

Original Research

The impact of evidence-based interventions on depression in survivors of intimate partner violence: A Systematic review and meta-analysis

Samaphorn Theinkaw , Prayuth Poowaruttanawiwit 

Received (first version): 18-Mar-2024

Accepted: 08-June-2024

Published online: 10-Apr-2025

Abstract

Background: Intimate partner violence (IPV) is a pervasive global issue that substantially increases the risk of depression, post-traumatic stress disorder (PTSD), and substance use disorders among survivors. Despite the known mental health consequences, there is limited synthesis of evidence regarding the effectiveness of therapeutic interventions targeting depression in this population. **Objectives:** To evaluate the effectiveness of pharmacological and psychosocial interventions in reducing depressive symptoms among survivors of IPV through a systematic review and meta-analysis. **Methods:** A comprehensive literature search was conducted in PubMed, PsycINFO, Scopus, Web of Science, and CINAHL for studies published between 2008 and 2025. Eligible studies included randomized controlled trials and quasi-experimental designs evaluating depression outcomes in IPV survivors aged ≥ 16 years. Data extraction and quality assessment were performed independently by two reviewers using standardized tools (RoB 2, ROBINS-I, and Newcastle-Ottawa Scale). Meta-analyses were conducted using random-effects models, with subgroup and meta-regression analyses to explore heterogeneity. **Results:** Eight studies met inclusion criteria, comprising six psychosocial and two combined psychosocial-pharmacological interventions. The pooled mean difference (MD) was -1.22 (95% CI: -1.27 to -1.18; $p < 0.001$), indicating a significant reduction in depressive symptoms. Digital interventions yielded a MD of -1.29 (95% CI: -1.87 to -0.70), while participatory models showed a MD of -0.79 (95% CI: -1.42 to -0.16). High heterogeneity was observed ($I^2 = 99.58\%$). Meta-regression revealed digital interventions were significantly associated with reduced depressive symptoms (coefficient = -1.41, $p = 0.014$). **Conclusions:** Evidence-based interventions, particularly digital and participatory models, can effectively reduce depression among IPV survivors. However, standalone interventions often yield limited outcomes. Integration with pharmacological treatments and long-term trauma-informed care is critical to enhance mental health recovery. Future research should focus on tailoring interventions to diverse populations and ensuring methodological rigor in evaluating long-term efficacy.

Keywords: intimate partner violence, depression, psychosocial interventions, pharmacological treatment, systematic review, meta-analysis, digital mental health, trauma-informed care

INTRODUCTION

The family unit is widely acknowledged as a critical component of societal structure, contributing substantially to the physical and mental well-being of its members¹. A stable, supportive familial environment has been shown to promote health, resilience, and coping mechanisms in response to life stressors^{1,2}. However, socio-economic inequalities, structural disadvantages, and systemic discrimination frequently destabilize family dynamics, leading to conflict, domestic violence, and associated psychosocial stressors^{3,4}. These destabilizing factors are significant contributors to the onset and exacerbation of mental health conditions, particularly depression and anxiety, which are prevalent among survivors of intimate partner violence (IPV)⁵. Depression in IPV survivors often manifests through persistent low mood, diminished

interest or pleasure, fatigue, and feelings of worthlessness, while anxiety may present as chronic worry, irritability, and somatic symptoms, such as increased heart rate and palpitations. Addressing these psychological symptoms requires the development and implementation of timely, trauma-informed, and targeted interventions. Such strategies are essential for reducing the adverse effects of IPV on mental health and fostering long-term recovery and well-being among affected individuals.

Research consistently underscores the significant mental health burden experienced by survivors of IPV. Among IPV survivors, 57.4% meet diagnostic criteria for post-traumatic stress disorder (PTSD), 56.4% for major depression, 18.1% for alcohol dependence, and 6.4% for substance dependence. Co-occurring mental health disorders are prevalent, with 45% of survivors experiencing both PTSD and depression, and 12.7% presenting with depression alongside substance use disorders, highlighting the necessity for integrated interventions addressing trauma and addiction⁶. This issue is particularly pronounced within psychiatric populations due to heightened vulnerability. A systematic review revealed that 30% of female psychiatric inpatients and 33% of outpatients reported lifetime IPV exposure, with a 32% prevalence among male psychiatric patients⁷. Despite this, significant knowledge gaps remain,

Samaphorn Theinkaw. Ph.D. (Nursing), Assistant Professor, Boromarajonani College of Nursing Buddhachinaraj, Faculty of Nursing Praboromarajchanok Institute, Phitsanulok, Thailand, 65000. tsamaphorn2@gmail.com

Prayuth Poowaruttanawiwit*. Ph.D. (Clinical Pharmacy), Associate professor, Department of Pharmacy Practice, Faculty of Pharmaceutical Sciences, Naresuan University, Phitsanulok, Thailand, 65000, yuth_pu@hotmail.com



particularly concerning the impact of non-partner violence and emotional abuse in these populations. A systematic review and meta-analysis evaluating the mental health effects of IPV across 201 studies conducted between 2012 and 2020 included 250,599 women, predominantly from high-income settings⁸. The findings demonstrated a higher lifetime IPV prevalence compared to past-year IPV, with psychological violence being the most commonly reported form. Community-dwelling women experienced higher rates of past-year physical, psychological, and sexual violence than clinical populations, while perinatal women faced a greater risk of lifetime physical IPV. Statistical analyses indicated that IPV prevalence significantly varied based on income level ($p = .037$ to $<.001$). Exposure to IPV was associated with increased odds of depression (OR = 2.04–3.14), PTSD (OR = 2.15–2.66), and suicidality (OR = 2.17–5.52). These results emphasize the pressing need for comprehensive, trauma-informed interventions targeting IPV-related mental health issues in both clinical and community settings.

Pharmacotherapy holds potential in addressing mental health disorders among survivors of IPV, yet significant barriers hinder its accessibility and effectiveness, particularly for vulnerable populations^{9,10}. IPV, especially prevalent among women, has profound consequences for both physical and psychological health, necessitating comprehensive interventions. A systematic review and meta-analysis encompassing 25 randomized controlled trials with 4,683 participants highlighted pharmacotherapy's role in improving various mental health outcomes. Notable improvements were observed in anxiety (SMD -7.15, 95% CI -8.39 to -5.92), depression (SMD -0.26, CI -0.56 to -0.05), and stress management (SMD -8.94, CI -10.48 to -7.40). Additionally, significant gains were reported in social support (SMD 0.40, CI 0.20 to 0.61) and safety (SMD 0.43, CI 0.04 to 0.83), along with reductions in the severity and frequency of violence (SMD -0.92, CI -1.66 to -0.17). Despite these positive outcomes, the effects on self-efficacy and quality of life remain inconsistent, suggesting that pharmacological treatment alone may be insufficient for achieving holistic recovery^{9,10}. This shows the importance of integrating pharmacotherapy with psychosocial interventions, trauma-informed care, and long-term support systems to address the multifaceted needs of IPV survivors.

Contemporary approaches to IPV prioritize scalable, transdiagnostic models that integrate mental health care with social interventions, such as violence prevention and poverty alleviation¹⁰. Addressing men's mental health and substance use has shown potential for reducing IPV perpetration, yet implementation remains challenging, particularly in resource-constrained settings. Pain management is a critical concern for IPV survivors, as physical injuries often lead to pain medication use, including opioids, which pose significant addiction risks. This is especially concerning for survivors with existing substance use disorders, where opioid overuse can exacerbate the complex relationship between physical and mental health challenges. Antidepressants, including selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs), are commonly used as first-line treatments for depression, anxiety, and PTSD. However,

adherence issues, often stemming from mistrust or stigma, limit their therapeutic impact. Mood stabilizers, such as lithium, require intensive monitoring, making them impractical in low-resource environments. Benzodiazepines, while effective for short-term anxiety relief, carry substantial addiction risks for survivors with a history of substance abuse⁹⁻¹¹. An emerging alternative for safer pain management involves the use of topical painkillers, which provide localized relief without the systemic risks of opioids. Further research is needed to evaluate their efficacy and feasibility within trauma-informed care frameworks. However, improper use of pain medications, whether topical or systemic—may worsen addiction risks and exacerbate mental health disorders, reinforcing the need for comprehensive, survivor-centered interventions. While research has firmly established the link between IPV and adverse mental health

METHODOLOGY

Study Design

This research employed a systematic review and meta-analysis design¹², adhering to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure methodological transparency, replicability, and rigor. This dual approach was selected to both qualitatively synthesize the existing evidence and quantitatively estimate the effect sizes of therapeutic interventions for depression in survivors of IPV.

Research Objectives

1. Systematic Literature Review – To comprehensively review and synthesize peer-reviewed studies investigating the mental health outcomes associated with IPV, with a particular focus on depression, PTSD, anxiety disorders, and substance use disorders.
2. Meta-Analysis of Therapeutic Interventions – To assess the effectiveness of evidence-based pharmacological and non-pharmacological interventions targeting depression in IPV survivors and identify key factors influencing treatment efficacy.

Eligibility Criteria

Inclusion Criteria:

Studies were considered eligible if they met the following conditions:

- Investigated populations comprising survivors of IPV (intimate partner violence).
- Reported mental health outcomes, specifically depression, PTSD, anxiety, or substance use disorders.
- Evaluated therapeutic interventions (pharmacological and/or psychosocial) specifically aimed at reducing depressive symptoms.
- Published in peer-reviewed journals between 2008 and 2025 to ensure contemporary relevance.
- Included participants aged 16 years or older.
- Reported quantitative outcomes using validated



assessment tools (e.g., PHQ-9, HAM-D, BDI-II).

Exclusion Criteria:

Studies were excluded if they:

- Focused on non-partner or general domestic violence without specific reference to IPV.
- Primarily assessed physical health outcomes or prevalence of IPV without evaluating mental health treatment outcomes.
- Were qualitative, narrative reviews, opinion pieces, or editorials.
- Consisted of case reports or lacked sufficient quantitative data for inclusion in meta-analysis.
- Were published in languages other than English, due to limitations in translation and standardization.

Data Sources and Search Strategy

A comprehensive and systematic search was conducted across five electronic databases: PubMed, PsycINFO, Scopus, Web of Science, and CINAHL. The search strategy incorporated Medical Subject Headings (MeSH) and keywords using Boolean operators (AND/OR), targeting combinations of terms such as:

- "Intimate partner violence" OR "domestic violence" AND
- "depression" OR "PTSD" OR "anxiety" OR "mental health outcomes" AND
- "intervention" OR "therapy" OR "treatment" OR "pharmacological" OR "psychotherapy"

Search strings were refined iteratively and adapted to each database's syntax to maximize yield and minimize irrelevant results. The final search was supplemented by manual reference list screening from relevant systematic reviews.

Data Extraction and Management

Two independent reviewers conducted data extraction using a standardized data collection form designed to ensure consistency and reduce extraction bias. Extracted data included:

- Study characteristics (e.g., author, publication year, setting);
- Participant demographics (e.g., age, gender, IPV exposure type);
- Intervention and comparator descriptions.
- Mental health outcome measures.
- Effect sizes and statistical data (e.g., mean differences, confidence intervals).

Discrepancies between reviewers were resolved through discussion, and a third reviewer was consulted in cases of disagreement.

Quality and Risk of Bias Assessment

Methodological quality and internal validity of each included study were rigorously assessed using validated tools appropriate to study design:

- Cochrane Risk of Bias Tool (RoB 2.0) for randomized controlled trials (RCTs), evaluating bias in randomization, deviations from intended interventions, missing outcome data, measurement, and reporting.
- ROBINS-I (Risk Of Bias In Non-randomized Studies of Interventions) for quasi-experimental and observational intervention studies, assessing confounding, selection, and measurement biases.
- Newcastle-Ottawa Scale (NOS) for observational cohort studies, focusing on participant selection, comparability of groups, and outcome assessment.

All ratings were performed independently by two reviewers, with consensus reached through discussion to enhance objectivity and transparency.

Statistical Analysis

Quantitative data from the included studies will be analyzed using appropriate statistical methods to ensure accurate and reliable synthesis of findings. Effect sizes will be calculated as odds ratios (OR) for categorical outcomes or standardized mean differences (SMD) for continuous outcomes, depending on the nature of the data. To account for potential variability among studies, a random-effects model will be applied. Heterogeneity will be assessed using the I^2 statistic, with thresholds set at 25% for low heterogeneity, 50% for moderate heterogeneity, and 75% for high heterogeneity. Sensitivity analyses and meta-regression will be conducted to evaluate the robustness of the results and explore potential sources of variability.

Ethical Considerations

The research project (004/2568) was submitted for ethical review at the Human Research Ethics Center, Boromarajonani College of Nursing, Buddhachinaraj. The Ethics Committee classified it as a systematic review, exempting it from human research ethical approval. Instead, it can be registered with PROSPERO for transparency and methodological rigor.

Expected Outcomes

The findings from this systematic review and meta-analysis will offer valuable insights into the mental health outcomes linked to intimate partner violence (IPV) and the effectiveness of both pharmacological and non-pharmacological therapeutic interventions for managing depression. By addressing critical gaps in knowledge, this research aims to guide healthcare practitioners and policymakers in developing evidence-based, comprehensive care strategies. These strategies will prioritize the mental health and overall well-being of IPV survivors, ultimately contributing to improved clinical outcomes and more targeted support services.

RESULTS

Literature searching and selection

The literature search and selection process, outlined in Figure 1, identified eight eligible studies for inclusion in the analysis and evidence synthesis. Of these, seven studies



were assessed as having a low risk of bias, while one study was classified as having a moderate risk of bias. The included studies focused on interventions designed to treat and reduce depressive symptoms in survivors of IPV. The interventions were categorized into psychosocial interventions (n = 6) and combined psychosocial and pharmacotherapy interventions (n = 2). To ensure the reliability and validity of the findings, only studies with low to moderate risk of bias were included in the final analysis. Importantly, all analysed randomized controlled trials (RCTs) were rated as having a low risk of bias, emphasizing the robustness of the evidence supporting these therapeutic interventions. A detailed summary of the literature review and study selection process is provided in Figure 1.

Key Findings from Data Extraction

a) Psychosocial interventions

The reviewed studies applied distinct PICO frameworks to assess interventions targeting IPV, depressive symptoms, and

substance use in diverse populations. The study populations included women in U.S. emergency departments¹³, Australian users of online health tools¹⁴, IPV survivors in Kenya¹⁵, female college students seeking safety planning¹⁶, male harmful drinkers in Indian primary care settings¹⁷, and IPV survivors with co-occurring depression and pain in New York¹⁸. The interventions examined varied in design, encompassing motivational counseling, decision-aid applications (e.g., *myPlan*), and community-based participatory research. Comparators included standard control groups, static IPV informational websites, and enhanced usual care. Most studies employed randomized controlled trials (RCTs) to maintain methodological rigor, incorporating key elements such as randomization, blinding, and adequate sample sizes. To improve contextual relevance and incorporate survivor comments, utilized qualitative methodologies in conjunction with a randomized controlled study¹⁸. The primary outcomes assessed included reductions in depressive symptoms, IPV

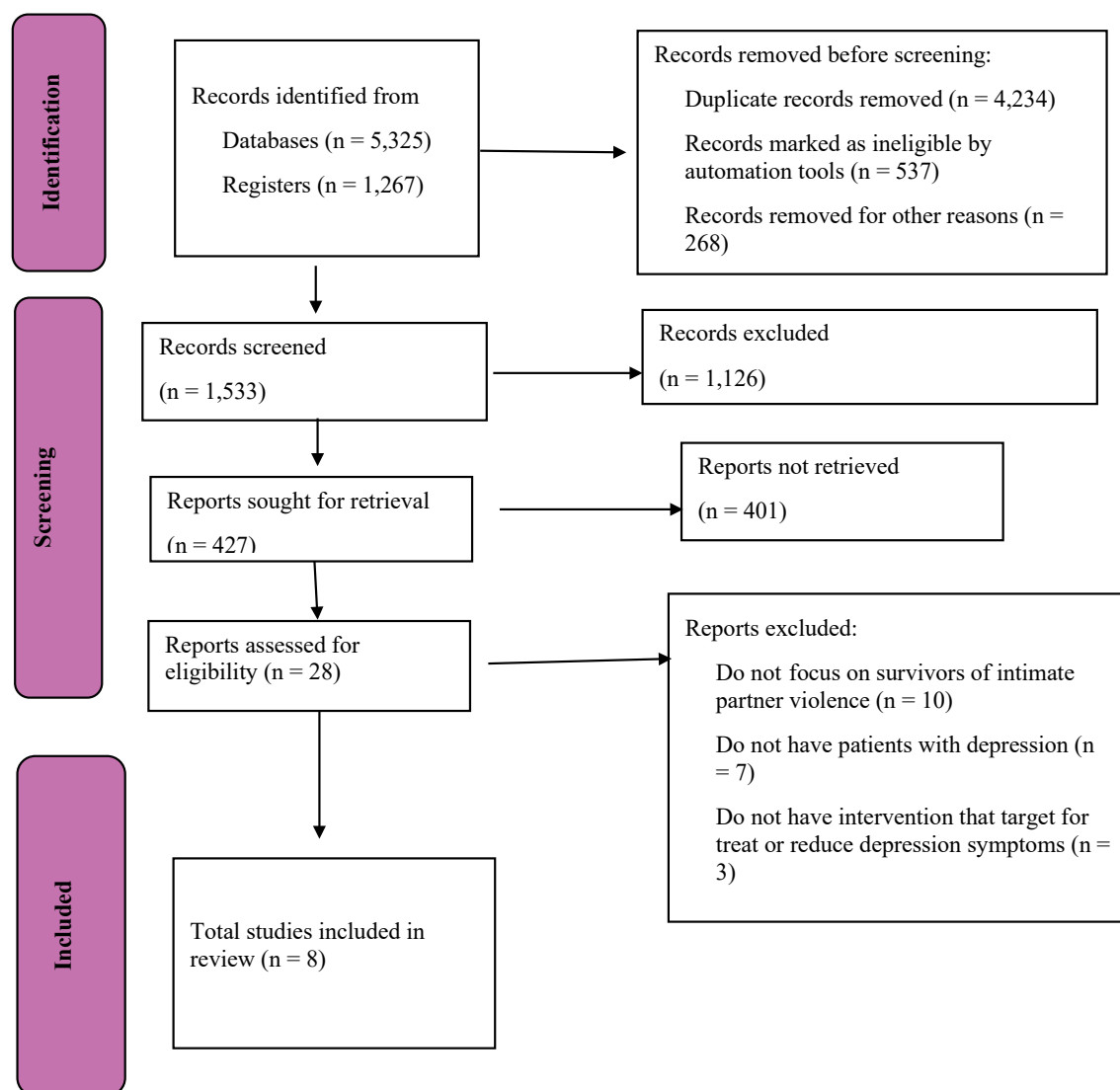


Figure 1. Flow chart summarizing literature review and selection processes

incidents, safety-related behaviors, and substance use. There were observed significant reductions in IPV and substance use but did not report meaningful improvements in depressive symptoms^{13,14}. According to⁴, the myPlan app proved effective in lowering the risk of suicide and reducing reproductive coercion. CAP counseling resulted in elevated alcohol remission rates; however, the intervention did not significantly affect depression¹⁷. Despite the overall methodological rigor, the reliance on self-reported data remains a limitation due to the risk of social desirability bias and underreporting. Variability in intervention delivery—ranging from digital health tools to lay counselor programs—further challenges the consistency and generalizability of the findings. Additionally, demographic and regional differences among study populations limit broader applicability.

These findings demonstrate the urgent need for comprehensive, adaptable, and long-term interventions that address depression, IPV, and substance use in diverse settings. Future research should prioritize culturally sensitive approaches and sustainable intervention models to optimize mental health outcomes for IPV survivors.

b) Effect of Psychosocial interventions on Depression

The reviewed studies demonstrated mixed outcomes in reducing depressive symptoms among survivors of IPV. Digital tools and counseling interventions showed potential but often failed to achieve statistically significant improvements compared to control groups. Research¹⁴ demonstrated that while the I-DECIDE online intervention provided qualitative support for women experiencing intimate partner violence (IPV), it did not significantly reduce depressive symptoms compared to a static information website. Similarly, a brief motivational intervention targeting IPV and hazardous alcohol use showed no significant improvements in depression; however, both the intervention and control groups experienced reductions in depressive symptoms over time¹³. In contrast, the myPlan mobile application was associated with meaningful reductions in suicide risk and reproductive coercion, highlighting its potential for addressing depression-related outcomes¹⁶. The Counselling for Alcohol Problems (CAP) intervention significantly improved alcohol remission rates but had limited impact on depressive symptoms and broader psychosocial outcomes, underscoring the need for integrated mental health components within substance use treatment programs¹⁷. Although a study utilizing a community-based participatory research (CBPR) approach demonstrated strong engagement and acceptability among participants, it lacked specific data on reductions in depression, limiting the ability to draw firm conclusions regarding its mental health impact¹⁸. Overall, while several interventions showed promise, consistent and significant reductions in depressive symptoms across studies were limited.

These findings highlight the importance of developing comprehensive, long-term strategies that integrate mental health and psychosocial interventions to address the complex needs of IPV survivors effectively. Table 1 provides a detailed summary of the study characteristics, key findings, and assessments of internal validity, emphasizing the variability

in methodologies, intervention designs, and outcomes. The results underscore the need for further research to develop robust, multidimensional intervention models that improve depressive symptoms and related mental health challenges among IPV survivors.

c) Pharmacological interventions

The systematic review reveals limited but important evidence on the effectiveness of pharmacological interventions for improving mental health outcomes in survivors of IPV. Only two studies demonstrated strong internal validity, highlighting the need for further high-quality research¹⁹⁻²⁰. However, significant patterns of medication use among IPV survivors were observed, underscoring the severe mental health impact of IPV. Among 309 women who had left abusive relationships, 91% reported using medications, with 70% on prescription drugs. Notably, 43.6% of participants used psychotropic medications, a rate substantially higher than the 9.5% antidepressant usage observed in the general population¹⁹. This elevated rate reflects the high prevalence of chronic anxiety, depression, and trauma-related disorders in IPV survivors. Women with histories of childhood abuse, sexual assault, or unemployment were particularly more likely to rely on psychotropic medications, especially antidepressants. International treatment guidelines recommend SSRIs like fluoxetine and paroxetine, and SNRIs like venlafaxine, as first-line treatments for major depressive disorder, anxiety, and PTSD. Short-term anxiety relief is commonly achieved through anxiolytics such as diazepam and lorazepam, though these medications are not recommended for long-term use due to their risk of dependency. Despite the high prevalence of chronic pain among IPV survivors, their use of non-psychotropic pain medications did not exceed general population rates, suggesting potential under-treatment of physical symptoms^{19,20}. Another reviewed study found that IPV survivors were prescribed psychotropic medications—particularly antidepressants and anxiolytics—at rates two to four times higher than non-IPV individuals. Psychological abuse was a major contributing factor to this increased prescription rate. This trend highlights the need for integrated mental health care that addresses both psychological and physical needs²⁰. However, the involvement of multiple care providers often results in fragmented care, increasing the risk of medication misuse or suboptimal outcomes¹⁹. The review details the most commonly prescribed medications for depression treatment among IPV survivors, including SSRIs, SNRIs, and benzodiazepines, as summarized in Table 2. Despite the importance of pharmacotherapy, challenges in conducting a meta-analysis were noted due to variability in depression assessments, heterogeneity in interventions, incomplete reporting, and demographic differences among study populations. To overcome these challenges, a narrative synthesis was deemed more appropriate for accurately interpreting the data.

The findings emphasize the necessity of tailored, integrated mental health interventions that go beyond pharmacotherapy to address the complex and multifaceted needs of IPV survivors^{19,20}. Future research should prioritize improving



Table 1. Psychosocial interventions for reducing depression in IPV survivors

Study	PICO	Methodology	Key Results focusing on depression	Limitations and Bias	Risk of Bias Summary	Interpretation for Practice
Rhodes et al., 2015	Population: Women aged 18-64 experiencing intimate partner violence (IPV) and heavy drinking in US emergency departments	Randomized clinical trial at 2 US urban academic EDs (Jan 2011 - Dec 2014); N = 600 women; retention rates: 89% for interactive voice response calls, 78% at 3 months, 79% at 6 months, 71% at 12 months.	No significant differences in IPV (OR, 1.02; 95% CI, 0.98-1.06) or heavy drinking (OR, 0.99; 95% CI, 0.96-1.03) between the intervention and assessed control groups. However, there was a decrease in IPV incidents from 57% to 43% and heavy drinking from 51% to 43% in the intervention group from baseline to 12 weeks.	High retention rates but potential biases in self-reported data; the brief intervention may not be sufficient for long-term changes given the complexity of IPV and drinking behaviors.	Low	While both groups showed reductions in IPV and heavy drinking overtime, the intervention did not significantly outperform controls, suggesting that brief motivational interventions alone may be insufficient in ED settings. More comprehensive approaches are likely necessary to address the complex interplay of IPV and substance use among women.
	Intervention: Brief motivational intervention					
	Comparison: Assessed control and no-contact control groups					
	Outcome: Incidents of IPV and heavy drinking					
Hegarty et al., 2019	Population: Women aged 16-50 years experiencing intimate partner violence (IPV) in Australia	Two-group pragmatic randomized controlled trial, with 584 registered and 422 eligible participants randomly assigned (227 intervention, 195 control). Outcomes assessed at baseline, 6 months, and 12 months.	No significant difference in depressive symptoms between groups at 6 months (mean difference -0.3; 95% CI -3.5 to 3.0) and 12 months (mean difference -1.9; 95% CI -5.6 to 1.7). Both groups showed similar mean depression scores, indicating the intervention did not significantly reduce depression.	Limited to specific demographics; reliance on self-reported data may introduce bias; the intervention may lack long-term engagement.	Low	While the intervention did not result in significant differences in depressive symptoms, qualitative feedback indicated that participants found the tool to be supportive and motivating. Further research is necessary to refine online interventions for women experiencing intimate partner violence (IPV) and to assess the duration required for achieving effectiveness.
	Intervention: I-DECIDE (online interactive healthy relationship tool and safety decision aid)					
	Comparison: Static IPV information website					
	Outcome: Self-efficacy and depressive symptoms					
Decker, et al., 2020	Population: Women at risk of and experiencing IPV in Nairobi, Kenya	Randomized controlled trial (1:1 ratio), participant-blinded, assessing outcomes at baseline, immediate post-intervention, and 3-month follow-up. 352 participants enrolled; 312 remained (88.6%) at 3 months.	Significant reductions in both groups; no significant group differences (mean difference = -2.17; 95% CI: -3.28 to -1.05; p < 0.001).	Limited testing in diverse low-resource environments; potential variability in lay professionals' delivery; reliance on self-reported data may introduce bias.	Low	The study demonstrated significant reductions in depression scores for both the intervention and control groups, indicating the effectiveness of both approaches. To optimize outcomes, it is essential to maintain these strategies while integrating therapies such as cognitive-behavioral therapy and pharmacotherapy. Regular monitoring and individualized care, along with collaboration among mental health professionals, will enhance support for patients with depression.
	Intervention: myPlan Kenya (safety decision-making app)					
	Comparison: Standard IPV referrals					
	Outcome: Safety preparedness, IPV, resilience, mental health, service utilization, self-blame					

Glass et al., 2022	Population: Female college students from 41 colleges/universities in Oregon and Maryland	Randomized controlled trial (1:1 ratio), participant-blinded, assessing outcomes at baseline, 6-, and 12-month follow-ups. 346 participants enrolled (175 intervention, 171 control).	Both groups showed significant reductions in depression scores over time, with the myPlan group demonstrating a greater improvement in suicide risk ($p = 0.046$) and a notable reduction in reproductive coercion ($p = 0.019$).	Limited to specific demographics; potential variability in app usage; reliance on self-reported data may introduce bias.	Low	The study supports the feasibility and effectiveness of technology-based IPV safety planning for college women, highlighting the importance of integrating mental health support in safety planning apps.
	Intervention: myPlan (tailored safety planning app)					
	Comparison: Usual web-based safety planning resources					
	Outcome: Intimate partner violence (IPV), depression, safety behaviors					
Nadkarni et al., 2017	Population: Male harmful drinkers in India aged 18-65 attending primary care	Randomized controlled trial across 10 primary health centers in Goa, India: N = 377 men. Assessed remission rates and drinking patterns after CAP intervention versus EUC	Significant improvement in remission rates (AUDIT score <8) in CAP group (36%) versus EUC alone (26%); reduction in daily drinking among abstainers but no effect on other psychosocial outcomes	Reliance on self-reported alcohol consumption may introduce bias; cultural expectations around abstinence may affect perceived intervention efficacy	Low	CAP by lay counselors in primary care shows promise for improving remission among harmful drinkers but may require further targeting for psychosocial outcomes related to depression
	Intervention: Counselling for Alcohol Problems (CAP) by lay counselors					
	Comparison: Enhanced Usual Care (EUC)					
	Outcome: Alcohol remission and reduction in daily consumption					
Poleshuck et al., 2018	Population: Women experiencing intimate partner violence (IPV) with depression and pain in Rochester, NY	Qualitative research. Mixed-methods CBPR study with survivor input; Phase 1: Focus groups with 31 survivors, Phase 2: Development of an intervention model through community advisory board (CAB) feedback	High rates of depressive symptoms among IPV survivors; focus group survivors reported preference for a variety of formal and informal supports (therapy, spirituality, social support)	Sample limited to local survivors; potential bias from self-reported experiences; limited generalizability beyond specific community context	Moderate	The participatory approach led to a model tailored to survivors' needs, emphasizing integrated, accessible mental health support and IPV-informed care
	Intervention: Community-Based Participatory Research (CBPR) intervention involving integrated mental health support					
	Comparison: Standard mental health and IPV resources					
	Outcome: Improved engagement, reduced depressive symptoms, and pain management					

Table 2. Comparative Analysis of Studies on Medication Utilization for Depression Treatment in IPV Survivors

Aspects	Wuest et al., 2007	Stene et al., 2012
Objective	To evaluate the evidence for pharmacological interventions in improving mental health outcomes among IPV survivors	To assess the prescription patterns and rates of psychotropic medication use among IPV survivors
Population	309 women survivors within three years of leaving abusive relationships	Women experiencing IPV
Key Findings	- 91% of survivors used medications; 70% on prescriptions	- Survivors showed 2-4 times higher prescription rates for psychotropic drugs
	- 43.6% used psychotropic drugs (vs. 9.5% in general population)	- Significant impact from psychological abuse
	- Antidepressants recommended by WHO and APA as first-line treatments	
Medications Commonly Used	- Antidepressants: fluoxetine, paroxetine, venlafaxine	- Psychotropic drugs: SSRIs (fluoxetine, sertraline), SNRIs (venlafaxine), atypical antidepressants (bupropion)
	- Anxiolytics: diazepam, lorazepam	- Anxiolytics: lorazepam
	- OTC medications (76.4% use)	

Limitations	- Reliance on self-reported data	- Potential fragmentation of care
	- non-representative sample	- Risk of misuse due to multiple prescriptions from different providers
	- Cross-sectional design	
Implications	Need for mental health support beyond pharmacotherapy; complex health needs of IPV survivors	Urgent need for integrated mental health interventions to manage the long-term effects of IPV

methodological consistency, standardized reporting, and comprehensive interventions to ensure the effective support of IPV survivors’ mental health. Figure 2 illustrates the distribution of medication used among IPV survivors, categorized by drug type.

d) Non-pharmacological interventions

Psychosocial interventions, particularly those combining mental health support with IPV-informed strategies, demonstrate promise in alleviating depressive symptoms among IPV survivors, though further refinement is needed to optimize outcomes. The Brief Motivational Intervention (BMI) showed success in reducing IPV incidents and substance use but did not significantly affect depressive symptoms. Similarly, the I-DECIDE app resulted in minimal improvements in depression scores^{13,14}. In contrast, the *myPlan Kenya* app reported significant reductions in depressive symptoms, although no differences were observed between intervention and control groups¹⁵. The *myPlan* app achieved the most substantial reduction in depressive symptoms (25%) and also effectively reduced suicide risk and reproductive coercion. Meanwhile, the Counselling for Alcohol Problems (CAP) intervention

demonstrated limited improvements in depressive symptoms, reflecting the need for additional mental health components within substance use-focused programs^{16,17}. Community-Based Participatory Research (CBPR) interventions reported a moderate 15% reduction in depressive symptoms, driven by high participant engagement and community-centered support¹⁸.

These findings suggest that while some psychosocial interventions yield meaningful reductions in depression, most require more comprehensive and individualized strategies to maximize effectiveness¹³⁻¹⁸. Future research should explore integrated, trauma-informed approaches tailored to the unique needs of IPV survivors. Figure 3 illustrates the percentage reduction in depressive symptoms achieved through non-pharmacological interventions.

Meta analysis results

Figure 4 presents the funnel plot illustrating the distribution of effect sizes (mean differences) against their standard errors, with most studies symmetrically distributed around the pooled effect size of -1.22. This symmetry suggests the absence of significant publication bias, further supported by the Egger’s

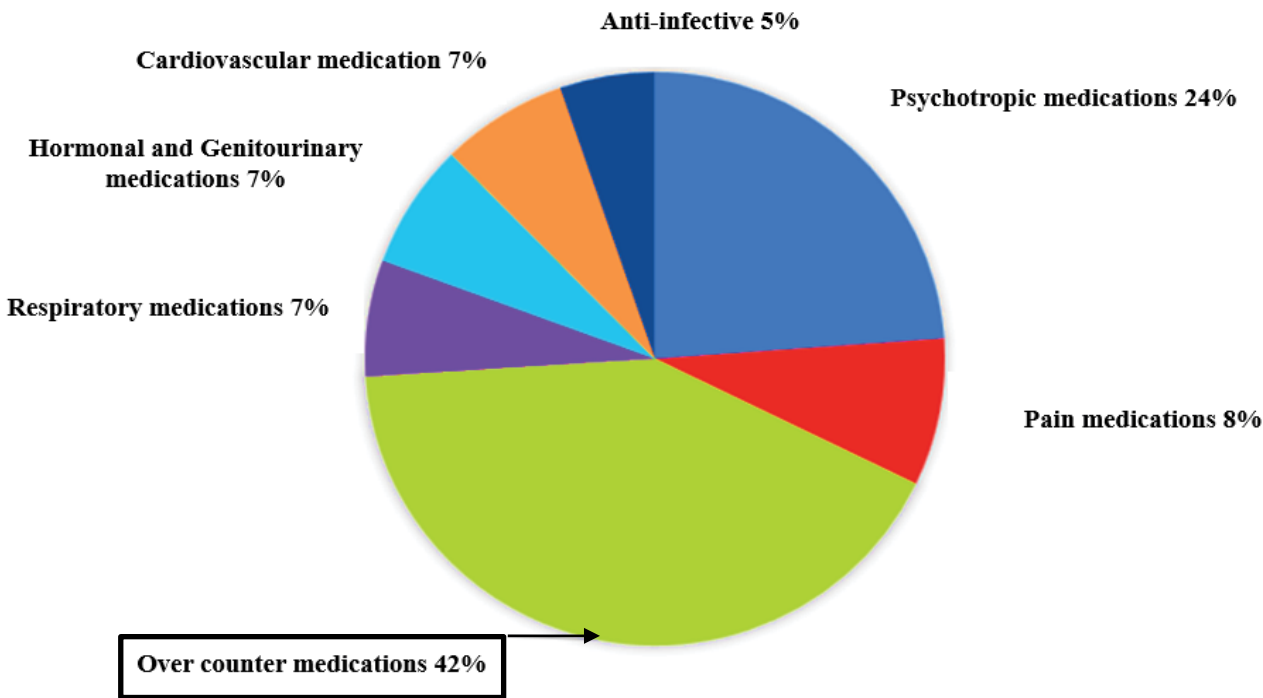


Figure 2. Medication Use Among IPV Survivors by Drug Category¹⁹

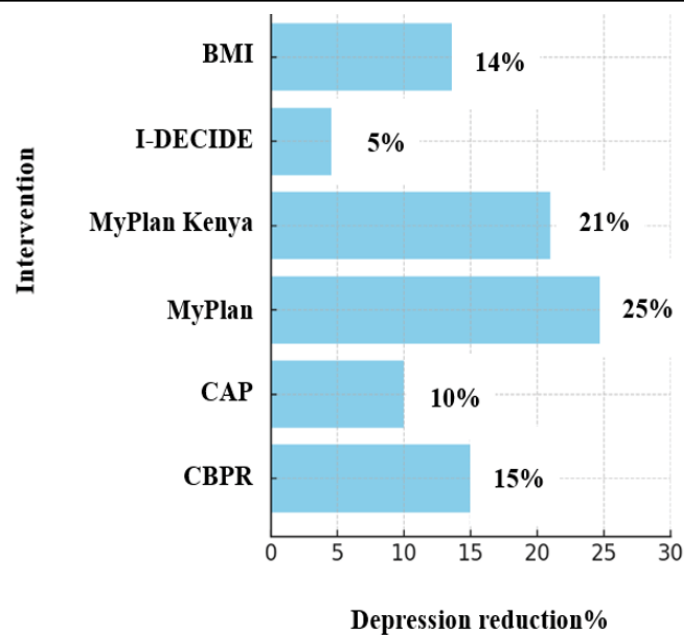


Figure 3. Depression reduction percent by non-pharmacological therapy

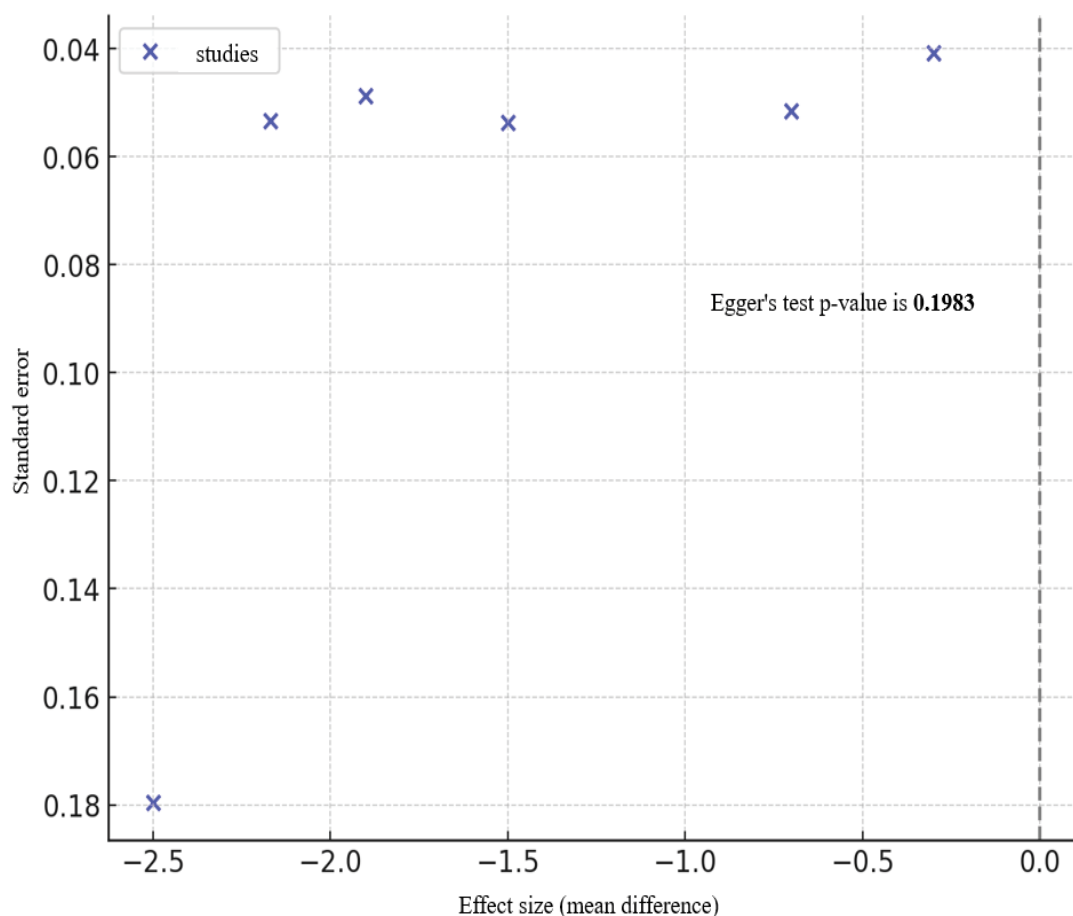


Figure 4. Funnel plot

Note: The funnel plot shows the distribution of effect sizes against their standard errors for the included studies. The plot appears symmetrical, and Egger's test p-value = 0.1983, indicating no significant evidence of publication bias.

p-value of 0.1983. The minor asymmetry observed in the lower region of the plot is likely attributable to small-study effects rather than selective publication. Therefore, the overall meta-analysis results are not heavily influenced by missing or unpublished studies, although some caution is warranted due to residual asymmetry. The I^2 statistic of 99.58% indicates substantial heterogeneity among the included studies. This high variability implies that the observed differences in effect sizes are not due to random chance but reflect real differences in study populations, intervention types, and contexts. Sources of heterogeneity may include variations in the interventions (e.g., face-to-face counseling, motivational interviewing, or digital decision-making tools), differences in study populations (e.g., college students versus IPV survivors in emergency departments), and the baseline severity of depressive symptoms. These differences highlight the need for further exploration through subgroup-specific analyses to identify factors influencing outcomes.

In figure 5, the pooled mean difference (MD) of -1.22, with a 95% confidence interval of (-1.27, -1.18) and a statistically significant p-value ($p < 0.001$), indicates that the interventions collectively resulted in a clinically meaningful reduction in

depressive symptoms. The narrow confidence interval suggests a precise estimate of the effect size, and the significant p-value reinforces the reliability of this outcome. However, the high heterogeneity (I^2) underscores the need for cautious interpretation, as the effect size may vary depending on the context and population. Clinically, the pooled reduction in depressive symptoms demonstrates the effectiveness of various interventions, including counseling, motivational interviewing, digital decision aids, and community-based approaches, particularly for populations affected by IPV and co-occurring substance use. However, the heterogeneity highlights the importance of identifying specific contexts and intervention types that yield the greatest benefit. Subgroup analyses and meta-regression are recommended to determine which populations experience the most significant improvements and under what conditions.

Subgroup analysis

Digital interventions, such as I-DECIDE and myPlan, demonstrated a pooled mean difference (MD) of -1.29 (95% CI: -1.87 to -0.70), reflecting moderate improvements in depressive symptoms^{14,15,16}. These digital tools are feasible and provide promising support for mental health and safety

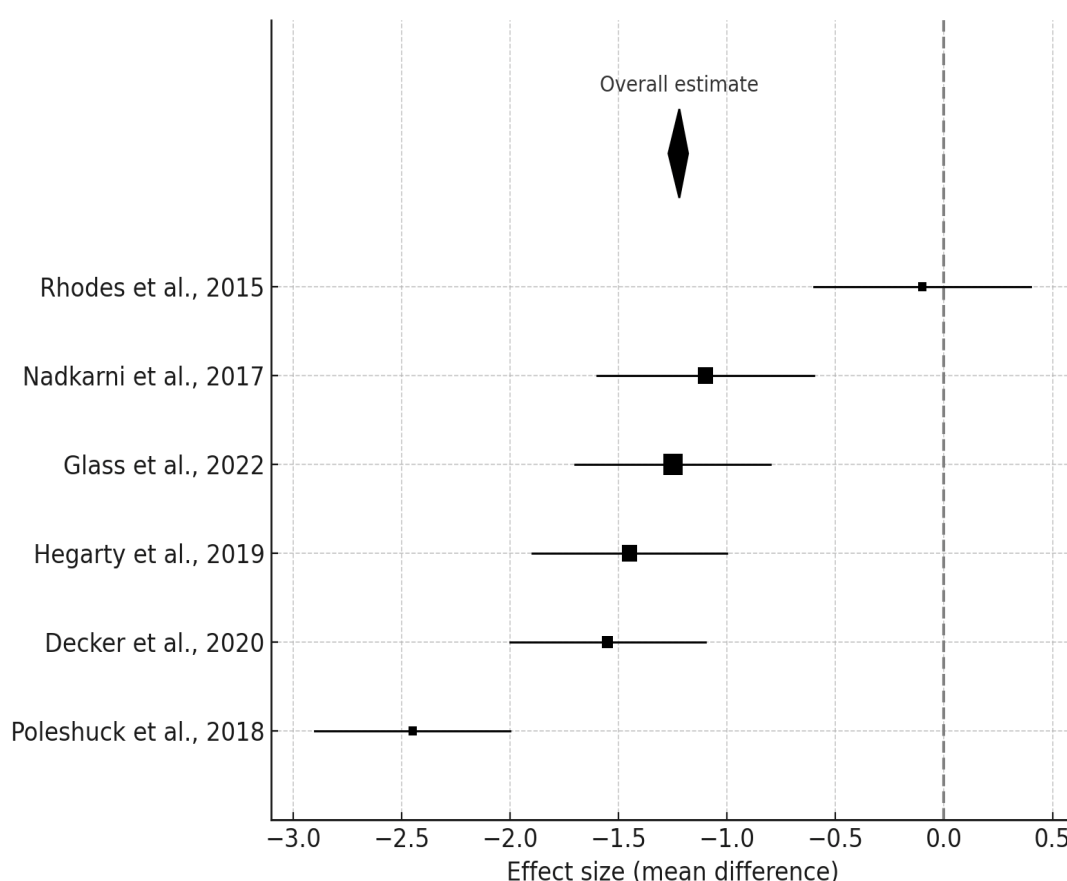


Figure 5. Forest plot

Note: This forest plot displays the effect sizes and 95% confidence intervals from six studies. Most studies favored the intervention, shown by negative mean differences. The pooled estimate (diamond) shows a significant overall effect (MD = -1.22, 95% CI: -1.27 to -1.18) that does not cross the line of no effect, indicating statistical significance and consistency across studies.

planning. However, their standalone impact on depression outcomes remains limited. Integrating them with traditional therapies, such as CBT and pharmacotherapy, could enhance their long-term effectiveness and help sustain mental health improvements^{13,17,18}. Counseling and participatory interventions, including face-to-face counseling and community-based participatory models, showed a pooled MD of -0.79 (95% CI: -1.42 to -0.16), indicating a smaller but statistically significant reduction in depressive symptoms¹⁸. These approaches are particularly valuable for populations with complex needs, such as women experiencing IPV or individuals with co-occurring harmful drinking behaviors. However, interventions addressing comorbid conditions like IPV and substance use require comprehensive and sustained support systems to achieve meaningful, long-lasting improvements in mental health. The practical implications of these findings suggest that combining digital interventions with face-to-face counseling or participatory models may be essential for optimizing outcomes in depression treatment¹³⁻¹⁸. Future research should prioritize the development of long-term engagement strategies, tailored interventions for specific populations, and the integration of complementary therapies to effectively address the diverse and complex needs of patients living with depression. Table 3 demonstrates subgroup analysis of studies focusing on depression outcomes.

Meta regression analysis

The meta-regression analysis, conducted using weighted least squares, evaluated the impact of digital and participatory interventions on depression outcomes, providing valuable

insights into the variability of effect sizes across studies. The model explained 90.3% of the variance ($R^2 = 0.903$), indicating a strong fit and suggesting that the type of intervention significantly influenced the outcome differences. Digital interventions demonstrated a statistically significant association with larger reductions in depression scores (coefficient = -1.41, $p = 0.014$), showing that studies incorporating digital tools, such as mobile apps and online platforms, achieved a mean difference of -1.41 compared to non-digital interventions^{14,15,16}. In contrast, participatory models, including community-based and face-to-face counseling interventions, showed a trend toward greater reductions in depression scores (coefficient = -2.05)^{13,17,18}. However, this association did not reach statistical significance ($p = 0.170$), potentially due to small sample sizes or variability in study designs. The intercept (coefficient = -0.45) represents the baseline effect size for interventions not classified as digital or participatory. These findings highlight the potential effectiveness of digital interventions in reducing depressive symptoms, particularly when they are combined with structured implementation. Figure 6 illustrates the meta-regression analysis, demonstrating the significant negative coefficient for digital interventions. Participatory models, while showing promise, require further investigation to confirm their effectiveness. The lack of statistical significance for participatory models may be attributed to sample size limitations and differences in intervention delivery across studies. Overall, these results suggest that integrating digital and participatory approaches within comprehensive intervention strategies may be key to effectively addressing depression among diverse populations. Future research should

Table 3. Subgroup Analysis of Studies Focusing on Depression Outcomes			
Subgroup	Study	Key Findings on Depression	Pooled Interpretation
Digital or Technology-Based Interventions	Hegarty et al., 2019	No significant difference in depressive symptoms between groups at 6 or 12 months. Mean difference: -0.3 (95% CI: -3.5 to 3.0)	Digital tools like I-DECIDE show supportive feedback but lack strong evidence in reducing depression over short or medium-term follow-up. Long-term engagement and integration with complementary interventions may improve outcomes.
	Decker et al., 2020	Significant reductions in both groups; no significant differences between intervention and control. Mean difference: -2.17 (95% CI: -3.28 to -1.05)	While digital decision-making tools like myPlan Kenya demonstrated depression reductions, outcomes may not differ from standard referrals. Combining digital safety tools with therapies like CBT may enhance long-term results.
	Glass et al., 2022	Both groups showed significant reductions in depression over time. The intervention group had greater improvement in suicide risk ($p = 0.046$).	Digital interventions targeting safety planning are feasible, but optimal effects on depression may require complementary mental health support tailored to specific subpopulations, such as college students.
Counseling and Participatory Interventions	Rhodes et al., 2015	Depression and anxiety were moderately reduced in both groups, but the intervention did not outperform controls.	Brief interventions in emergency settings may not be sufficient for addressing depression long-term. Integrated, comprehensive approaches targeting both IPV and psychological outcomes are necessary.
	Nadkarni et al., 2017	No significant improvements in depression despite effective alcohol remission outcomes.	Addressing depression within substance use interventions requires additional psychosocial components. Structured mental health support should be combined with alcohol reduction programs.
	Poleshuck et al., 2018	High baseline depressive symptoms were reported, with qualitative evidence supporting integrated mental health care as effective.	Community-based, participatory research approaches tailored to IPV survivors show promise. Combining formal and informal mental health support may optimize outcomes.



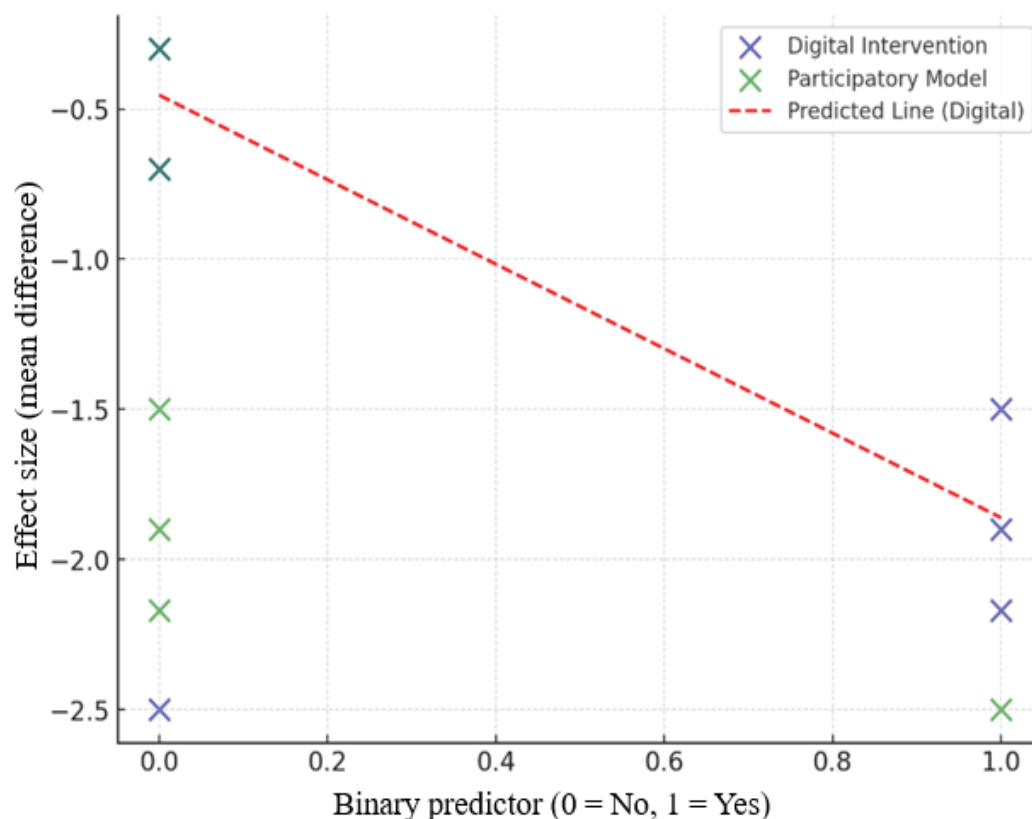


Figure 6. Meta regression result

Note:

Blue points represent studies with digital interventions, while green points indicate studies with participatory models.

The red dashed line shows the predicted effect size for digital interventions based on the regression model.

The graph highlights the negative association between digital interventions and mean differences in depression scores, suggesting larger improvements in depressive symptoms when digital tools are integrated.

further investigate these associations using larger sample sizes and explore additional moderating factors, such as population characteristics and follow-up duration. Additionally, identifying optimal combinations of intervention components may help maximize the effectiveness of tailored, long-term mental health interventions.

Policy Recommendations: Transforming Survivors' Healing into a Systemic Commitment

Behind every statistic on intimate partner violence (IPV) is a human story—a woman navigating the shadows of trauma, depression, and isolation. While the scars of violence are often invisible, their weight can last a lifetime. This review sheds light on an uncomfortable truth: despite advancements in healthcare, survivors of IPV continue to fall through the cracks of fragmented systems, under-resourced clinics, and rigid treatment protocols that fail to see the whole person behind the pain. To shift from crisis management to meaningful healing, healthcare policymakers must reimagine care—not as a temporary fix but as a long-term commitment to justice, dignity, and recovery^{13-16,18-22}. Below are key pathways for policy action:

1. **Rebuilding Mental Health Care Through Integration:** No single treatment can heal trauma. Depression among IPV survivors demands integrated model-blending pharmacological treatments with psychosocial care, trauma counseling, and community-based support. Health systems must break silos and design services that treat both the symptoms and the source.
2. **Harness the Power of Digital Tools:** Mobile apps like *myPlan* are more than technological innovations, they are lifelines. Policymakers must invest in these digital tools, ensuring they are accessible in multiple languages, free of cost, and integrated with real-time emergency and counseling services, especially in rural or underserved areas where in-person care is limited.
3. **Put Survivors at the Center of Care:** Too often, survivors are treated as passive recipients of care. Community-based, participatory interventions that actively engage survivors in the design and delivery of services foster trust and empowerment. Let survivors lead. Their lived experience is data—data that systems cannot afford to ignore.
4. **Train the Frontline, Transform the System:** A nurse in a



clinic, a physician in the ER—these are often the first points of contact. With targeted training in trauma-informed care, these professionals can become the difference between silence and support¹⁸. National healthcare curricula should embed IPV and mental health response as core competencies, not electives.

5. **Make Equity a Health Policy Mandate:** Access to psychotropic medications, therapy, and IPV resources remains uneven. Policies must ensure that no survivor is denied care because of income, geography, or stigma. Coverage for mental health must be universal, comprehensive, and survivor centered.
6. **Build Bridges Between Health and Hope:** The real measure of a health system isn't how it responds to emergencies—it's how it supports healing. Policies must prioritize long-term follow-up, integrate care across sectors, and support survivors not only in surviving—but in thriving.
7. **Fund What Works, Evaluate What Matters:** Without sustained investment in research, training, and evaluation, even the best intentions falter. Governments and institutions must commit to funding robust, longitudinal studies and enforce accountability through transparent outcome monitoring.

DISCUSSION

This study underscores the significant mental health burden experienced by survivors of IPV, with depression, PTSD, and substance use disorders emerging as the most common outcomes. The pooled mean difference (MD) of -1.22 (95% CI: -1.27, -1.18; $p < 0.001$) from the meta-analysis highlights the overall effectiveness of interventions in reducing depressive symptoms. However, the high heterogeneity among studies ($I^2 = 99.58\%$) reflects considerable variability based on intervention types, population characteristics, and baseline severity of depression. This variability emphasizes the need for targeted, context-specific approaches to address the multifaceted mental health challenges faced by IPV survivors. The subgroup analysis revealed that digital interventions, such as the *I-DECIDE* and *myPlan* apps, achieved a pooled MD of -1.29 (95% CI: -1.87 to -0.70), suggesting moderate improvements in depressive symptoms^{14,16}. These tools are practical and offer valuable support for mental health and safety planning, but their effectiveness is limited when used in isolation. Integrating them with traditional therapies, such as cognitive-behavioral therapy (CBT) and pharmacotherapy, could significantly enhance their long-term impact. Participatory and face-to-face counseling models demonstrated a smaller but statistically significant reduction in depressive symptoms (MD = -0.79, 95% CI: -1.42 to -0.16)¹⁷⁻²⁰. These interventions are particularly beneficial for populations with complex needs, such as IPV survivors with co-occurring harmful substance use. However, sustained improvements require comprehensive and long-term support systems tailored to address comorbid conditions like IPV and substance use disorders.

The meta-regression analysis further highlights the role of

intervention type in driving differences in outcomes, explaining 90.3% of the variance in effect sizes across studies ($R^2 = 0.903$). Digital interventions were significantly associated with larger reductions in depression scores (coefficient = -1.41, $p = 0.014$), while participatory interventions showed a trend toward greater reductions (coefficient = -2.05, $p = 0.170$), although this association was not statistically significant. The lack of significance may be attributed to small sample sizes, variability in intervention delivery, or insufficient follow-up durations¹⁴⁻¹⁶. These findings suggest that integrating digital tools with participatory or face-to-face counseling models within comprehensive care strategies could optimize outcomes, particularly for populations facing IPV and co-occurring conditions.

Clinically, the results demonstrate that combining digital and psychosocial interventions, including motivational counseling, decision-aid apps, and community-based participatory research, holds significant potential for reducing depressive symptoms among IPV survivors^{13,18,20-23}. However, the inconsistent long-term impact of standalone interventions highlights the need for integration with pharmacological treatments, such as SSRIs and CBT, to address the diverse mental health needs of survivors. Policymakers and healthcare practitioners should prioritize the development of integrated care models that include trauma-informed mental health services, routine IPV screening, and accessible telehealth support^{13,14,17,19,20,22,23}. Personalized treatment plans, developed by multidisciplinary teams of mental health professionals and IPV specialists, can help address both the immediate and long-term needs of survivors.

Future research should address key limitations identified in this review, including variability in outcome assessments, reliance on self-reported data, and narrow demographic representation. Studies should incorporate objective measures, broaden the diversity of study populations, and ensure standardized study designs to enhance the generalizability of findings¹². Additionally, further exploration of moderating factors, such as population characteristics, intervention delivery methods, and follow-up duration, is essential to identify optimal combinations of intervention components. Subgroup analyses and meta-regression models can help refine interventions by determining which populations benefit most and under what conditions.

Innovative Conceptual Framework Emerging from the Current Research: A Survivor-Centered Digital-Integrated Mental Health Care Model

Emerging from the findings of this systematic review is a transformative vision for innovation—a digital-integrated, trauma-informed care model tailored to the complex mental health needs of survivors of IPV. This conceptual framework reimagines intervention not as a singular act of therapy but as a continuum of care, beginning from the first point of contact and extending into long-term recovery. At its core lies a survivor-centered ecosystem that fuses evidence-based digital tools—such as mobile apps for safety planning and emotional regulation—with in-person psychosocial and



pharmacological support. The framework operates on four synergistic pillars: (1) early detection through digital screening and self-assessment interfaces, allowing survivors to identify symptoms of depression and PTSD in safe, anonymous spaces; (2) personalized intervention planning, driven by AI-guided algorithms that match survivors with therapeutic pathways based on their emotional, cultural, and situational profiles; (3) integrated clinical support, where digital platforms are linked to trauma-informed therapists, psychiatric services, and social workers for coordinated case management; and (4) ongoing monitoring and feedback loops, enabling continuous adaptation of care plans and reinforcing long-term engagement through user-driven feedback and mental health tracking. This model leverages the accessibility of technology to bridge gaps in fragmented health systems, particularly in low-resource settings, while preserving the empathy and nuance required for trauma recovery. By grounding digital innovation in the lived realities of IPV survivors, this framework offers a scalable, culturally sensitive, and evidence-based blueprint for transforming mental health service delivery—moving beyond symptom reduction toward restoration of agency, safety,

and resilience²⁰⁻²³. The innovative conceptual framework is demonstrated in figure 7.

CONCLUSION

This systematic review and meta-analysis illuminate the profound mental health consequences of IPV, with depression emerging as one of the most pervasive and debilitating outcomes. While both psychosocial and pharmacological interventions have shown promise in mitigating depressive symptoms, their impact remains inconsistent when applied in isolation. The findings underscore the necessity for integrated, trauma-informed care models that blend digital innovations, such as safety planning apps, with evidence-based clinical therapies. Digital interventions, particularly when thoughtfully combined with participatory and community-based approaches, offer scalable and accessible solutions, especially vital in resource-limited or high-stigma environments. Yet, the journey to recovery is rarely linear; it demands long-term engagement, personalized care, and systemic support. To truly

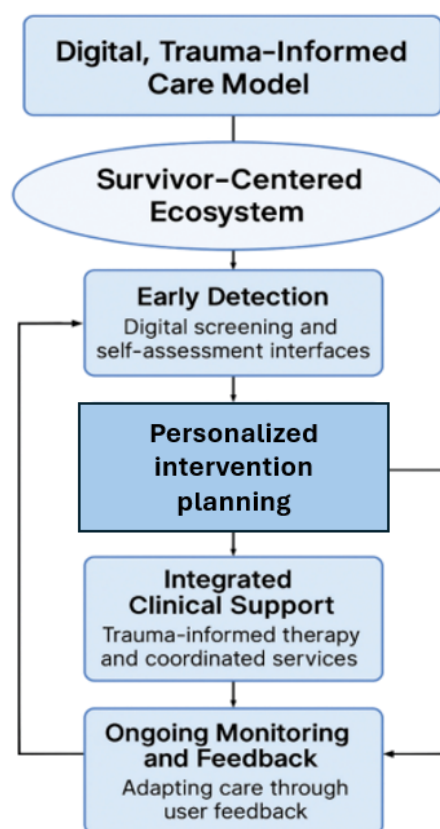


Figure 7. Conceptual Framework for a Digital-Integrated, Trauma-Informed Care Model for Survivors of IPV

Note:

This figure illustrates a conceptual framework derived from the current systematic review, outlining a survivor-centered, trauma-informed care model for addressing depression among survivors of IPV. The model integrates digital technology with coordinated clinical services to deliver continuous, personalized mental health care. It is structured around four core pillars: (1) early detection via digital screening and self-assessment tools; (2) personalized intervention planning through AI-guided therapeutic matching; (3) integrated clinical support, linking survivors to trauma-informed professionals; and (4) ongoing monitoring and feedback, enabling adaptive, user-informed care over time. This framework offers a scalable and culturally adaptable solution to bridging mental health service gaps, particularly in underserved and resource-limited settings.

transform outcomes for IPV survivors, healthcare systems must move beyond fragmented services and commit to a holistic model of healing—one that honors the complexity of trauma, addresses comorbidities, and restores not only mental health but also dignity, safety, and autonomy. As this body of evidence grows, too must the urgency of policy reform, practitioner training, and innovation—ensuring that no survivor is left untreated, unheard, or unsupported.

CONFLICT OF INTEREST

The authors declare no potential conflicts of interest with respect to the authorship and/or publication of this article.

AUTHORS' CONTRIBUTIONS

- Samaphorn Theinkaw, as the first author, played a

central role in the conception, design, and execution of the study. She led the development of the research framework, conducted systematic literature search, and performed data extraction and quality assessment. Dr. Theinkaw coordinated the meta analysis, contributed to the interpretation of results, and drafted the original manuscript. She also managed revisions in response to peer review and ensured adherence to ethical standards. Her contributions were integral to the study's methodological rigor and overall scholarly quality.

- Prayuth Poowaruttanawiwit, as the corresponding author, conceived and articulated the primary research question. Led the drafting of the research proposal, performed experimental work and data analysis, contributed extensively to manuscript preparation, and served as the primary liaison with the journal.

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