active duty servicemembers, Veterans, and their intimate partners.[9-12]

Table 8. Comparison of IPV prevalence in active duty servicemembers, Veteran, and community populations

Population	IPV Perpetration (12-month)		IPV Victimization (12-month)		IPV Victimization (Lifetime)	
	Women	Men	Women	Men	Women	Men
Active duty	29%	18%	26%	31%	—	—
Veterans	22%[a]	15% to 60%[b]	7 to 12%	—	35%	—
Community[c]	16%	15%	6%	5%	36%	29%

[a] One study only.[70]
[b] Some Veteran studies of IPV perpetration included women, but the majority were men.
[c] Community estimates for perpetration are from Field et al., 2003,[69] and for victimization from Black et al., 2011.[1]

Evidence from our synthesis of SRs assessing IPV interventions demonstrates that standardized IPV screening interventions in a health care setting increases identification of IPV victimization. Moreover, Nelson et al.[2] found minimal adverse effects and low levels of harm related to IPV screening for women receiving health care services. Coupled with the prevalence of IPV we report here, these findings support the need to consider adopting standardized IPV screening for use in the VA. However, our review also highlights the need to take a comprehensive approach to implementing such screening programs in the VA.

Our meta-synthesis finds that multicomponent screening interventions that include institutional support, use effective screening protocols, thorough initial and ongoing training of providers, and immediate access to referral services increase provider use of screening, patient disclosure, and, ultimately, identification of IPV. This finding suggests that establishing a screening program without building provider self-efficacy to screen and establishing sufficient support for referral and treatment mechanism will undermine the effectiveness of IPV screening programs. Our synthesis of the SR literature found some evidence to support behavioral counseling and advocacy interventions for women who screen positive for IPV; however, the evidence was often inconsistent—likely due to the wide variability in strategy, content, and intensity.

While primary care physicians and mental health clinicians may be ideally positioned to implement screening, successful IPV screening programs must also consider educating and enlisting the services of the entire health care team, including other providers, nurses, and social workers, to create a seamless system from screening to timely referral to appropriate services. The development of resource toolkits for clinicians that include (1) appropriate community or Veteran resources, (2) information on local and state laws regarding IPV, and (3) availability of counseling, legal, and advocacy referrals could help overcome some of the provider and institutional barriers to providing IPV screening throughout the VA healthcare system. Due to the sensitive nature of IPV screening, cultural sensitivity and confidentiality concerns would also need to be considered in the development of any IPV screening program. The Institute of Medicine recommends that women be screened about current and past violence and abuse in a culturally sensitive and supportive manner,[80] and assuring patient confidentiality and safety is paramount.

Another consideration when planning an IPV screening program is how often to make assessments. Most screening tools were designed to detect IPV in the previous year. Thus, an annual interval may be optimal. Any screening program will need to consider the optimal use of provider and staff resources in addition to the benefit from screening for IPV victimization obtained from repeated followup screenings.

While the evidence we report here on effectiveness of screening for IPV was conducted among female populations, we also report considerable rates of IPV victimization among male populations. The U.S. armed services and the Veteran healthcare system currently remain largely male in population despite the growing number of female servicemembers and Veterans. The VHA provides medical and mental health care for an estimated 8.6 million Veterans each year, and only an estimated 6 percent to 8 percent of the Veterans cared for are women.[81] Indeed, our data suggest that the overall rates of IPV victimization among male active duty servicemembers are at least equal to if not higher than rates of overall IPV victimization among female active duty servicemembers. However, women are more likely to be injured or murdered as a result of IPV.[82-84] This fact raises the question of whether IPV screening programs in the VA should be extended to men as well. In constructing a comprehensive national program to address IPV, consideration should be given to the prevalence of IPV victimization and perpetration, the effectiveness of interventions to decrease exposure to IPV and decrease the associated mental and physical harms, the potential benefits and harms of screening, and if universal or women-only screening should be adopted.

Guidelines

Currently, a number of organizations recommend some form of screening to detect IPV victimization. Most guidelines focus screening recommendations among women. The American Congress of Obstetricians and Gynecologists recommends that physicians screen all women for IPV victimization at periodic intervals during family planning, pregnancy, and annual examinations.[78,85] Similarly, the Affordable Care Act recommends IPV screening and counseling as a core part of women's preventive health visits, and the Institute of Medicine recommends universal screening and counseling of all women for interpersonal and domestic violence.[80]

The American Medical Association (AMA) makes a broader recommendation regarding all patients and thereby actively includes men in addition to women. In a position statement, the

AMA broadly encourages physicians to routinely inquire about the family violence histories of their male and female patients while being alert to men presenting with injuries suffered as a result of IPV because these men may require intervention as either victims or abusers themselves. The AMA recommends identifying patients currently experiencing abuse or threats of IPV to discuss safety issues with the patient before leaving the office, to develop a safety or exit plan, and to refer patients to appropriate medical or health care professionals or community-based trauma resources as soon as possible.[86]

The USPSTF has recently updated its recommendations regarding IPV victimization screening in women and recommends screening women of childbearing age (defined as 14 to 46 years of age) for IPV. In addition, the USPSTF recommends providing services or interventions to women who screen positive for IPV.[78] Adopting the USPSTF recommendations would be timely for the VHA because over the past decade, the number of women Veterans using the VHA has nearly doubled, and compared with men, women were, on average, substantially younger: 42 percent of women and 12 percent of men were younger than 45 years of age or of childbearing age.[81]

Our results broadly support these recommendations; however, our review highlights the need for developing an a priori detailed plan of action for treatment and followup of positive IPV screening results.

APPLICABILITY

Our results on prevalence are highly applicable to Veteran populations seeking care through the VA healthcare system; these studies were conducted in Veterans or among potential future Veterans (i.e., active duty servicemembers). Also of the 12 studies conducted among Veterans, 8 were conducted among populations comprising exclusively VA users. For our pooled analyses, we included only studies conducted in broad populations and used the most comparable estimate of IPV collected across studies: physical violence. However, variability still existed in how IPV was defined and measured, likely contributing to the heterogeneity we report across studies and in pooled estimates.

Results of our synthesis of the SR literature for IPV interventions also are likely to apply to Veterans; however, the positive effects of RCTs do not always translate into clinical practice. RCTs usually have tightly controlled eligibility criteria; thus the characteristics of patients in RCTs may vary from the characteristics of patients seen at VA medical centers. For example, there are higher rates of PTSD, depression, and traumatic brain injuries in VA populations compared with civilian populations; these factors may complicate implementation of IPV screening and treatment programs. Also, interventionists in studies may receive specialized training and resources that may be difficult to replicate in the typical clinical practice. Last, patients in RCTs tend to be more adherent to interventions. Across all studies in the included SRs, only one intervention study was conducted in a VA setting.

STRENGTHS AND LIMITATIONS

Our study has a number of strengths, including a protocol-driven review, a comprehensive search, and a careful quality assessment. Also, our meta-analysis took advantage of both direct

(estimated from within the same study) and indirect (estimated from across different studies) when assessing key subgroups of gender and race. Another strength is the opportunity to meta-synthesize the evidence on IPV interventions from existing SRs in order to triangulate the overarching evidence across a wide body of literature, settings, and intervention approaches.

Our report, and the literature, also had limitations. Though we were able to conduct meta-analysis and subgroup analysis for some IPV prevalence rates, all estimates demonstrated significant heterogeneity. Thus, variability in prevalence is likely due to a combination of factors, and the limited number of studies precluded meta-regression. Also, we identified only five studies that assessed IPV perpetration among Veterans. However, each of these studies was conducted in highly selective populations (e.g., WWII prisoners of war, populations seeking relationship help), making meta-analysis imprudent and comparisons to broader Veteran populations impossible. We also did not identify any studies that assessed prevalence of IPV victimization among male Veterans, thus, we were not able to provide estimates for this population and behavior. Lastly, only three studies of IPV among Veterans were conducted among national samples; thus, our results specific to Veterans are likely more applicable to VA user than to all Veterans. More studies should be conducted among nationally representative samples of Veterans. Our meta-synthesis of the evidence on IPV interventions also has some limitations. We were able to include only intervention approaches with peer-reviewed evidence syntheses. Thus, emerging intervention approaches were likely not included if they did not have a peer-reviewed evidence synthesis.

RECOMMENDATIONS FOR FUTURE RESEARCH

We used the framework recommended by Robinson et al.[87] to identify gaps in evidence and classify why these gaps exist (Table 9). This approach considers PICOTS (population, intervention, comparator, outcomes, timing, and setting) to identify gaps and classifies them as due to (1) insufficient or imprecise information, (2) biased information, (3) inconsistency or unknown consistency, and (4) not the right information. VA and other healthcare systems should consider their clinical and policy needs when deciding whether to invest in research to address gaps in evidence. Specific research questions can be evaluated quantitatively, using value-of-information analysis, which uses Bayesian methods to estimate the potential benefits of gathering further information through research.[88]

Table 9. Evidence gaps and future research

Evidence Gap	Reason	Type of Studies to Consider
Limited to no evidence for these populations and behaviors: • Male Veteran IPV perpetration • Male Veteran IPV victimization • Female Veteran IPV victimization in last year • Nationally representative samples of Veterans for both perpetration and victimization	Insufficient information	High-quality cross-sectional studies in broad populations
Studies that address primary prevention of IPV	Insufficient information	RCTs Observational comparative effectiveness studies
Effectiveness of screening techniques to identify males with exposure to IPV *victimization*	Insufficient information	Studies of diagnostic accuracy RCTs Observational comparative effectiveness studies
Effectiveness of screening techniques to identify perpetrators of current or past IPV	Insufficient information	Studies of diagnostic accuracy RCTs
Studies on interventions to reduce IPV in screen-detected populations	Insufficient information	RCTs Observational comparative effectiveness studies

CONCLUSION

Our review highlights that IPV victimization and perpetration are prevalent among active duty servicemembers and Veterans. Overall, IPV screening interventions for women in health care settings increase identification of victimization and appear to be feasible and acceptable. Screening programs are maximized when adequate support for clinicians and screen-detected women are provided. Other secondary prevention interventions provide insufficient evidence to demonstrate significant changes in IPV or IPV-related mental or physical harms. Our review points to gaps in the existing evidence. No identified studies reported on IPV victimization among male Veterans; however, we report high rates of victimization among male active duty servicemembers. Thus, it is likely that male Veterans would also have elevated rates of IPV victimization. Only three studies of IPV among Veterans were conducted among national samples. Many Veteran studies were conducted in specialty mental health clinics or highly selected populations. Future research on IPV should be conducted among nationally representative samples of Veterans. Moreover, we identified no SRs of primary IPV prevention strategies; all SRs summarized literature on secondary prevention strategies (e.g., IPV screening). These findings demonstrate gaps in the evidence; future studies are needed. However, current evidence suggests that screening women for IPV can identify women who have been exposed to IPV. In the absence of strong evidence to support any single strategy to reduce risks associated with IPV in screen-detected populations, behavioral and advocacy interventions should be considered as adjuncts to IPV screening programs because they have some partial impact on IPV-related mental or physical health outcomes and show limited evidence that they are associated with harms.

REFERENCES

1. Black MC, Basile, K.C., Breiding, M.J., Smith, S.G., Walters, M.L., Merrick, M.T., Chen, J., & Stevens, M.R. The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 Summary Report. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. (2011).

2. Nelson HD, Bougatsos C, Blazina I. Screening women for intimate partner violence: a systematic review to update the U.S. Preventive Services Task Force recommendation. *Ann Intern Med*. 2012;156(11):796-808, W-279, W-280, W-281, W-282.

3. Flynn A, Graham K. "Why did it happen?" A review and conceptual framework for research on perpetrators' and victims' explanations for intimate partner violence. *Aggress Violent Behav*. 2010;15(3):239-251.

4. Sarkar NN. The impact of intimate partner violence on women's reproductive health and pregnancy outcome. *J Obstet Gynaecol*. 2008;28(3):266-71.

5. Nathanson AM, Shorey RC, Tirone V, et al. The Prevalence of Mental Health Disorders in a Community Sample of Female Victims of Intimate Partner Violence. *Partner Abuse*. 2012;3(1):59-75.

6. Max W, Rice DP, Finkelstein E, et al. The economic toll of intimate partner violence against women in the United States. *Violence Vict*. 2004;19(3):259-72.

7. Sayers SL, Farrow VA, Ross J, et al. Family problems among recently returned military veterans referred for a mental health evaluation. *J Clin Psychiatry*. 2009;70(2):163-70.

8. Martin SL, Gibbs DA, Johnson RE, et al. Substance use by soldiers who abuse their spouses. *Violence Against Women*. 2010;16(11):1295-310.

9. Taft CT, Kachadourian LK, Suvak MK, et al. Examining impelling and disinhibiting factors for intimate partner violence in veterans. *J Fam Psychol*. 2012;26(2):285-9.

10. Marshall AD, Panuzio J, Taft CT. Intimate partner violence among military veterans and active duty servicemen. *Clin Psychol Rev*. 2005;25(7):862-76.

11. Teten AL, Schumacher JA, Bailey SD, et al. Male-to-female sexual aggression among Iraq, Afghanistan, and Vietnam veterans: co-occurring substance abuse and intimate partner aggression. *J Trauma Stress*. 2009;22(4):307-11.

12. Fonseca CA, Schmaling KB, Stoever C, et al. Variables associated with intimate partner violence in a deploying military sample. *Mil Med*. 2006;171(7):627-31.

13. Campbell JC, Garza MA, Gielen AC, et al. Intimate Partner Violence and Abuse among Active Duty Military Women. *Violence Against Women*. 2003;9(9):1072-1092.

14. McCarroll JE, Thayer LE, Liu X, et al. Spouse abuse recidivism in the U.S. Army by gender and military status. *J Consult Clin Psychol*. 2000;68(3):521-5.

15. McCarroll JE, Ursano RJ, Liu X, et al. Deployment and the probability of spousal aggression by U.S. Army soldiers. *Mil Med*. 2000;165(1):41-4.

16. Teten AL, Schumacher JA, Taft CT, et al. Intimate partner aggression perpetrated and sustained by male Afghanistan, Iraq, and Vietnam veterans with and without posttraumatic stress disorder. *J Interpers Violence*. 2010;25(9):1612-30.

17. Moher D, Liberati A, Tetzlaff J, et al. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *J Clin Epidemiol*. 2009;62(10):1006-12.

18. Bohannon JR, Dosser DA, Jr., Lindley SE. Using couple data to determine domestic violence rates: an attempt to replicate previous work. *Violence Vict*. 1995;10(2):133-41.

19. Bradley KA, Bush KR, Davis TM, et al. Binge drinking among female Veterans Affairs patients: prevalence and associated risks. *Psychol Addict Behav*. 2001;15(4):297-305.

20. Byrne CA, Riggs DS. The cycle of trauma; relationship aggression in male Vietnam veterans with symptoms of posttraumatic stress disorder. *Violence Vict*. 1996;11(3):213-25.

21. Cook JM, Riggs DS, Thompson R, et al. Posttraumatic stress disorder and current relationship functioning among World War II ex-prisoners of war. *J Fam Psychol*. 2004;18(1):36-45.

22. Crouthamel J. Male sexuality and psychological trauma: soldiers and sexual disorder in World War I and Weimar Germany. *J Hist Sex*. 2008;17(1):60-84.

23. E.W. Gondolf RAF. Wife assault among VA alcohol rehabilitation patients. *Hosp Community Psychiatry*. 1991;42: pp. 74-79.

24. Hiley-Young B, Blake DD, Abueg FR, et al. Warzone violence in Vietnam: an examination of premilitary, military, and postmilitary factors in PTSD in-patients. *J Trauma Stress*. 1995;8(1):125-41.

25. Jordan BK, Marmar CR, Fairbank JA, et al. Problems in families of male Vietnam veterans with posttraumatic stress disorder. *J Consult Clin Psychol*. 1992;60(6):916-26.

26. Petrick N, Rosenberg AM, Watson CG. Combat experience and youth: Influences on reported violence against women. *Prof Psychol Res Pr*. 1983;14 895-9.

27. O'Donnell C, Cook JM, Thompson R, et al. Verbal and physical aggression in World War II former prisoners of war: role of posttraumatic stress disorder and depression. *J Trauma Stress*. 2006;19(6):859-66.

28. Pan HS, Neidig PH, O'Leary KD. Predicting mild and severe husband-to-wife physical aggression. *J Consult Clin Psychol*. 1994;62(5):975-81.

29. Preece J. The lives of the RAF revisited: The biographical turn. *Memory Studies*. 2010;3(2):151-163.

30. Schnurr PP, Friedman MJ, Engel CC, et al. Issues in the design of multisite clinical trials of psychotherapy: VA Cooperative Study No. 494 as an example. *Contemp Clin Trials*. 2005;26(6):626-636.

31. Sharps PW. Abuse and prenatal outcomes in military women. TriService Nursing Research Program (TSNRP); 2008:pages unknown p.

32. American College of Obstetricians and Gynecologists (ACOG). Domestic violence and Army deployment. *ACOG Clinical Review*. 2006;11(2):12-12.

33. Hoy D, Brooks P, Woolf A, et al. Assessing risk of bias in prevalence studies: modification of an existing tool and evidence of interrater agreement. *J Clin Epidemiol*. 2012;65(9):934-9.

34. Shea BJ, Grimshaw JM, Wells GA, et al. Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. *BMC Med Res Methodol*. 2007;7:10.

35. Borenstein M, Hedges L, Higgins JA, et al. Comprehensive Meta-analysis Version 2. Biostat: Englewood, NJ; 2005.

36. Higgins JP, Thompson SG. Quantifying heterogeneity in a meta-analysis. *Stat Med*. 2002;21(11):1539-58.

37. Agency for Healthcare Research and Quality. Methods Guide for Effectiveness and Comparative Effectiveness Reviews. AHRQ Publication No. 10(12)-EHC063-EF. Rockville, MD: Agency for Healthcare Research and Quality. April 2012. www.effectivehealthcare.ahrq.gov.

38. Schunemann HJ, Oxman AD, Brozek J, et al. Grading quality of evidence and strength of recommendations for diagnostic tests and strategies. *BMJ*. 2008;336(7653):1106-10.

39. Lutgendorf MA, Thagard A, Rockswold PD, et al. Domestic violence screening of obstetric triage patients in a military population. *J Perinatol*. 2012.

40. Slep AM, Foran HM, Heyman RE, et al. Unique risk and protective factors for partner aggression in a large scale air force survey. *J Community Health*. 2010;35(4):375-83.

41. Lutgendorf MA, Busch JM, Doherty DA, et al. Prevalence of domestic violence in a pregnant military population. *Obstet Gynecol*. 2009;113(4):866-72.

42. Merrill LL, Crouch JL, Thomsen CJ, et al. Perpetration of severe intimate partner violence: premilitary and second year of service rates. *Mil Med*. 2005;170(8):705-9.

43. Newby JH, Ursano RJ, McCarroll JE, et al. Postdeployment domestic violence by U.S. Army soldiers. *Mil Med*. 2005;170(8):643-7.

44. McCarroll JE, Ursano RJ, Newby JH, et al. Domestic violence and deployment in US Army soldiers. *J Nerv Ment Dis*. 2003;191(1):3-9.

45. Heyman RE, Neidig PH. A comparison of spousal aggression prevalence rates in U.S. Army and civilian representative samples. *J Consult Clin Psychol*. 1999;67(2):239-42.

46. Rosen LN, Knudson KH, Fancher P. Intimate partner violence among U.S. Army soldiers in Alaska: a comparison of reported rates and survey results. *Mil Med*. 2002;167(11):ii-iii.

47. Rosen LN, Parmley AM, Knudson KH, et al. Gender differences in the experience of intimate partner violence among active duty U.S. Army soldiers. *Mil Med*. 2002;167(12):959-63.

48. Foran HM, Slep AM, Heyman RE, et al. Prevalences of intimate partner violence in a representative U.S. Air Force sample. *J Consult Clin Psychol*. 2011;79(3):391-7.

49. Rosen LN, Parmley AM, Knudson KH, et al. Intimate partner violence among married male U.S. Army soldiers: ethnicity as a factor in self-reported perpetration and victimization. *Violence Vict*. 2002;17(5):607-22.

50. Forgey MA, Badger L. Patterns of intimate partner violence and associated risk factors among married enlisted female soldiers. *Violence Vict*. 2010;25(1):45-61.

51. Rosen LN, Kaminski RJ, Parmley AM, et al. The effects of peer group climate on intimate partner violence among married male U.S. Army soldiers. *Violence Against Women*. 2003;9(9):1045-1071.

52. Schmaling KB, Blume AW, Russell ML. Intimate Partner Violence and Relationship Dissolution Among Reserve Soldiers. *Mil Psychol*. 2011;23(6):685-699.

53. Stander VA, Thomsen CJ, Merrill LL, et al. Gender and Military Contextual Risk Factors for Intimate Partner Aggression. *Mil Psychol*. 2011;23(6):639-658.

54. Crouch JL, Thomsen CJ, Milner JS, et al. Heterosexual intimate partner violence among Navy personnel: gender differences in incidence and consequences. *Mil Psychol*. 2009;21:S1-s15.

55. O'Campo P, Kub J, Woods A, et al. Depression, PTSD, and Comorbidity Related to Intimate Partner Violence in Civilian and Military Women. *Brief Treatment and Crisis Intervention*. 2006;6(2):99-110.

56. Forgey M, Badger L. Patterns of Intimate Partner Violence Among Married Women in the Military: Type, Level, Directionality and Consequences. *J Fam Violence*. 2006;21(6):369-380.

57. Newby JH, Ursano RJ, McCarroll JE, et al. Spousal aggression by U.S. Army female soldiers toward employed and unemployed civilian husbands. *Am J Orthopsychiatry*. 2003;73(3):288-93.

58. McCarroll JE, Ursano RJ, Liu X, et al. Deployment and the Probability of Spousal Aggression by US Army Soldiers. *Mil Med*. 2010;175(5):352-356.

59. Merrill LL, Hervig LK, Milner JS, et al. Premilitary intimate partner conflict resolution in a navy basic trainee sample. *Mil Psychol*. 1998;10(1):1-15.

60. Dichter ME, Cerulli C, Bossarte RM. Intimate partner violence victimization among women veterans and associated heart health risks. *Womens Health Issues*. 2011;21(4 Suppl):S190-4.

61. Teten AL, Sherman MD, Han X. Violence between therapy-seeking veterans and their partners: prevalence and characteristics of nonviolent, mutually violent, and one-sided violent couples. *J Interpers Violence*. 2009;24(1):111-27.

62. Sherman MD, Sautter F, Jackson MH, et al. Domestic violence in veterans with posttraumatic stress disorder who seek couples therapy. *J Marital Fam Ther*. 2006;32(4):479-90.

63. Dobie DJ, Kivlahan DR, Maynard C, et al. Posttraumatic stress disorder in female veterans: association with self-reported health problems and functional impairment. *Arch Intern Med*. 2004;164(4):394-400.

64. Coyle BS, Wolan DL, Van Horn AS. The prevalence of physical and sexual abuse in women veterans seeking care at a Veterans Affairs Medical Center. *Mil Med*. 1996;161(10):588-93.

65. Luterek JA, Bittinger JN, Simpson TL. Posttraumatic Sequelae Associated with Military Sexual Trauma in Female Veterans Enrolled in VA Outpatient Mental Health Clinics. *J Trauma Dissociation*. 2011;12(3):261-274.

66. Campbell R, Raja S. The sexual assault and secondary victimization of female veterans: Help-seeking experiences with military and civilian social systems. *Psychol Women Q*. 2005;29(1):97-106.

67. Sadler AG, Booth BM, Cook BL, et al. Factors associated with women's risk of rape in the military environment. *Am J Ind Med*. 2003;43(3):262-273.

68. Caralis PV, Musialowski R. Women's experiences with domestic violence and their attitudes and expectations regarding medical care of abuse victims. *South Med J*. 1997;90(11):1075-1080.

69. Taft CT, Weatherill RP, Woodward HE, et al. Intimate partner and general aggression perpetration among combat veterans presenting to a posttraumatic stress disorder clinic. *Am J Orthopsychiatry*. 2009;79(4):461-8.

70. Dutra L, de Blank G, Scheiderer E, et al. Correlates of Female Veterans' Perpetration of Relationship Aggression. *Psychol Trauma*. 2012;4(3):323-329.

71. Campbell R, Greeson MR, Bybee D, et al. The co-occurrence of childhood sexual abuse, adult sexual assault, intimate partner violence, and sexual harassment: a mediational model of posttraumatic stress disorder and physical health outcomes. *J Consult Clin Psychol*. 2008;76(2):194-207.

72. Kulka RA, Schlenger WE, Fairbank JA, et al. Trauma and the Vietnam War generation: Report of findings from the National Vietnam Veterans Readjustment Study. New York: Brunner/Mazel, 1990.

73. Choo EK, Ranney ML, Aggarwal N, et al. A systematic review of emergency department technology-based behavioral health interventions. *Acad Emerg Med*. 2012;19(3):318-28.

74. Ramsay J, Carter Y, Davidson L, et al. Advocacy interventions to reduce or eliminate violence and promote the physical and psychosocial well-being of women who experience intimate partner abuse. *Cochrane Database Syst Rev*. 2009(3):CD005043.

75. Smedslund G, Dalsbo TK, Steiro AK, et al. Cognitive behavioural therapy for men who physically abuse their female partner. Cochrane Database of Systematic Reviews 2011, Issue 2. Art. No.: CD006048. *Cochrane Database Syst Rev*. 2011(3):CD006048.

76. O'Campo P, Kirst M, Tsamis C, et al. Implementing successful intimate partner violence screening programs in health care settings: evidence generated from a realist-informed systematic review. *Soc Sci Med*. 2011;72(6):855-66.

77. O'Reilly R, Beale B, Gillies D. Screening and intervention for domestic violence during pregnancy care: a systematic review. *Trauma Violence Abuse*. 2010;11(4):190-201.

78. Moyer VA. Screening for intimate partner violence and abuse of elderly and vulnerable adults: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2013;158(6):478-86.

79. Bair-Merritt MH, Crowne SS, Thompson DA, et al. Why do women use intimate partner violence? A systematic review of women's motivations. *Trauma Violence Abuse*. 2010;11(4):178-89.

80. Institute of Medicine. Available at: http://www.iom.edu/. Accessed April 19, 2013.

81. Frayne SM, Phibbs CS, Friedman SA, et al. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 2. Sociodemographics and Use of VHA and Non-VA Care (Fee). Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. October 2012. Available at: http://www.womenshealth.va.gov/. Accessed July 26, 2013.

82. Sanford C, Marshall SW, Martin SL, et al. Deaths from violence in North Carolina, 2004: how deaths differ in females and males. *Inj Prev*. 2006;12 Suppl 2:ii10-ii16.

83. Bureau of Justice Statistics. Homicide Trends in the United States, 1980-2008. Available at: http://bjs.gov/index.cfm?ty=pbdetail&iid=2221. Accessed April 19, 2013.

84. Moracco KE, Runyan CW, Loomis DP, et al. Killed on the clock: a population-based study of workplace homicide, 1977-1991. *Am J Ind Med*. 2000;37(6):629-36.

85. American Congress of Obstetricians and Gynecologists. ACOG Committee Opinion No. 518: Intimate partner violence. *Obstet Gynecol*. 2012;119(2 Pt 1):412-7.

86. American Medical Association. Opinion H-515.965 Family and Intimate Partner Violence. Available at: http://www.ama-assn.org/ama1/pub/upload/mm/PolicyFinder/policyfiles/HnE/H-515.965.HTM. Accessed April 19, 2013.

87. Robinson KA, Saldanha IJ, Mckoy NA. Frameworks for Determining Research Gaps During Systematic Reviews. Methods Future Research Needs Report No. 2. (Prepared by the Johns Hopkins University Evidence-based Practice Center under Contract No. HHSA 290-2007-10061-I.) AHRQ Publication No. 11-EHC043-EF. Rockville, MD: Agency for Healthcare Research and Quality. June 2011. Available at: http://effectivehealthcare.ahrq.gov/index.cfm/search-for-guides-reviews-and-reports/?productid=735&pageaction=displayproduct Accessed April 8, 2012.

88. Myers E, McBroom AJ, Shen L, et al. Value-of-Information Analysis for Patient-Centered Outcomes Research Prioritization. Report prepared by the Duke Evidence-based Practice Center. Patient-Centered Outcomes Research Institute. March 2012.

APPENDIX A. SEARCH STRATEGIES

IPV Prevalence Studies (KQ 1)

Table A-1. Search strategy for PubMed (6/29/2012, updated 7/5/2012, full report 12/11/2012, updated 6/12/2013)

Set #	Terms	Results
1	"Spouse Abuse"[Mesh] OR "Domestic Violence"[Mesh:noexp] OR intimate partner violence[tiab] OR domestic violence[tiab] OR dating violence[tiab] OR partner violence[tiab] OR domestic abuse[tiab] OR partner abuse[tiab]	11674
2	(("Battered Women"[Mesh] OR "Rape"[Mesh] OR "Violence"[Mesh] OR violence[tiab]) OR ((psychological[tiab] OR emotional[tiab] OR /psychology OR physical[tiab]) AND abuse[tiab]) AND ("Spouses"[Mesh] OR sexual partners[mesh] OR marriage[mesh] OR partner[tiab] OR husband[tiab] OR wife[tiab]))	6369
3	#1 OR #2	13186
4	prevalence[Mesh] or prevalence[tiab] or incidence[tiab] OR /statistics and numerical data OR / epidemiology OR statistics[tiab] OR rate[tiab] OR rates[tiab] OR population[tiab]	4090541
5	#3 AND #4	7216
6	"Veterans"[Mesh] OR veteran[tiab] OR veterans[tiab] OR "Veterans Health"[Mesh] OR "Hospitals, Veterans"[Mesh] OR "Military Personnel"[Mesh] OR armed forces[tiab] OR military[tiab] OR army[tiab] OR navy[tiab] OR marines[tiab] OR marine[tiab] OR air force[tiab] OR active duty[tiab]	119652
7	#5 AND #6	134

IPV Systematic Reviews (KQ 2)

Table A-2. Search strategy for PubMed (6/29/2012, updated 7/6/2012, full report 12/11/2012)

Set #	Terms	Results
1	"Spouse Abuse"[Mesh] OR "Domestic Violence"[Mesh:noexp] OR intimate partner violence[tiab] OR domestic violence[tiab] OR dating violence[tiab] OR partner violence[tiab] OR domestic abuse[tiab] OR partner abuse[tiab]	**10789**
2	(("therapy"[Subheading])) OR (therapy OR treatment OR intervention OR rehabilitation[tiab] OR prevention OR prevent[tiab] OR mass screening[mesh] OR screening[tiab] OR "Counseling"[Mesh] OR "Psychotherapy"[Mesh] OR "Mental Health Services"[Mesh] OR "Behavior Control"[Mesh])	**7977561**
3	#1 AND #2 Filters: Systematic Reviews, English	**1404**

APPENDIX B. INCLUDED STUDIES

IPV Prevalence Studies (KQ 1)

Table B-1 presents a key to the primary and companion articles included in the IPV prevalence studies for KQ 1, organized alphabetically by first author.

Table B-1. Primary and companion articles for KQ 1

Primary Article	Companion Article(s)
Bohannon, 1995[1]	None
Campbell, 2003[2]	O'Campo, 2006[3]
Campbell, 2005[4]	Campbell, 2008[5]
Caralis, 1997[6]	None
Coyle, 1996[7]	None
Dichter, 2011[8]	None
Dobie, 2004[9]	None
Dutra, 2012[10]	None
Fonseca, 2006[11]	Schmaling, 2011[12]
Forgey, 2006[13]	Forgey, 2010[14]
Heyman, 1999[15]	Newby, 2003[16] McCarroll, 2000[17] McCarroll, 2010[18]
Luterek, 2011[19]	None
Lutgendorf, 2009[20]	None
Lutgendorf, 2012[21]	None
McCarroll, 2003[22]	None
Merrill, 1998[23]	None
Merrill, 2005[24]	Crouch, 2009[25] Stander, 2011[26]
Newby, 2005[27]	None
O'Donnell, 2006[28]	None
Rosen, 2002[29]	Rosen, 2002[30] Rosen, 2002[31] Rosen, 2003[32]
Sadler, 2003[33]	None
Sayers, 2009[34]	None
Slep, 2010[35]	Foran, 2011[36]
Taft, 2009[37]	None
Teten, 2009[38]	Sherman, 2006[39]

References Cited in Table B-1

1. Bohannon JR, Dosser DA, Jr., Lindley SE. Using couple data to determine domestic violence rates: an attempt to replicate previous work. Violence Vict. 1995;10(2):133-41.
2. Campbell JC, Garza MA, Gielen AC, et al. Intimate Partner Violence and Abuse among Active Duty Military Women. Violence Against Women. 2003;9(9):1072-1092.

3. O'Campo P, Kub J, Woods A, et al. Depression, PTSD, and Comorbidity Related to Intimate Partner Violence in Civilian and Military Women. Brief Treatment and Crisis Intervention. 2006;6(2):99-110.
4. Campbell R, Raja S. The sexual assault and secondary victimization of female veterans: Help-seeking experiences with military and civilian social systems. Psychol Women Q. 2005;29(1):97-106.
5. Campbell R, Greeson MR, Bybee D, et al. The co-occurrence of childhood sexual abuse, adult sexual assault, intimate partner violence, and sexual harassment: a mediational model of posttraumatic stress disorder and physical health outcomes. J Consult Clin Psychol. 2008;76(2):194-207.
6. Caralis PV, Musialowski R. Women's experiences with domestic violence and their attitudes and expectations regarding medical care of abuse victims. South Med J. 1997;90(11):1075-1080.
7. Coyle BS, Wolan DL, Van Horn AS. The prevalence of physical and sexual abuse in women veterans seeking care at a Veterans Affairs Medical Center. Mil Med. 1996;161(10):588-93.
8. Dichter ME, Cerulli C, Bossarte RM. Intimate partner violence victimization among women veterans and associated heart health risks. Womens Health Issues. 2011;21(4 Suppl):S190-4.
9. Dobie DJ, Kivlahan DR, Maynard C, et al. Posttraumatic stress disorder in female veterans: association with self-reported health problems and functional impairment. Arch Intern Med. 2004;164(4):394-400.
10. Dutra L, de Blank G, Scheiderer E, et al. Correlates of Female Veterans' Perpetration of Relationship Aggression. Psychol Trauma. 2012;4(3):323-329.
11. Fonseca CA, Schmaling KB, Stoever C, et al. Variables associated with intimate partner violence in a deploying military sample. Mil Med. 2006;171(7):627-31.
12. Schmaling KB, Blume AW, Russell ML. Intimate Partner Violence and Relationship Dissolution Among Reserve Soldiers. Mil Psychol. 2011;23(6):685-699.
13. Forgey M, Badger L. Patterns of Intimate Partner Violence Among Married Women in the Military: Type, Level, Directionality and Consequences. J Fam Violence. 2006;21(6):369-380.
14. Forgey MA, Badger L. Patterns of intimate partner violence and associated risk factors among married enlisted female soldiers. Violence Vict. 2010;25(1):45-61.
15. Heyman RE, Neidig PH. A comparison of spousal aggression prevalence rates in U.S. Army and civilian representative samples. J Consult Clin Psychol. 1999;67(2):239-42.
16. Newby JH, Ursano RJ, McCarroll JE, et al. Spousal aggression by U.S. Army female soldiers toward employed and unemployed civilian husbands. Am J Orthopsychiatry. 2003;73(3):288-93.
17. McCarroll JE, Ursano RJ, Liu X, et al. Deployment and the probability of spousal aggression by U.S. Army soldiers. Mil Med. 2000;165(1):41-4.
18. McCarroll JE, Ursano RJ, Liu X, et al. Deployment and the Probability of Spousal Aggression by US Army Soldiers. Mil Med. 2010;175(5):352-356.
19. Luterek JA, Bittinger JN, Simpson TL. Posttraumatic Sequelae Associated with Military Sexual Trauma in Female Veterans Enrolled in VA Outpatient Mental Health Clinics. J Trauma Dissociation. 2011;12(3):261-274.
20. Lutgendorf MA, Busch JM, Doherty DA, et al. Prevalence of domestic violence in a pregnant military population. Obstet Gynecol. 2009;113(4):866-72.
21. Lutgendorf MA, Thagard A, Rockswold PD, et al. Domestic violence screening of obstetric triage patients in a military population. J Perinatol. 2012.
22. McCarroll JE, Ursano RJ, Newby JH, et al. Domestic violence and deployment in US Army soldiers. J Nerv Ment Dis. 2003;191(1):3-9.
23. Merrill LL, Hervig LK, Milner JS, et al. Premilitary intimate partner conflict resolution in a navy basic trainee sample. Mil Psychol. 1998;10(1):1-15.
24. Merrill LL, Crouch JL, Thomsen CJ, et al. Perpetration of severe intimate partner violence: premilitary and second year of service rates. Mil Med. 2005;170(8):705-9.
25. Crouch JL, Thomsen CJ, Milner JS, et al. Heterosexual intimate partner violence among Navy personnel: gender differences in incidence and consequences. Mil Psychol. 2009;21:S1-s15.
26. Stander VA, Thomsen CJ, Merrill LL, et al. Gender and Military Contextual Risk Factors for Intimate Partner Aggression. Mil Psychol. 2011;23(6):639-658.

27. Newby JH, Ursano RJ, McCarroll JE, et al. Postdeployment domestic violence by U.S. Army soldiers. Mil Med. 2005;170(8):643-7.

28. O'Donnell C, Cook JM, Thompson R, et al. Verbal and physical aggression in World War II former prisoners of war: role of posttraumatic stress disorder and depression. J Trauma Stress. 2006;19(6):859-66.

29. Rosen LN, Knudson KH, Fancher P. Intimate partner violence among U.S. Army soldiers in Alaska: a comparison of reported rates and survey results. Mil Med. 2002;167(11):ii-iii.

30. Rosen LN, Parmley AM, Knudson KH, et al. Gender differences in the experience of intimate partner violence among active duty U.S. Army soldiers. Mil Med. 2002;167(12):959-63.

31. Rosen LN, Parmley AM, Knudson KH, et al. Intimate partner violence among married male U.S. Army soldiers: ethnicity as a factor in self-reported perpetration and victimization. Violence Vict. 2002;17(5):607-22.

32. Rosen LN, Kaminski RJ, Parmley AM, et al. The effects of peer group climate on intimate partner violence among married male U.S. Army soldiers. Violence Against Women. 2003;9(9):1045-1071.

33. Sadler AG, Booth BM, Cook BL, et al. Factors associated with women's risk of rape in the military environment. Am J Ind Med. 2003;43(3):262-273.

34. Sayers SL, Farrow VA, Ross J, et al. Family problems among recently returned military veterans referred for a mental health evaluation. J Clin Psychiatry. 2009;70(2):163-70.

35. Slep AM, Foran HM, Heyman RE, et al. Unique risk and protective factors for partner aggression in a large scale air force survey. J Community Health. 2010;35(4):375-83.

36. Foran HM, Slep AM, Heyman RE, et al. Prevalences of intimate partner violence in a representative U.S. Air Force sample. J Consult Clin Psychol. 2011;79(3):391-7.

37. Taft CT, Weatherill RP, Woodward HE, et al. Intimate partner and general aggression perpetration among combat veterans presenting to a posttraumatic stress disorder clinic. Am J Orthopsychiatry. 2009;79(4):461-8.

38. Teten AL, Sherman MD, Han X. Violence between therapy-seeking veterans and their partners: prevalence and characteristics of nonviolent, mutually violent, and one-sided violent couples. J Interpers Violence. 2009;24(1):111-27.

39. Sherman MD, Sautter F, Jackson MH, et al. Domestic violence in veterans with posttraumatic stress disorder who seek couples therapy. J Marital Fam Ther. 2006;32(4):479-90.

IPV Systematic Reviews (KQ 2)

1. Choo EK, Ranney ML, Aggarwal N, et al. A systematic review of emergency department technology-based behavioral health interventions. Acad Emerg Med. 2012;19(3):318-28.

2. Nelson HD, Bougatsos C, Blazina I. Screening women for intimate partner violence: a systematic review to update the U.S. Preventive Services Task Force recommendation. Ann Intern Med. 2012;156(11):796-808, W-279, W-280, W-281, W-282.

3. O'Campo P, Kirst M, Tsamis C, et al. Implementing successful intimate partner violence screening programs in health care settings: evidence generated from a realist-informed systematic review. Soc Sci Med. 2011;72(6):855-66.

4. O'Reilly R, Beale B, Gillies D. Screening and intervention for domestic violence during pregnancy care: a systematic review. Trauma Violence Abuse. 2010;11(4):190-201.

5. Ramsay J, Carter Y, Davidson L, et al. Advocacy interventions to reduce or eliminate violence and promote the physical and psychosocial well-being of women who experience intimate partner abuse. Cochrane Database Syst Rev. 2009(3):CD005043.

6. Smedslund G, Dalsbo TK, Steiro AK, et al. Cognitive behavioural therapy for men who physically abuse their female partner. . Cochrane Database of Systematic Reviews 2011, Issue 2. Art. No.: CD006048. DOI: 10.1002/14651858. CD006048.pub2. Cochrane Database Syst Rev. 2007(3):CD006048

APPENDIX C. CRITERIA USED IN QUALITY ASSESSMENT

QUALITY ASSESSMENT FOR IPV PREVALENCE STUDIES (KQ 1)

This tool is intended to evaluate the quality of studies that examined the outcomes of prevalence of IPV. Use this risk of bias tool for the following study designs: prospective/retrospective cohort studies, case-control studies, and cross-sectional studies.

General Instructions: Rate each question below using the response categories listed. Focus on study design and conduct, not quality of reporting. Then, after answering each item, rate the study overall as "low risk of bias" (good quality), "moderate risk of bias" (fair quality) or "high risk of bias" (poor quality) based on the following definitions:

- Low Risk of Bias is a good-quality study and has the least bias, and results are considered valid. These studies will meet the majority of items in each domain.
- Moderate Risk of Bias is a fair-quality study and is susceptible to some bias but probably not enough to invalidate the results. The study may be missing information, making it difficult to assess limitations and potential problems. As the fair-quality category is broad, studies with this rating vary in their strengths and weaknesses. The results of some fair-quality studies are possibly valid, while others are probably valid. These studies will meet the majority of items in most but not all domains.
- High Risk of Bias is a poor-quality study with significant bias that may invalidate the results. These studies have serious errors in design, analysis, or reporting; have large amounts of missing information; or have discrepancies in reporting. The results of a poor-quality study are at least as likely to reflect flaws in the study design as to indicate true differences between the compared interventions.

1. Was the study target population a close representation of the national population in relation to relevant variables (e.g., age, sex)? Focus mainly on eligibility criteria and actual sample assembled. The target population refers to the group of people or entities to which the results of the study will be generalized. Active duty military or Veterans enrolled in VA health services is the target population.

__Yes (LOW RISK): The study target population was a close representation of the national population.

__No (HIGH RISK): The study target population was clearly NOT representative of the national population.

Comments:

2. Was some form of random selection used to select the sample?

__Yes (LOW RISK): Some form of random selection was used to select the sample (e.g., simple random sampling, stratified random sampling, cluster sampling, systematic sampling).

__No (HIGH RISK): Some form of random selection was NOT used to select the sample.

Comments:

3. Was the likelihood of nonresponse bias minimal?

__Yes (LOW RISK): The response rate for the study was ≥70% or an analysis was performed that showed no important difference in relevant demographic characteristics or risk factors for IPV between responders and nonresponders.

__No (HIGH RISK): The response rate was <70%, and if any analysis comparing responders and nonresponders was done, it showed a significant difference in relevant demographic characteristics or risk factors for IPV between responders and nonresponders.

Comments:

4. Was an acceptable case definition used in the study?

__Yes (LOW RISK): An acceptable case definition of IPV was used. An acceptable case definition clearly specifies study definition of IPV such as including type, severity, frequency, and timing.

__No (HIGH RISK): An acceptable case definition of IPV was NOT used. Case definition of IPV lacked details to clearly define type, severity, frequency, and timing of IPV.

Comments:

5. Was the study instrument that measured the parameter of interest (i.e., prevalence of IPV) shown to be valid and reliable?

__Yes (LOW RISK): The study instrument was shown to have reliability and validity (e.g. test-retest, piloting, validation in a previous study). Examples of instruments with these properties include Conflict Tactics Scale, Abuse Assessment Screen.

__No (HIGH RISK): The study instrument was NOT shown to have reliability or validity (e.g., authors developed their own untested tool).

Comments:

6. Was the same mode (e.g., interview, self-administered questionnaire) of data collection used for all subjects?

__Yes (LOW RISK): The same mode of data collection was used for all subjects.

__No (HIGH RISK): The same mode of data collection was NOT used for all subjects.

Comments:

7. Was the length of the shortest prevalence period for the parameter of interest appropriate? (Keep in mind that the longer the prevalence period, the greater the likelihood of the subject forgetting if they experienced the outcome interest.)

__Yes (LOW RISK): The shortest prevalence period for the parameter of interest was appropriate (e.g., one-week prevalence, one-year prevalence).

__No (HIGH RISK): The shortest prevalence period for the parameter of interest was not

appropriate (e.g., lifetime prevalence).

Comments:

8. Were the numerator(s) and denominator(s) for the parameter of interest appropriate?

__Yes (LOW RISK): There were no errors in the reporting of the numerator AND denominator(s). The paper presented appropriate numerator(s) AND denominator(s) for the parameter of interest.

__No (HIGH RISK): There were errors in the reporting of the numerator AND denominator(s). The paper did present numerator(s) AND denominator(s) for the parameter of interest but one or more of these were inappropriate.

__Can't tell. (Use this option when only percentages are given.)

Comments:

9. Were the 95% CIs for the prevalence estimates precise?

__Yes (LOW RISK): Precise estimate (for this outcome, ± 3% is precise; e.g., corresponding to point prevalence of 15% and 12–18 as CI; ± 5% as moderately precise).

__No (HIGH RISK): Imprecise estimate (Greater than ± 5%)

Comments:

Additional Comments:

Table C-1 shows the quality ratings for the IPV prevalence studies (listed alphabetically by primary article's author) included in this evidence report.

Table C-1. Quality assessment for included IPV prevalence studies[a]

Study	Overall Quality Rating	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Bohannon, 1995	Fair	Yes	No	No	Yes	Yes	Yes	Yes	Can't tell	NR
Campbell, 2003	Fair	Yes	Yes	No	Yes	Yes	Yes	No	Can't tell	NR
Campbell, 2005	Fair	No	Yes	Yes	No	Yes	Yes	No	Yes	NR
Caralis, 1997	Fair	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No
Coyle, 1996	Poor	Yes	No	No	Yes	No	Yes	No	Yes	NR
Dichter, 2011	Poor	No	Yes	No	No	No	Yes	No	Yes	NR
Dobie, 2004	Fair	Yes	No	No	No	No	Yes	No	Yes	NR
Dutra, 2012	Fair	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No
Fonseca, 2006	Good	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Forgey, 2006	Fair	Yes	No	No	Yes	Yes	Yes	Yes	Yes	NR
Heyman, 1999	Good	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Luterek, 2011	Fair	Yes	Yes	No	No	Yes	Yes	No	Yes	NR
Lutgendorf, 2009	Fair	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Lutgendorf, 2012	Fair	No	No	Yes	No	Yes	Yes	Yes	Yes	NR
McCarroll, 2003	Good	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	NR
Merrill, 1998	Fair	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Merrill, 2005	Fair	Yes	No	No	Yes	Yes	Yes	Yes	Can't tell	NR
Newby, 2005	Fair	Yes	No	No	Yes	Yes	Yes	Yes	Yes	NR
O'Donnell, 2006	Poor	No	No	No	No	Yes	Yes	No	Can't tell	NR
Rosen, 2002	Good	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	NR
Sadler, 2003	Fair	Yes	Yes	No	No	No	Yes	No	Can't tell	NR
Sayers, 2009	Poor	No	No	Yes	No	No	Yes	Yes	No	No
Slep, 2010	Good	Yes	Yes	No	Yes	Yes	Yes	Yes	Can't tell	NR
Taft, 2009	Fair	No	No	No	Yes	Yes	Yes	Yes	Yes	No
Teten, 2009	Fair	Yes	No	No	Yes	Yes	Yes	Yes	No	NR

[a]Q1=population; Q2=random selection; Q3=nonresponse bias; Q4=case definition; Q5=validity of instrument; Q6=mode of administration; Q7=time period assessed; Q8=numerator and denominator; Q9=95% confidence interval

QUALITY ASSESSMENT FOR IPV SYSTEMATIC REVIEWS (KQ 2)

First determine whether study is a systematic review. To be a systematic review, it must include a methods section that describes (1) a search strategy and (2) an a priori approach to synthesizing the data. For reviews determined to meet the systematic review criteria, assess methodological quality.*

General instructions: The purpose of this rating tool is to evaluate the scientific quality of systematic reviews. It is not intended to measure the literary quality, importance, relevance, originality, or other attributes of systematic reviews.

Step 1: Grade each criterion listed below as "Yes," "No," "Can't tell" or "Not Applicable." Factors to consider when making an assessment are listed under each criterion. Where appropriate (particularly when assigning a "No," or "Can't tell" score), please provide a brief rationale for your decision (in parentheses).

1. **Is a focused clinical question clearly stated?**

   At a minimum, the question should be developed a priori and should clearly identify population and outcomes. The study question does not have to be in PICO format (Population, Intervention, Comparisons, Outcomes).

   [] Yes [] No [] Can't tell [] N/A

2. **Are the search methods used to identify relevant studies clearly described?**

   Search methods should be described in enough detail to permit replication. The report must include search date, databases used, and search terms. (Key words and/or MESH terms must be stated and, where feasible, the search strategy should be provided.)

   [] Yes [] No [] Can't tell [] N/A

3. **Was a comprehensive literature search performed?**

   At least 2 electronic sources should be searched, and electronic searches should be supplemented by consulting reference lists from prior reviews, textbooks, or included studies; specialized registries (e.g., Cochrane registries); or queries to experts in the field.

   [] Yes [] No [] Can't tell [] N/A

4. **Was selection bias avoided?**

   Study should report the number of studies identified through searches, the numbers excluded, and give appropriate reasons for excluding based on explicit inclusion/exclusion criteria. (Look outside of the text. The number of studies excluded, etc., may be provided as a flow diagram or table.)

   [] Yes [] No [] Can't tell [] N/A

5. **Was there duplicate study selection and data extraction?**

   Did two or more raters make inclusion/exclusion decisions, abstract data, and assess study quality—either independently or with one rater overreading the first rater's result? Was an appropriate method used to resolve disagreements (e.g., a consensus procedure)? (If unable to make a definite decision, please mark Can't tell.)

   [] Yes [] No [] Can't tell [] N/A

6. **Were the characteristics of the included studies provided?**

   In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions, and outcomes. The ranges of characteristics in all the studies analyzed (e.g., age, race, sex, relevant socioeconomic data, disease status, duration, severity or other diseases) should be reported. For IPV interventions, the minimum characteristics should include study ID, setting, sex (if not all one sex), intervention strategy description (or if IPV screening, screening tool and reference standard), and list of outcomes or summary of results.

   [] Yes [] No [] Can't tell [] N/A

7. **Was the scientific quality of the included studies assessed and documented?**

   A priori methods of assessment should be provided, and criteria used to assess study quality specified in enough detail to permit replication. It is acceptable if a review references a published scoring method (e.g., Jadad score or AHRQ).

   [] Yes [] No [] Can't tell [] N/A

8. **Were the methods used to combine the findings of studies appropriate?**

   For pooled results, an accepted quantitative method of pooling should be used (i.e., more than simple addition, such as a random-effects or fixed-effect model). For pooled results, a qualitative and quantitative assessment of homogeneity (Cochran's Q and/or I^2) should be performed. If only qualitative analyses are completed, the study should describe the reasons that quantitative analyses were not completed (e.g., heterogeneity in strategies, assessment of outcomes).

   [] Yes [] No [] Can't tell [] N/A

9. **Was the scientific quality of the included studies used appropriately in formulating conclusions?**

   The results of the methodological rigor and scientific quality should be considered in the analysis (e.g., subgroup analyses) and the conclusions of the review, and explicitly stated in formulating recommendations.

   [] Yes [] No [] Can't tell [] N/A

10. **Was publication bias assessed?**

    Publication bias should be tested using a funnel plot, test statistic (e.g., Egger's regression test), or examination of ongoing registries (e.g., clinicaltrials.gov) to search for unpublished studies. If none is specified, mark Can't tell.

    [] Yes [] No [] Can't tell [] N/A

11. **Was the conflict of interest stated?**
    Potential sources of support should be clearly acknowledged in both the systematic review and the included studies.

    [] Yes [] No [] Can't tell [] N/A

12. **Are the stated conclusions supported by the data presented?**
    Were the conclusions made by the author(s) supported by the data and/or analyses reported in the systematic review?

    [] Yes [] No [] Can't tell [] N/A

Step 2: Rate the overall quality of the SR as "Good," "Fair," or "Poor" using the guidance below.

Good = After considering items 1-12, item 12 is rated "Yes" with no important limitations. This means that few of the items 1-12 are rated "No," and none of the limitations are thought to decrease the validity of the conclusions. If items 3, 4, 7, or 8 are rated "no," then the review is likely to have major flaws.

Fair = After considering items 1-12, item 12 is rated "Yes," but with at least some important limitations. This means that enough of the items 1-12 are rated "No" to introduce some uncertainty about the validity of the conclusions.

Poor = After considering items 1-12, item 12 is rated "No." This means that several of items 1-12 are rated "No," introducing serious uncertainty about the validity of the conclusions.

*Adapted from:

1. Shea BJ, Grimshaw JM, Wells GA, et al. Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. BMC Med Res Methodol. 2007;7:10.

2. Moher D, Cook DJ, Eastwood S, et al. Improving the quality of reports of meta-analyses of randomised controlled trials: the QUOROM statement. Quality of Reporting of Meta-analyses. Lancet. 1999;354(9193):1896-900.

3. Marinopoulos SS, Dorman T, Ratanawongsa N, et al. Effectiveness of continuing medical education. Evid Rep Technol Assess (Full Rep). 2007(149):1-69.

Table C-2 shows the quality ratings for the systematic reviews included in this evidence report.

Table C-2. Quality assessment for included systematic reviews

Criteria for grading the quality of a systematic review	Ramsay, 2009	O'Reilly, 2010	O'Campo, 2011	Smedslund, 2011	Choo, 2012	Nelson, 2012
Q1. Is a focused clinical question clearly stated?	Yes	No	Yes	Yes	Yes	Yes
Q2. Are the search methods used to identify relevant studies clearly described?	Yes	Yes	Yes	Yes	Yes	Yes
Q3. Was a comprehensive literature search performed?	Yes	Yes	Yes	Yes	Yes	Yes
Q4. Was selection bias avoided?	Can't tell	Yes	Yes	Yes	Yes	Yes
Q5. Was there duplicate study selection and data extraction?	Yes	Yes	Yes	Yes	Yes	Yes
Q6. Were the characteristics of the included studies provided?	Yes	Yes	No	Yes	Yes	Yes
Q7. Was the scientific quality of the included studies assessed and documented?	Yes	No	Yes	Yes	Yes	Yes
Q8. Were the methods used to combine the findings of studies appropriate?	Yes	Yes	Yes	Yes	Yes	NA
Q9. Was the scientific quality of the included studies used appropriately in making conclusions?	Yes	Yes	Yes	Yes	Yes	Yes
Q10. Was publication bias assessed?	NA	Can't tell	No	Yes	Yes	No
Q11. Was the conflict of interest stated?	Yes	Yes	Can't tell	Yes	Yes	Yes
Q12. Are the stated conclusions supported by the data presented?	Yes	Yes	Can't tell	Yes	Yes	Yes
Overall quality	Good	Fair	Fair	Good	Good	Good

Return to Contents

APPENDIX D. PEER REVIEW COMMENTS

Reviewer	Comment	Response
Question 1: Are the objectives, scope, and methods for this review clearly described?		
1	Yes, I think the goals were clear. Framework and two questions were very clear.	Thank you.
2	Yes. This review is timely and important, especially as VHA considers how to best implement screening and treatment interventions to address this common health issue. In particular, this review highlights significant gaps in our understanding of the prevalence, impact, identification, and treatment of IPV among male and female service members and Veterans, particularly those treated in VHA. The review of the evidence for IPV screening interventions to detect IPV victimization suggests that the implementation of a systematic and comprehensive IPV screening, response and treatment programming is a critical "next step" for VHA care. The literature regarding use of aggression is less clear with respect to implications for screening and treatment within VHA, but this review certainly suggests the significant need for additional research addressing these issues in the VHA context to inform the development and implementation of these services.	Thank you.
3	Yes. The authors have done an excellent job of searching the literature, abstracting relevant publications, reviewing the relevant publications, and presenting the summarized findings.	Thank you.
Question 2: Is there any indication of bias in our synthesis of the evidence?		
1	No, and no comments from reviewer 1.	Acknowledged
2	No, The review does not appear biased, but I do have concerns about its comprehensiveness. For KQ2, it is unclear why the authors chose to only evaluate systematic reviews. This seems like a very limited approach as the use of systematic reviews may not capture intervention work published in recent years. Moreover, there are promising psychosocial treatments for victims and perpetrators that are supported by preliminary data that are not reflected in this review. This is a shame because VHA already has some of these treatments readily available or are in a good position to do more with these treatments (e.g., DBT skills based groups for victims, Strength at Home for perpetrators). For example, cognitive processing therapy (CPT) is effective in reducing depression and PTSD among IPV survivors and reduces risk for future IPV victimization. There is also preliminary data published by Taft et al. (2013) presenting preliminary findings on a new intervention designed specifically to reduce IPV among active duty military members and Veterans. Although this work has a small sample size, it is important to note that such evidence is being established. Similarly, the systematic reviews that evaluate screening and treatment interventions do not include a focus on empirically supported treatments for the mental health symptoms and conditions that are commonly associated with IPV victimization (e.g., PTSD).	For KQ 2, we chose to search only systematic reviews because we had identified several high quality reviews. We developed the synthesis of systematic reviews approach in collaboration with our key stakeholders, the VA Domestic Violence Taskforce. They were interested in the state of the evidence on IPV interventions across a wide area of strategies. Thus, we conducted a synthesis of recent good- or fair-quality systematic reviews in support of the VA Domestic Violence Taskforce matched to the capacity of our resources. A review of the primary intervention literature is beyond the scope of this report and the stated needs of our primary stakeholder.

Return to Contents

Reviewer	Comment	Response
2	Additional information about the justification for methods used to estimate prevalence would be helpful. I am not an epidemiologist, but my understanding of prevalence is that it is a characteristic of a population that cannot be computed from smaller specific (i.e., clinical) samples. I am also aware that there is a dearth of nationally representative studies examining estimates of IPV in samples of Veterans, which makes it difficult to be able to answer KQ1. I would encourage the authors to provide more detail/discussion with regards to the limitations of their approach and justification regarding why they believe their prevalence estimates represent the prevalence in the full population of Veterans. It would also be helpful to include a discussion regarding the extent to which findings are generalizable to VHA patients vs. general population of Veterans.	In order to decrease heterogeneity across studies included in meta-analyses, we excluded from the quantitative analysis studies conducted in specialized populations (e.g., PTSD clinic populations, Veterans seeking family therapy counseling, gender-specific samples). This is an accepted practice in evidence syntheses. Also, we rated the risk of bias as it pertains to prevalence for each included study. The risk of bias includes questions about representativeness of the sample; studies were downgrade if they were not conducted in representative samples. However, we agree with the reviewer that there are few nationally representative studies of IPV among Veterans. Unfortunately, we did not have sufficient studies to assess subgroup differences by VHA users versus Veterans not recruited through VHA. Of the 12 studies we identified among Veteran populations, only 3 were studies conducted in national samples. Of these three studies, one study assessed only sexual violence during service and could not be included in pooled estimates, and the other study was summarized qualitatively due to insufficient homogeneous studies of IPV perpetration among Veterans. Thus, only one study with a national sampling strategy was eligible for inclusion in the meta-analyses. We conducted an influence analysis to empirically test if that study influenced the overall pooled estimates. The pooled estimate for IPV victimization both with and without this study was 35%. However, we agree that adding details to the report as it pertains to VA users versus Veteran populations not selected from VA users. We have added the number of studies recruited from VA users to our results section and also state a lack of national studies as a research gap. We also now state that results are likely more applicable to VA users in the Applicability section.
3	No, and no comments from reviewer 3.	Acknowledged

Reviewer	Comment	Response
Question 3: Are there any published or unpublished studies that we may have overlooked?		
1	No. Were all of the studies from the National Vietnam Veterans' Readjustment Study included?	We looked for all published, peer-reviewed literature, including those conducted from the National Vietnam Veterans' Readjustment Study. At the reviewer's suggestion, we searched the NVVRS website and did not find any other eligible studies that were not previously included through the systematic review.
2	Yes. It was unclear from the methods why certain VHA clinic/facility based studies met criteria for inclusion in the review (e.g., Sayers et al., 2009) whereas others did not (e.g., Taft, Weatherill, Woodward, Pinto, Watkins, Miller, & Dekel, 2009 for IPV perpetration; Campbell, Greeson, Bybee, & Raja, 2008 as well as Murdoch & Nichol, 1995 for IPV victimization).	We conducted a comprehensive search of the literature and developed a search strategy in collaboration with a master's-level, trained medical librarian with extensive experience in systematic review research. Of the three articles you mention, our search strategy identified two of these (Campbell, Greeson, Bybee, & Raja, 2008; Murdoch & Nichol, 1995, for IPV victimization). Murdoch & Nichol, 1995, consisted of a mixed inpatient and outpatient population. Our protocol states that we would include studies conducted in community or outpatient setting. Thus, this study was excluded. Campbell, Greeson, Bybee, & Raja, 2008 is a companion paper to our included study by Campbell & Raja, 2005. We have now added Campbell, Greeson, Bybee, & Raja, 2008 to our list of included but linked companion articles (refer to Table 3 and Appendix B). Taft, Weatherill, Woodward, Pinto, Watkins, Miller, & Dekel, 2009, was not picked up on our search. We broadened our search so that it would capture this study. In doing so we also identified two other unique studies and have included these in the final report.

Return to Contents

Reviewer	Comment	Response
2	Similarly, what is the rationale for combining general Veteran and VHA samples into the prevalence estimate analyses?	Only one study with a national sampling strategy was eligible for inclusion in the meta-analyses. We conducted an influence analysis to empirically test if the inclusion of that study influenced the overall pooled estimates. The pooled estimate for IPV victimization both with and without this study was 35%. However, we agree that adding details to the report as it pertains to VA users versus Veteran populations not selected from VA users. We have added the number of studies recruited from VA users to our results section and also state a lack of national studies as a research gap. We also now state that results are likely more applicable to VA users in the Applicability section.
2	Although the authors report prevalence estimates based on physical IPV, in their review of the Sayers et al. (2009) study the authors indicate that over 60% of the sample partnered, separated, or divorced Afghanistan and Iraq Veterans reported some domestic abuse in the last 6 months. (pg. 33). This study is not adequately interpreted because the 60% includes endorsement of pretty mild forms of psychological aggression (e.g., swearing at a partner), which may be an indicator of conflict as opposed to IPV.	We have added this level of detail to the results section.
2	The authors may also be interested in the DOD-funded report that sheds some light on this question of whether active duty military women are at greater risk for IPV than their civilian counterparts (see pg. 746): http://www.sapr.mil/media/pdf/reports/FY12_DoD_SAPRO_Annual_Report_on_Sexual_Assault-VOLUME_ONE.pdf	Thank you.
2	It was unclear why the authors indicate throughout the review that there were seven studies that assessed IPV victimization. This is misleading and implies more work has been done documenting IPV than actually exists. Three of the seven studies were excluded because they do not assess IPV. Why not just say throughout the review that there were four studies that assessed IPV?	We identified eight studies. All studies reported on some form of IPV; however, not all studies were eligible for inclusion in the meta-analysis due to heterogeneity of outcomes reported or populations surveyed. Two studies included only a highly selective form of IPV, sexual violence by an intimate partner, and were excluded from analysis. One was conducted with a population seeking VA mental health care and was considered a highly selective sample that was not amenable to meta-analysis with other broader populations.

Reviewer	Comment	Response
2	For KQ2, I was not sold on the justification for reviewing only systematic reviews on interventions. The limitations of this methodological limitation need to be fleshed out.	We have added limitation of this methodology to the Limitations section.
3	No. Not to my knowledge. That being said, the literature search strategy may not have detected key publications that were not in the peer reviewed literature, such as government reports, etc. So, you may wish to consult with your librarian about this.	Studies had to be a peer-reviewed publication to be eligible for this review.
Question 4: Please write additional suggestions or comments below. If applicable, please indicate the page and line numbers from the draft report.		
1	There appears to be a lot of redundancy in the report, this may be due to a set template, however the report would be more readable if redundancy were reduced (information repeated up to 3x in different sections. Several minor typos (see below), I am concerned about rating manuscripts not designed to estimate prevalence as good/fair/poor. The methodology around assessment of the SR was appropriate. P. 8 - Please check the 2013 Sourcebook on Women Veterans Healthcare – the current estimate of women using the VA is now 8%. Typos: pg 8 "repot" third paragraph; pg. 30 "as a likely was a source…" (bottom paragraph); pg. 48 "in the active duty" (should it be "on" or "during") pg. 49 "repot"	We have reduced redundancy, when possible. We have corrected these typos. It is an established systematic review methodology to rate the methodological quality and risk of bias as it pertains to specific outcomes of interest. We used the data reported in the latest version of the Sourcebook on Women Veterans Healthcare dated October 2012 which states that 6% of Veterans using the VA in FY10 were women. However, the Sourcebook also states that the number of Veteran patients has grown by 1% each year to 8% in FY10. Thus, we now state that a range of 6% to 8% of VA users are women.
2	The benefits of classifying studies included in the prevalence estimates and qualitative review as "poor", "fair", or "good" are unclear since most of these studies, particularly the clinic-based studies (i.e., Sayers et al., 2009), were not intended to investigate IPV prevalence. In addition to the need for rigorous research to evaluate IPV screening and response interventions for use of IPV, it is critical to review the evidence for psychosocial treatments that address the mental health symptoms and conditions that are associated with IPV because such treatments have implications for reducing IPV risk. For example, there is a body of work highlighting promising approaches to treating women who have experienced IPV that demonstrates improvements in health and safety. VHA has rolled out many evidence-based treatments (i.e., CPT for PTSD and Behavioral Couples Therapy for Substance Use Disorders) that may be helpful in this regard. A review of this evidence was beyond the scope of the current review, which was limited to systematic reviews of treatment interventions specifically designed for "perpetrators" or "victims". However, such information will be critical to informing VHA treatment planning for Veterans impacted by IPV.	It is an established systematic review methodology to rate the quality and risk of bias as it pertains to specific outcomes of interest. We agree with the reviewer that an evidence synthesis of the psychosocial treatments that address the mental health symptoms and conditions associated with IPV is needed and that such a review is beyond the scope of the current report.

Reviewer	Comment	Response
3	Page 12, Figure 1. You may wish to consider omitting the line from primary IPV prevention intervention to outcomes in that the primary prevention intervention could only affect the outcome via the prevalence (or occurrence) of IPV.	We agree and have deleted this line in the analytic framework.
	Page 17, Quality Assessment section. It appears that poor quality prevalence studies were included in your summary outcomes, but poor quality SRs were omitted. What is the justification for this?	Poor-quality systematic reviews have serious design flaws that make the findings suspect; further, fair- and good-quality reviews were available. Poor-quality primary studies were included because of limited good-quality primary studies, and the effects of these studies on summary estimates can be readily evaluated.
	Page 26, Table 4, I think you may wish to change the capital Ns to non-capital n's since you are dealing with samples rather than populations.	Thank you. We have made this change.
	Page 27, Figure 4, you may wish to retitle this graphic to clarify that it focuses on Physical IPV perpetration (same for Figures 5 and 6, etc.).	We have added text to clarify the figure titles.
	Page 29, Figure 6. You may wish to stratify this analysis based on the gender of the perpetrator. This would take into account past research which has often found that women may perpetrate IPV at higher rates than males, but males perpetrate higher rates of severe IPV (which results in greater injuries, etc.-a finding that you note on page 50). Thus, a stratified analysis may be helpful in untangling this and it could be more informative to health care providers than the current graphic on its own.	The analysis is stratified by gender of the perpetrator.
3	Page 51, Recommendations for Future Research. In this section you recommend that future reviewers of research might wish to use a similar approach as you did. However, you do not really comment on the need for more and better studies of IPV among service members and vets. You could add information on how you envision the "perfect" study given what you've found. What characteristics should it have? And make a case to potential funders why they should fund such a study.	We now have added that it is a research gap and more studies are needed in broad populations. It is beyond the scope of this review to discuss design issues as they pertain to future studies in this area.
Optional Dissemination and Implementation Questions		
Question 5: Are there any clinical performance measures, programs, quality improvement measures, patient care services, or conferences that will be directly affected by this report? If so, please provide detail.		
1	Yes, the report lends support to the recommendations of the VHA IPV Task Force and can inform DOD programs as well.	Thank you.
2	National VHA Domestic Violence Task Force (Co-Chairs: Carol Sheets and Megan Gerber)	Acknowledged
3	I do not know, but I would hope that many of them would use this information.	Acknowledged

Reviewer	Comment	Response
Question 6: Please provide any recommendations on how this report can be revised to more directly address or assist implementation needs.		
1	Again, I wonder if some of the redundancies can be removed? I think it is an outstanding report, the tables are excellent for quick reference and the methodology is very strong. I would consider using a different framework to rate studies reporting prevalence. I understand the concept of restricting estimates from studies that take place in specialized settings, such as mental health clinics, however this excludes many worthwhile VA studies. No VA data is comparable in methodology to general population based data, VA data will always be "clinical" data; estimates from ill populations are always higher than that of the general population. Directions for future research can be broader as well	We have removed redundancies, when possible. We used an established framework for rating the risk of bias for included studies. We also acknowledge that several studies were excluded from quantitative synthesis. When possible and meaningful to the report, we summarized these results qualitatively. We also agree that clinical population may have different estimates than nonclinical samples. In the one analysis that included both clinical and nonclinical study samples, an influence analysis did not reveal any prevalence estimate differences. However, we have added some caveats to the report stating that most of the studies summarized in the report were from clinical populations. Last, we have broadened the future research table.
2	See second point in comment #4.	Acknowledged
3	Circulating the report to health care providers and others providing services to service members and vets would be an important step to solicit such ideas.	Agreed
Question 7: Please provide us with contact details of any additional individuals/stakeholders who should be made aware of this report.		
1	Experts on male IPV – Casey Taft and April Gerlock. You may already have asked them. Several studies did include estimate of males' victimization by female intimate partners (ie Teten 2010).	Thank you.
2	Susan McCutcheon, National MH Director, Family Svc/Women's MH/MST, VHA (Susan.McCutcheon@va.gov) Rachel Latta, IPV Consultant, Mental Health Services, VHA (Rachel.Latta@va.gov) Casey Taft, IPV Content Expert, National Center for PTSD, VA Boston Healthcare System (Casey.Taft@va.gov)	Thank you.
3	The authors may wish to consider creating an abbreviated version of this report for publication in a peer-reviewed journal. Sometimes reports such as this one are overlooked in systematic reviews and this one certainly deserves attention.	Thank you. We plan to develop a manuscript derived from this report.

Return to Contents

APPENDIX E. GLOSSARY

Abstract screening

The stage in a systematic review during which titles and abstracts of articles identified in the literature search are screened for inclusion or exclusion based on established criteria. Articles that pass the abstract screening stage are promoted to the full-text review stage.

ClinicalTrials.gov

A registry and results database of federally and privately supported clinical trials conducted in the United States and around the world. ClinicalTrials.gov provides information about a trial's purpose, location, and participant characteristics among other details.

Cochrane Database of Systematic Reviews

A bibliographic database of peer-reviewed systematic reviews and protocols prepared by the Cochrane Review Groups in The Cochrane Collaboration.

Companion article

A publication from a trial that is not the article containing the main results of that trial. It may be a methods paper, a report of subgroup analyses, a report of combined analyses, or other auxiliary topic that adds information to the interpretation of the main publication.

Confidence interval (CI)

The range in which a particular result (such as a laboratory test) is likely to occur for everyone who has a disease. "Likely" usually means 95 percent of the time. Clinical research studies are conducted on only a certain number of people with a disease rather than all the people who have the disease. The study's results are true for the people who were in the study but not necessarily for everyone who has the disease. The CI is a statistical estimate of how much the study findings would vary if other different people participated in the study. A CI is defined by two numbers, one lower than the result found in the study and the other higher than the study's result. The size of the CI is the difference between these two numbers.

Data abstraction

The stage of a systematic review that involves a pair of trained researchers extracting reported findings specific to the research questions from the full-text articles that met the established inclusion criteria. These data form the basis of the evidence synthesis.

DistillerSR

An online application designed specifically for the screening and data extraction phases of a systematic review.

EMBASE

The Excerpta Medica database (EMBASE) produced by Elsevier, a major biomedical and pharmaceutical database indexing over 3500 international journals in the following fields: drug research, pharmacology, pharmaceutics, toxicology, clinical and experimental human

medicine, health policy and management, public health, occupational health, environmental health, drug dependence and abuse, psychiatry, forensic medicine, and biomedical engineering or instrumentation. There is selective coverage for nursing, dentistry, veterinary medicine, psychology, and alternative medicine.

Exclusion criteria

The criteria, or standards, set out before a study or review. Exclusion criteria are used to determine whether a person should participate in a research study or whether an individual study should be excluded in a systematic review. Exclusion criteria may include age, previous treatments, and other medical conditions.

Full-text review

The stage of a systematic review in which a pair of trained researches evaluates the full-text of study articles for potential inclusion in the review.

Heterogeneity

The variation in study outcomes between studies. The I^2 statistic describes the percentage of variation across studies that is due to heterogeneity rather than chance (Higgins and Thompson, 2002; Higgins et al., 2003). $I^2 = 100\% * (Q\text{-}df)/Q$. I^2 is an intuitive and simple expression of the inconsistency of studies' results. When I^2 is high, there is too much variability in study results to draw any firm conclusions.

Inclusion criteria

The criteria, or standards, set out before the systematic review. Inclusion criteria are used to determine whether an individual study can be included in a systematic review. Inclusion criteria may include population, study design, sex, age, type of disease being treated, previous treatments, and other medical conditions.

PRISMA

Preferred Reporting Items for Systematic Reviews and Meta-Analyses, an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses.

Publication bias

The tendency of researchers to publish experimental findings that have a positive result, while not publishing the findings when the results are negative or inconclusive. The effect of publication bias is that published studies may be misleading. When information that differs from that of the published study is not known, people are able to draw conclusions using only information from the published studies.

PubMed®

A database of citations for biomedical literature from MEDLINE®, life science journals, and online books in the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and preclinical sciences.

Randomized controlled trial

A prospective, analytical, experimental study using primary data generated in the clinical environment. Individuals similar at the beginning of the trial are randomly allocated to two or more treatment groups and the outcomes the groups are compared after sufficient followup time. Properly executed, the RCT is the strongest evidence of the clinical efficacy of preventive and therapeutic procedures in the clinical setting.

Risk

A way of expressing the chance that something will happen. It is a measure of the association between exposure to something and what happens (the outcome). Risk is the same as probability, but it usually is used to describe the probability of an adverse event. It is the rate of events (such as breast cancer) in the total population of people who could have the event (such as women of a certain age).

Statistical significance

A mathematical technique to measure whether the results of a study are likely to be true. Statistical significance is calculated as the probability that an effect observed in a research study is occurring because of chance. Statistical significance is usually expressed as a P-value. The smaller the P-value, the less likely it is that the results are due to chance (and more likely that the results are true). Researchers generally believe the results are probably true if the statistical significance is a P-value less than 0.05 ($p<.05$).

Strength of evidence (SOE)

A measure of how confident reviewers are about decisions that may be made based on a body of evidence. SOE is evaluated using one of four grades: (1) *High* confidence that the evidence reflects the true effect; further research is very unlikely to change reviewer confidence in the estimate of effect; (2) *moderate* confidence that the evidence reflects the true effect; further research may change the confidence in the estimate of effect and may change the estimate; (3) *low* confidence that the evidence reflects the true effect; further research is likely to change the confidence in the estimate of effect and is likely to change the estimate; and (4) *insufficient*; the evidence either is unavailable or does not permit a conclusion.

Systematic review

A summary of the clinical literature. A systematic review is a critical assessment and evaluation of all research studies that address a particular clinical issue. The researchers use an organized method of locating, assembling, and evaluating a body of literature on a particular topic using a set of specific criteria. A systematic review typically includes a description of the findings of the collection of research studies. The systematic review may also include a quantitative pooling of data, called a meta-analysis.