



The effect of psychotherapeutic interventions on posttraumatic stress disorder symptoms, depression and self-esteem in women exposed to violence: a systematic review and meta-analysis

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Abstract

This study aimed to reveal the level of effect of psychotherapeutic interventions on post-traumatic stress disorder symptoms, depression, and self-esteem in women who had been exposed to violence. For this systematic review and meta-analysis study, PubMed, Web of Science, EBSCOhost, Google Scholar, and YÖK Thesis Center databases were searched without any year limitation in August–December 2022, and 28 studies were included. The data were synthesized using meta-analysis and narrative methods. This systematic review and meta-analysis found that psychotherapeutic interventions for women exposed to violence were effective on post-traumatic stress disorder symptoms in individuals (SMD: -0.590, %95 CI: -0.893– 0.196; $Z = -2.937$, $p = 0.003$, $I^2 = \%93.59$). Psychotherapeutic interventions had a significant effect on women's depression levels in favor of the intervention group, and there was high heterogeneity between the studies (SMD: -0.475, %95 CI: -0.838– 0.113; $Z = -2.569$, $p = 0.010$, $I^2 = \%90.68$). Subgroup analyses showed that cognitive behavioral therapy was effective in the treatment of intimate partner violence. It was also found that psychotherapeutic interventions did not affect women's self-esteem levels. Psychotherapeutic therapies for women who have experienced violence have a favorable impact on them and improve their mental health.

Keywords Violence · Psychotherapeutic intervention · Meta-analysis · Depression · Self-esteem

Introduction

Violence against women is considered a highly prevalent public health problem because intentional or unintentional violence can lead to social and economic harm, mental health problems, physical injury, and even death. Therefore, the 9th of the 21 targets set by the World Health Organization (WHO) within the scope of the Health for All Policy in the European Region includes reducing injuries due to violence and accidents. Accordingly, it aims to reduce the

incidence, related mortality, and adverse health effects of domestic, gender-related, and organized violence by at least 25% (Buller et al., 2018; Hegarty et al., 2020).

With the continuation of violence, women who are subjected to violence do not know how to cope with the violence they experience and are unable to change and improve their lives. In addition, women are affected by the negative perspective of the environment they live in and have to struggle with the negative effects of violence throughout their lives (Turner et al., 2020). Violence against women negatively affects women physically, mentally, and socially. In particular, it can lead to physical injuries, deterioration of mental health, and certain chronic physical disorders (Alkan & Tekmanlı, 2021).

Additionally, due to a lack of information and lack of adequate support, they are unable to seek help, suffer from many physical and mental disorders caused by violence, start substance abuse, or attempt suicide out of a sense of failure, hopelessness, and guilt. Therefore, women who have been subjected to violence need to be supported to

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receive social support and legal assistance to effectively cope with the devastating effects of violence (Turner et al., 2020; Sharma & Borah, 2020).

It is emphasized that the interventions to be implemented in preventing violence against women should be aimed at strengthening women because it is used as a main framework in specifying the interventions to be implemented and consists of interventions to enhance women's independence and control. With these planned interventions, it is hoped to help women make better decisions and solve problems in circumstances that pertain to their own lives and futures, encourage emotional expression, and bring about behavioral changes to promote their safety (Divakar et al., 2019; Sharifi et al., 2022). Psychotherapeutic interventions to empower women include the empowerment approach, feminist therapy, and solution-focused short-term therapies. The main goal of psychosocial interventions that empower women is to enable women who have been subjected to violence to have control over their own lives and to improve women's ability to make decisions about their own lives (Büyükbodur et al., 2022).

Various studies have shown that psychotherapeutic interventions for women exposed to violence contribute to their empowerment and positive self-improvement. Therefore, it is believed that women who have experienced violence need psychotherapy treatments to struggle with violence, safeguard their bodily and mental health, reshape their lives as needed, and cultivate the necessary power more successfully (Sapkota et al., 2022; Creech et al., 2022; Brown et al., 2022).

This study was conducted to reveal the effectiveness of psychotherapeutic interventions for battered women and to identify gaps in this field. For this purpose, psychotherapeutic interventions for battered women were systematically reviewed. This study provides an overview of the effectiveness of psychotherapeutic interventions for battered women. Furthermore, the results will contribute to the literature for future research. It is thought that the results of the study will make significant contributions to the literature in terms of women's mental health. This study aimed to evaluate the effects of psychotherapeutic interventions on women exposed to violence by using a systematic review and meta-analysis method.

Materials and methods

This systematic review and meta-analysis study was prepared according to the PRISMA checklist (Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA) (Moher et al., 2009). The first and second authors independently conducted the literature

search, the article selection, and the data extraction in this systematic review and meta-analysis to decrease the risk of bias. Two researchers then double-checked these procedures. The researchers evaluated the quality of the studies that were a part of the systematic review and meta-analysis.

Inclusion and exclusion criteria

In this study, studies were screened according to PICOS;

- Study Group (P: Patient): Women exposed to violence.
- Intervention (I: Intervention): Psychotherapeutic interventions.
- Comparison (C: Comparison): No psychotherapeutic interventions (no treatment).
- Outcomes (O: Outcomes): Posttraumatic stress disorder symptoms, depression level, self-esteem)
- Study design (S: Study design): Experimental, quasi-experimental studies published in Turkish and English.

Studies in the form of letters to the editor, case reports, and systematic and traditional reviews were excluded from the scope of this study.

Search strategy

The search was conducted through PubMed, EBSCO host Web of Science, Yök Thesis, and Google Scholar using the keywords “violence and women,” “violence and psychotherapeutic intervention,” “women and psychosocial intervention,” “women and psychosocial intervention,” and “violence and women and psychotherapeutic intervention” by MeSH between August and December 2022. No year limitations were set, and all years were scanned because there is a paucity of literature on psychotherapy intervention for women who had experienced violence. All studies conducted until 2022 are included in the analysis.

Selection of studies

As a result of the search, 20,781 records were initially reached. After the duplicate studies were removed, 7349 records were examined according to title and abstract, and 123 studies were selected to be examined in full text. Afterward, 123 articles whose full texts were accessed were reviewed according to the inclusion and exclusion criteria, and 28 studies reporting results on the effect of psychotherapeutic interventions for women victims of violence were included in the analysis.

Potential articles were first screened by title and abstract. EndNote X8® (2019 Clarivate) was used to remove duplicates and organize the reference list. Two authors read

Those of potential relevance independently by two authors to determine whether they met the inclusion criteria. The study authors reviewed discrepancies. Explanations about the selection process of the articles are given in Fig. 1.

Data extraction

The data extraction tool developed by the researchers was used to obtain the research data. With the data extraction tool, data on the author and publication year, study design, year, country and field of study, type of violence, type of psychotherapeutic intervention, sample size, and main findings of the studies included in the systematic review and meta-analysis were collected (Table 1).

Research ethics

This study is a systematic review and meta-analysis based on studies published in the literature.

Assessment of methodological quality of studies

The quality assessment of the studies included in this systematic review and meta-analysis was conducted with quality assessment tools prepared by The Joanna Briggs Institute according to the research design (The Joanna Briggs Institute Critical Appraisal Tools For use in IBI Systematic Reviews, 2021). The evaluation tools used in this study were selected according to the designs of the studies included in the systematic review and meta-analysis. Our study used evaluation tools with 13 questions for randomized controlled trials (The Joanna Briggs Institute Critical Appraisal Tools for Use in IBI Systematic Reviews, 2021) and nine for quasi-experimental studies (Tufanaru et al., 2017). The options for the questions in these tools are “Yes, No, Uncertain, Inapplicable.” Two authors assessed Methodological quality independently, and a consensus was reached through discussion.

In this study, the evaluation results for each study are shown in Table 1 as “*Quality score.*”

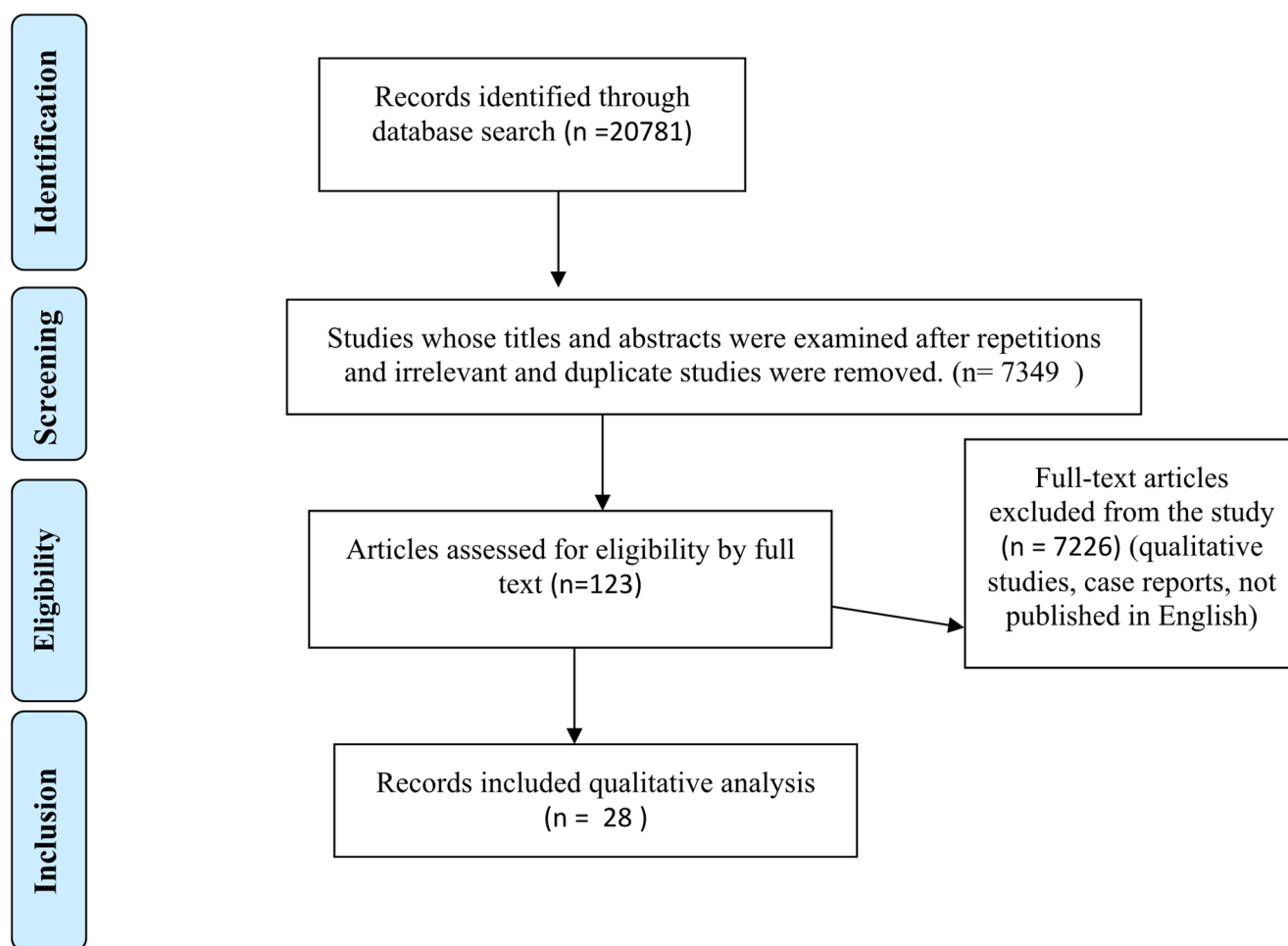


Fig. 1 Selection of studies according to the PRISMA flow diagram

Table 1 Characteristics and results of the included studies

Author/ Year	Study Design	Country/continent	Sample size	Scales	Psychotherapeutic intervention applied	Main results	Type of violence	Psychotherapy intervention	Quality score
Dawson et al., 2016, Australia	Randomized Controlled	Kenya	Experimental group:35 Control group:35	The PTSD Checklist for DSM-V Civilian Version (PCL-5)	Problem Management Intervention	Individuals in the experimental group received a problem-management intervention. Symptoms of post-traumatic stress disorder decreased. Control group: No treatment	Gender-based violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Crespo et al., 2021	Randomized Controlled	Spain	Experimental group:28 Control group:25	The Beck Depression Inventory The Severity of Posttraumatic Stress Disorder Symptoms Scale	Cognitive behavioral trauma-focused intervention	Cognitive behavioral trauma-focused intervention was applied to the individuals in the experimental group. There was an insignificant decrease in the level of depression and post-traumatic stress disorder symptoms. Control group: No treatment	Intimate partner violence	No	Yes: 7/13 No:3/13 Uncertain:2/13 Inapplicable:1/13
Hegarty et al., 2020	Randomized Controlled	Australia	Experimental group:137 Control group:135	SF-12 Quality of life short form	Psychosocial readiness intervention (motivational interviewing, listening, problem-solving)	Individuals in the experimental group received psychosocial readiness intervention. There was a slight increase in quality of life. Control group: No treatment	Intimate partner violence	No	Yes: 8/13 No:3/13 Uncertain:1/13 Inapplicable:1/13
Sapkota et al., 2020	Randomized Controlled	South Africa	Experimental group:70 Control group:70	QOL= quality of life	Problem Management Intervention	Individuals in the experimental group received a problem-management intervention. There was a significant increase in quality of life. Control group: No treatment	Intimate partner violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Bryant et al., 2017	Randomized Controlled	Kenya	Experimental group:209 Control group:212	The GHQ-12, 12-item General Health Questionnaire The PCL, The Post-traumatic Stress Disorder Checklist	Problem Management Intervention	Individuals in the experimental group received a problem-management intervention. Improvement in quality of life and reduction in post-traumatic stress disorder symptoms were observed. Control group: No treatment	Gender-based violence	No	Yes: 8/13 No:3/13 Uncertain:1/13 Inapplicable:1/13

Table 1 (continued)

Author/ Year	Study Design	Country/continent	Sample size	Scales	Psychotherapeutic intervention applied	Main results	Type of violence	Psychotherapy intervention	Quality score
Mutisya et al., 2018	Randomized Controlled	Kenya	Experimental group:142 Control group:141	The Edinburgh Postnatal Depression Scale (EPDS)	Psychosocial readiness intervention (motivational interviewing, listening, problem-solving)	Individuals in the experimental group received psychosocial readiness intervention. There was a significant decrease in the level of depression. Control group: No treatment	Intimate partner violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Ferrari et al., 2018	Randomized Controlled	USA	Experimental group:131 Control group:132	The Patient Health Questionnaire-9 (PHQ-9)	Psychological advocacy intervention for recovery	Individuals in the experimental group received a recovery-oriented psychological advocacy intervention. There was a significant decrease in the level of depression. Control group: No treatment	Domestic violence	No	Yes: 8/13 No:3/13 Uncertain:1/13 Inapplicable:1/13
Creech et al., 2021	Randomized Controlled	USA	Experimental group:77 Control group:76	The PTSD Checklist for DSM-V - Civilian Version (PCL-5)	Psychosocial intervention (psychoeducation and motivational interviewing)	Individuals in the experimental group received psychosocial intervention. Symptoms of posttraumatic stress disorder decreased. Control group: No treatment	Sexual violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Tirado-Muñoz et al., 2015	Randomized Controlled	USA	Experimental group:7 Control group:7	The Beck Depression Inventory	Cognitive behavioral therapy	Cognitive behavioral therapy was applied to the individuals in the experimental group. There was a significant decrease in the level of depression. Control group: No treatment	Intimate partner violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Karatzias et al., 2016	Quasi-experimental	Scotland	82 individuals	The PTSD Checklist (PCL-C)	Group psychotherapy	Group psychotherapy was applied to the women in the experimental group. There was a decrease in the symptoms of posttraumatic stress disorder. Control group: No treatment	Psychological violence	Yes	Yes:6/9 No:2/9 Uncertain:1/9
Stein et al., 2021	Quasi-experimental	USA	72 individuals	The Center for Epidemiologic Studies Depression Scale (CES-D)	Empowering Mothers program	The empowerment program was applied to women in the experimental group. A reduction in posttraumatic stress disorder symptoms was observed. Mothers also developed positive parenting emotions. Control group: No treatment	Intimate partner violence	No	Yes:5/9 No:3/9 Uncertain:1/9

Table 1 (continued)

Author/ Year	Study Design	Country/continent	Sample size	Scales	Psychotherapeutic intervention applied	Main results	Type of violence	Psychotherapy intervention	Quality score
Tivari et al., 2010	Randomized Controlled	China	Experimental group:100 Control group:100	The BDI-II, The Chinese version of the Beck Depression Inventory	Advocacy Intervention	Individuals in the experimental group received an advocacy intervention. Symptoms of posttraumatic stress disorder decreased. Most of the mothers were encouraged to utilize social services. They took a more defensive role toward their husbands in case of violence. Control group: No treatment	Intimate partner violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Miller et al., 2015	Randomized Controlled	USA	Experimental group:94 Control group:85	The Post-traumatic Stress Disorder Symptom Scale-Self Report (PSS PTSD)	Psychoeducation with video method	Individuals in the experimental group received psychoeducation via video conferencing. Mental health was positively affected, and symptoms of posttraumatic stress disorder decreased. Control group: No treatment	Sexual violence	No	Yes:13/13
Bani-Fatemi et al., 2020	Randomized Controlled	Canada	Experimental group:136 Control group:135	The Hospital Anxiety of Depression Scale	Psychoeducation	Individuals in the experimental group received psychoeducation. Depression and anxiety levels decreased. Gender-based violence Control group: No treatment	Gender-based violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Mouilso et al., 2011	Quasi-experimental	USA	Experimental group:37 Control group:35	The PTSD (Posttraumatic Stress Diagnostic Scale)	Program to reduce the risk of sexual assault	A program to reduce the risk of sexual assault was applied to the individuals in the experimental group. Symptoms of posttraumatic stress disorder decreased. Control group: No treatment	Sexual assault	No	Yes:5/9 No:3/9 Uncertain:1/9
Hansen et al., 2014	Quasi-experimental	Denmark	212 individuals	Symptoms of PTSD DSM 4	Retrofit program	The empowerment program was applied to women in the experimental group. Symptoms of posttraumatic stress disorder decreased. Control group: No treatment	Intimate partner violence	No	Yes:6/9 No:2/9 Uncertain:1/9

Table 1 (continued)

Author/ Year	Study Design	Country/continent	Sample size	Scales	Psychotherapeutic intervention applied	Main results	Type of violence	Psychotherapy intervention	Quality score
Santos et al., 2017	Quasi-experimental	Portugal	23 individuals	Beck Depressive Inventory-II	Group intervention	A group therapy program was applied to the women in the experimental group. A significant improvement in general clinical symptoms of depression was also observed. Control group: No treatment	Intimate partner violence	No	Yes:6/9 No:2/9 Uncertain:1/9
Lako et al., 2018	Randomized Controlled	Netherlands	Experimental group:70 Control group:66	The CES-D Center for Epidemiological Studies Depression Scale, The RSES (Rosenberg Self-Esteem Scale)	Critical time intervention	Women in the experimental group underwent a critical time management program. Posttraumatic stress disorder symptoms decreased. Self-esteem increased. Control group: No treatment	Sexual violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Miguel & Pino-Juste, 2021	Quasi-experimental	Spain	25 individuals	The Severity of PTSD Symptoms Scale,	Psychodrama activity	The Psychodrama program was applied to the women in the experimental group. Symptoms of posttraumatic stress disorder decreased. Increased communication skills were observed. Control group: No treatment	Domestic violence	No	Yes:5/9 No:3/9 Uncertain:1/9
Daneshvar et al., 2022	Randomized Controlled	Iran	Experimental group:21 Control group:21	Mississippi PTSD scale	Compassion-Focused Therapy	Compassion-focused therapy program was applied to the women in the experimental group. Positive changes were found, especially in cognitive distortions and suicidal ideation. Control group: No treatment	Intimate partner violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Allard et al., 2018	Quasi-experimental	USA	49 individuals	The CAPS (Clinician-Administered PTSD Scale)	Cognitive trauma therapy	A cognitive trauma program was applied to the women in the experimental group. Posttraumatic stress disorder symptoms decreased. Control group: No treatment	Intimate partner violence	No	Yes:5/9 No:3/9 Uncertain:1/9

Table 1 (continued)

Author/ Year	Study Design	Country/continent	Sample size	Scales	Psychotherapeutic intervention applied	Main results	Type of violence	Psychotherapy intervention	Quality score
Kokka et al., 2019	Randomized Controlled	Greece	Experimental group:30 Control group:30	The BDI (Beck Depression Index)	Stress management and health promotion program	Stress management and health promotion program was applied to the women in the experimental group. There was a decrease in depression levels. Control group: No treatment	Intimate partner violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Özümzerzifon et al., 2022	Randomized Controlled	USA	Experimental group:25 Control group:20	The Post-traumatic Stress Disorder Checklist-DSM IV (PCL-5)	Creative dance/art program	A creative dance/art program was applied to the women in the experimental group. Posttraumatic stress disorder symptoms and psychological distress decreased. Control group: No treatment	Intimate partner violence	No	Yes: 9/13 No:2/13 Uncertain:1/13 Inapplicable:1/13
Haroon et al., 2021	Randomized Controlled	Pakistan	Experimental group:8 Control group:8	The PROMIS Anxiety and Depression Short Forms Scale	Forgiveness Intervention Program	The forgiveness intervention program was applied to the women in the experimental group. Positive improvements were found in hope, anger, anxiety, and depression. Control group: No treatment	Physical violence	No	Yes: 8/13 No:3/13 Uncertain:1/13 Inapplicable:1/13
Andersson et al., 2021	Randomized Controlled	Sweden	Experimental group:32 Control group:32	The Beck Depression Inventory-II, BDI	Cognitive Behavioral Therapy	Cognitive behavioral therapy was applied to the women in the experimental group. Clinical symptoms of depression decreased. Control group: No treatment	Intimate partner violence	No	Yes: 9/13 No:3/13 Uncertain:1/13 Inapplicable:1/13
Fiorillo et al., 2017	Quasi-experimental	USA	25 individuals	The PTSD Checklist – DSM-5 (PCL-5); The Depression, Anxiety, and Stress Scale (DASS)	Acceptance and Commitment therapy	Women in the experimental group received acceptance and commitment therapy. A significant improvement in general clinical symptoms of depression was observed. A decrease was observed in posttraumatic stress disorder symptoms. Control group: No treatment	Physical Violence Sexual Violence	No	Yes:5/9 No:3/9 Uncertain:1/9
Stein et al., 2021	Randomized Controlled	USA	Experimental group:59 Control group:61	The Post-traumatic Diagnostic Scale (PTSDS)	Retrofit program	The empowerment program was applied to women in the experimental group. Decreased symptoms of posttraumatic stress disorder were observed. Control group: No treatment	Physical Violence Sexual Violence Psychological Violence	No	Yes: 9/13 No:3/13 Uncertain:1/13 Inapplicable:1/13

Table 1 (continued)

Author/ Year	Study Design	Country/continent	Sample size	Scales	Psychotherapeutic intervention applied	Main results	Type of violence	Psychotherapy intervention	Quality score
Yılmaz & Küçük, 2015	Randomized Controlled	Turkey	Experimental group:22 Control group:22	The Copersmith Self-Esteem Scale	Retrofit program	The empowerment program was applied to women in the experimental group. Women's self-esteem increased significantly. Control group: No treatment	Physical Violence Sexual Violence Psychological Violence	No	Yes: 9/13 No:3/13 Uncertain:1/13 Inapplicable:1/13

Data synthesis

For the statistical calculations of this study, CMA Ver. 2. was used. The heterogeneity between the studies was evaluated with the Chi-squared statistic and Higgins I^2 tests, and an I^2 of more than 50% was considered to indicate significant heterogeneity. Studies with $I^2 \leq 50\%$ and $p\text{-value} > 0.1$ were evaluated using the fixed effects model; however, studies with $I^2 > 50\%$ and $p\text{-value} > 0.1$ were assessed using the random effects model (Higgins et al., 2003).

In addition, the Tau-square statistic was used to assess variance and heterogeneity between studies. The standardized mean difference (SMD) with a 95% confidence interval (CI) was used to determine the effect size associated with the same outcome with different measurement tools. Forest plots were prepared to visualize the SMD with 95% CI. These D values were then averaged to calculate the overall effect size. The D value was converted to a Z value to assess statistical significance. Funnel plots were used to examine and visualize publication bias. An asymmetry in the funnel plot detected publication bias. Egger's test was also performed to assess publication bias. All values were two-sided and were considered significant at a threshold of 0.05. All values were two-sided and were considered significant at a threshold of 0.05 (Borenstein et al., 2021).

Results

In the meta-analysis, psychosocial intervention for women was applied in five studies, empowerment program was used in four studies, and problem management intervention was used in three studies. In addition, it was determined that psychotherapeutic interventions such as motivational interviewing, acceptance and commitment therapy, and art therapy were applied to women in other studies.

In this systematic review and meta-analysis, 20,781 records were initially reached. Then, the duplicate records were removed, and 123 articles were selected to be analyzed in full text based on the title and abstract. After examining the full texts of these studies according to the inclusion criteria, 28 studies were included in the analysis (Fig. 1).

Twenty studies included in the study were randomized controlled experimental, and eight were quasi-experimental with pre-post-test and control groups. The total sample size of the studies was 3553 (intervention group: 1476; control group: 1484; single group: 593) (Table 1).

Our study results are valuable in that they reveal data reflecting the significance of psychotherapeutic interventions for women subjected to violence. All the studies included in this systematic review and meta-analysis meet more than 50% of the items of the quality of evidence

assessment tool (Table 1), indicating that the information presented in our systematic review and meta-analysis is based on studies with an acceptable quality of evidence.

Meta-analysis results on the effect of psychotherapeutic interventions on post-traumatic stress disorder symptoms in women exposed to violence

In this study, the presence of publication bias was determined using two methods: (a) funnel scatter plot and (b) Egger's Regression Test (Egger et al., 1997).

In the funnel plot, one of the important methods to show publication bias, the studies in this data set showed a symmetrical distribution at the top of the funnel, indicating that there is no publication bias (Fig. 2).

Egger's method determined the publication bias between the studies in this dataset. According to Egger's method, the cut-off point (B0) -2,20664%95 confidence interval (-8,29643 3,88315), $t=0,79753$, $df=11$, and the two-way p -value is 0,44,202. This result shows that publication bias is not statistically significant ($p=0.22101$).

Figure 3 shows the effect sizes, standard error, variance, lower and upper limits, and forest plots of 13 studies on the effect of psychotherapeutic interventions on posttraumatic stress disorder symptoms. The scales used to assess the symptoms of posttraumatic stress disorder in the studies are

as follows: the PTSD Checklist for DSM-V Civilian Version (PCL-5) (n:7), the Severity of Posttraumatic Stress Disorder Symptoms Scale (n:2), the Posttraumatic Stress Disorder Symptom Scale-Self Report the PSS (n:1), the PTSD, the Symptoms of PTSD DSM IV (n:1), the Mississippi PTSD scale (n:1), the CAPS, the Clinician-Administered PTSD Scale (n:1). In the meta-analysis based on the results of these studies, it was found that psychotherapeutic interventions for women exposed to violence were effective on the symptoms of posttraumatic stress disorder (SMD: -0,590, %95 CI: -0,893- 0.196; $Z=-2,937$, $p=0.003$; $I^2=93,590$). (Fig. 3).

Meta-analysis results on the effect of psychotherapeutic interventions on the level of depression in women exposed to violence

The presence of publication bias was determined using two methods in the study: (a) funnel scatter plot and (b) Egger's Regression Test (Egger et al., 1997).

The funnel plot shows that there is no spring (Figure 4).

Egger's method determined publication bias in the studies included in this dataset. According to Egger's method, the cut-off point (B0) -1,10064%95 confidence interval (-5,88487 3,68359), $t=0,50653$, $df=11$, and the two-way p -value is 0,44,202. This result shows that publication bias is not statistically significant ($p=0.62260$).

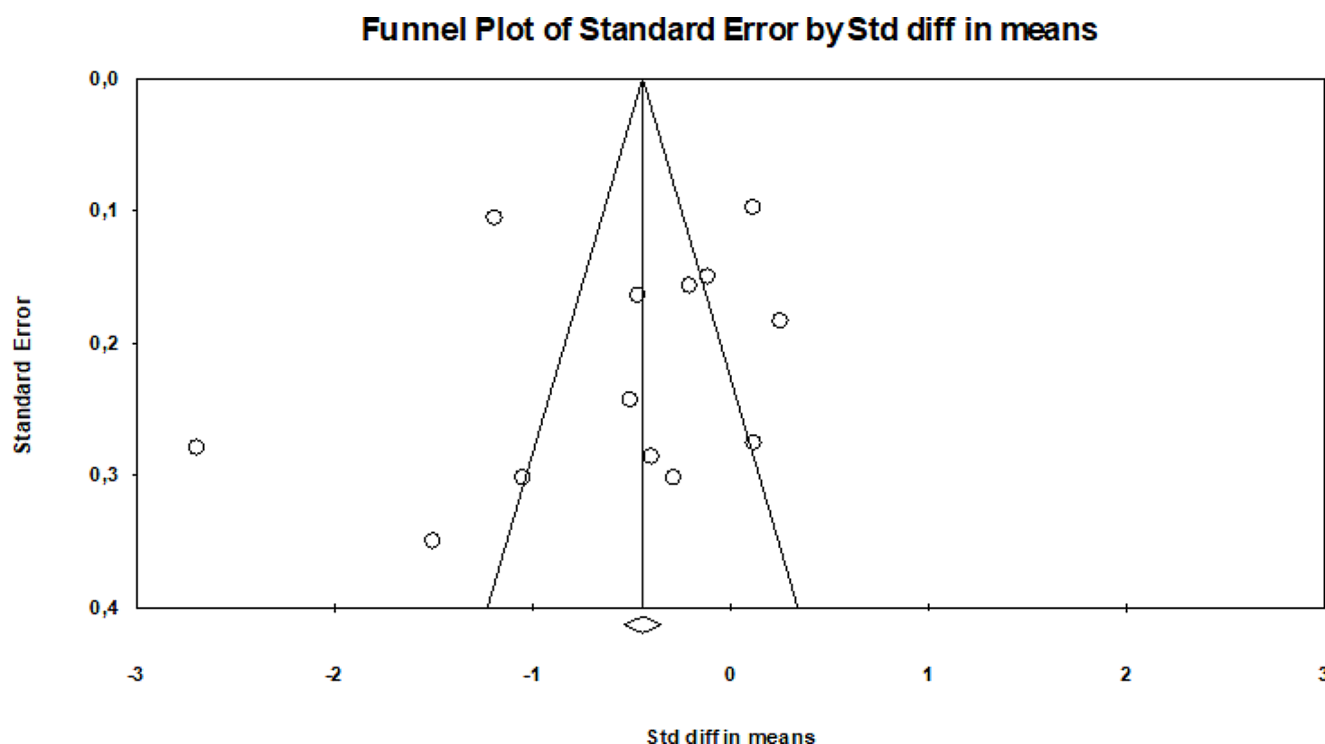
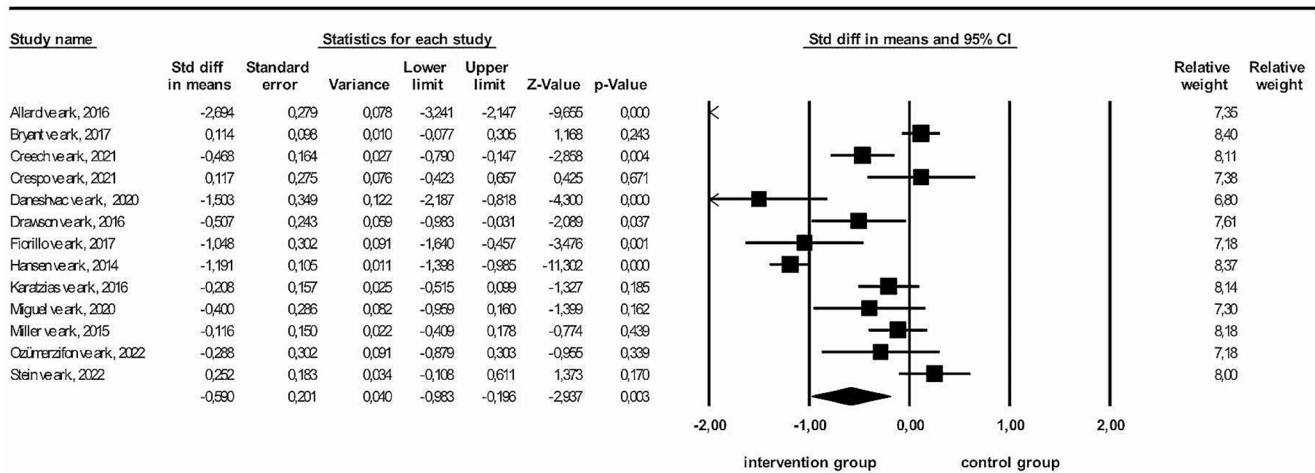


Fig. 2 Funnel plot of studies reporting the effect of psychotherapeutic interventions with women exposed to violence on posttraumatic stress disorder symptoms



Meta Analysis

Fig. 3 Forest plot for posttraumatic stress disorder symptoms in intervention and control groups

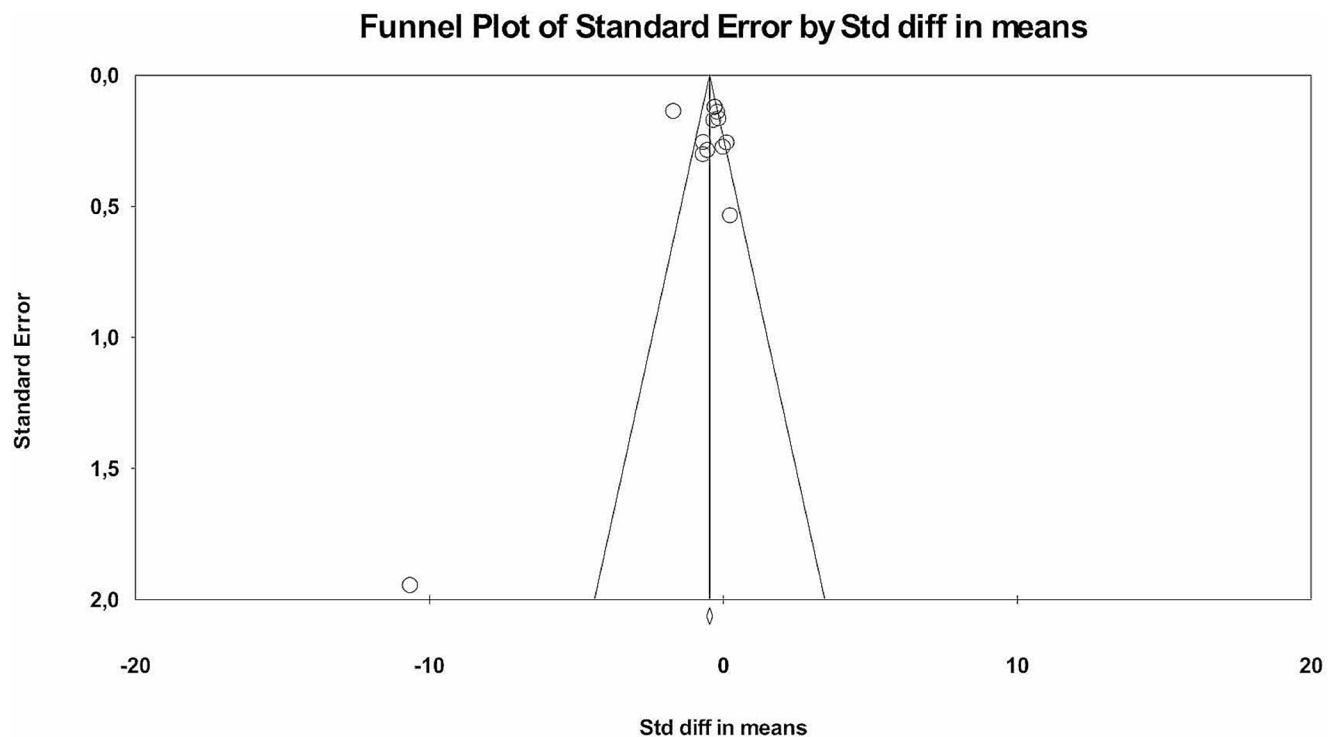


Fig. 4 Funnel plot of the studies reporting results on the effect of psychotherapeutic interventions on the depression level of women exposed to violence

Figure 4 shows the effect sizes, standard error, variance, lower and upper limits, and forest plots of 13 studies on the effect of psychotherapeutic interventions on depression in women exposed to violence. The scales used to assess the level of depression are as follows: the Depression, Anxiety and Stress Scale (DASS- D) (n:1), the Beck Depression Inventory-II (BDI) (n:6), PROMIS Anxiety, and the

Depression Short Forms Scale (PROMIS- D) (n:1), the CES-D Center for Epidemiological Studies Depression scale (n:2), the Hospital Anxiety and Depression Scale (HADS –D Scale) (n:1), the BDI-II, the Chinese version of the Beck Depression Inventory (n:1), the Patient Health Questionnaire-9 (PHQ-9) (n:1). In a meta-analysis based on the results of these studies, it was found that psychotherapeutic

interventions for women exposed to violence were effective on depression in individuals (SMD: -0,475, %95 CI: -0,838-0.113; $Z = -2,569$, $p = 0.010$; $I^2 = \%90,683$).

Results of meta-analysis on the effect of psychotherapeutic interventions on the self-esteem of women exposed to violence

In this study, the publication bias was determined using two methods: (a) funnel scatter plot and (b) Egger's Regression Test (Egger et al., 1997).

The funnel plot shows that there is no spring. (Fig. 5). Egger's method determined publication bias among the studies in this dataset. According to Egger's method, the cut-off point (B0) 1,11620%95 confidence interval (-12,29608 14,52838), $t = 0,26485$, $df = 3$, the and the two-way p -value is 0, 80,828, showing that publication bias is not statistically significant ($p = 0.40414$).

The scales used to evaluate self-esteem in the studies were the Rosenberg Self-Esteem Scale (RSES) (n:1) and the Coppersmith Self-Esteem scale (n:4). Based on the data collected, it was determined that psychotherapeutic interventions for women exposed to violence did not cause any change in the self-esteem of individuals (SMD: 0,231, %95 CI: -0,280- 0.742; $Z = 0,887$, $p = 0.375$; $I^2 = \%84,228$).

The average effect size values of the type of violence for psychotherapeutic interventions were found to be -0,593 (CI -1,020–0,165, $p < 0.05$) in the study. The variance between studies for the moderator of violence type was statistically significant ($p = 0.007$). In the study, it was determined that the kind of violence played a role in the effect of psychotherapeutic interventions on individuals (Table 2).

The average effect size values of the type of psychotherapeutic intervention applied in the study were found to be -0,596 (CI -1,061–0,130, $p < 0.05$). The variance between studies for the moderator of the type of psychotherapeutic intervention applied in the study was statistically significant ($p = 0.012$). The types of psychotherapeutic interventions applied in the study changed the effect size (Table 2).

The average effect size values for the duration of the psychotherapeutic intervention were found to be -0,577 (CI -0,851–0,272, $p < 0.05$). The variance between studies for the moderator of the type of psychotherapeutic intervention applied in the study was statistically significant ($p = 0.000$). The types of psychotherapeutic interventions applied in the study changed the effect size (Table 2).

Discussion

To prevent the recurrence of violence and reduce its unfavorable health and psychosocial consequences, effective and safe psychotherapeutic interventions for women are needed. This systematic review and meta-analysis provide a comprehensive overview of the available evidence on various psychotherapeutic interventions for victims of violence.

This study, which investigated the effectiveness of psychotherapeutic interventions applied to women who were exposed to violence, showed that the symptoms of post-traumatic stress disorder were absent or less in those who received psychotherapeutic interventions. Psychotherapeutic interventions for women alleviate depression, and clinical symptoms of depression become less common. Consistent with our study, in the systematic review

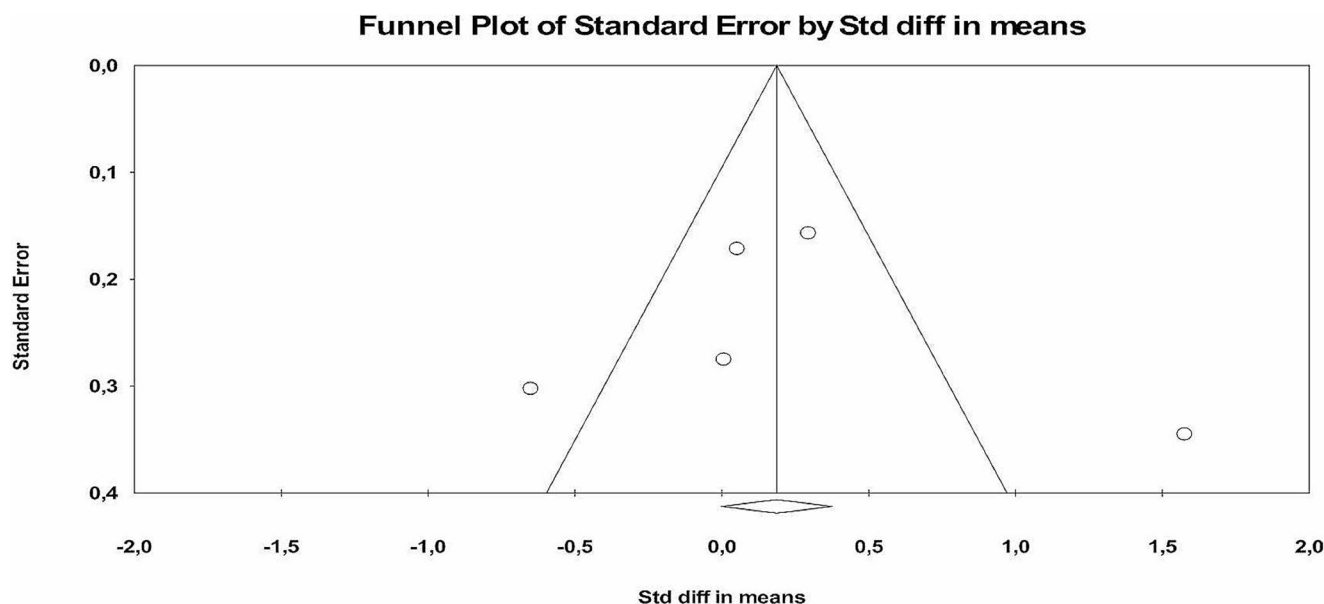


Fig. 5 Funnel plot of the studies reporting results on the effect of psychotherapeutic interventions on self-esteem of women subjected to violence

Table 2 Moderator Results for the Effect of Psychotherapeutic Interventions Applied to Women Exposed to Violence

Moderator	Number of studies	Effect size	Standard error	Lower limit	Upper limit	<i>p</i>
Type of violence						
Partner violence	7	-0,805	0,301	-1,395	-0,216	0,007
Sexual violence	3	-0,526	0,451	-1,395	0,216	0,243
Gender-based violence	2	-0,814	0,547	-1,296	0,888	0,757
Psychological violence	1	-0,258	0,769	-1,712	1,297	0,070
TOTAL	13	-0,593	0,218	-1,020	-0,165	0,007
Psychotherapeutic intervention						
Cognitive Trauma-Focused Therapy	1	-0,294	0,870	-0,499	-0,989	0,002
Cognitive behavioral therapy	1	0,117	0,869	-1,586	1,820	0,893
Group Therapy	1	-0,208	0,839	-0,852	-0,248	0,804
Acceptance and Commitment Therapy	1	-1,048	0,877	-0,258	0,671	0,212
Empowerment Therapy	2	-0,481	0,592	-0,642	0,679	0,416
Compassion-Focused Therapy	1	-1,503	0,895	-3,257	0,252	0,093
Problem Management Intervention	2	-0,186	0,597	-1,356	0,984	0,755
Psychodrama	1	0,400	0,872	-2,119	1,310	0,646
Psychosocial readiness intervention	1	-0,468	0,840	-2,115	1,178	0,577
Creative Dance and Art Therapy	1	-0,288	0,837	-2,008	1,423	0,733
Video therapy	1	-1,116	0,877	-1,757	1,526	0,890
TOTAL	13	-0,596	0,237	-1,061	-0,130	0,012
Duration of intervention						
Two weeks	3	-0,888	0,320	-1,514	-0,261	0,006
Three weeks	1	-0,208	0,535	-1,257	0,834	0,698
Five weeks	1	0,252	0,544	-0,814	1,132	0,644
Six weeks	3	-0,611	0,838	-0,273	0,005	0,070
Eight weeks	3	-0,085	0,315	-0,701	0,492	0,788
12 weeks	1	-0,294	0,583	-3,837	1,551	0,000
52 weeks	1	-0,400	0,859	-1,549	0,750	0,496
TOTAL	13	-0,577	0,586	-0,851	-0,272	0,000

and meta-analysis conducted by Rivas et al. (2020), it was found that psychosocial interventions for women exposed to intimate partner violence were effective. Advocacy and empowerment programs for women exposed to violence enhanced their quality of life and reduced depression (Rivas et al., 2020). In another study, Hameed et al. (2020) noted that psychological interventions applied to individuals exposed to spousal violence were effective on anxiety and depression and reduced the level of anxiety and depression (Hameed et al., 2020), which emphasizes the importance of psychotherapeutic interventions.

Subgroup analyses revealed that the type of psychotherapeutic intervention applied significantly affected the effectiveness of psychotherapeutic interventions applied to individuals. Especially cognitive trauma-focused intervention is statistically significant. Likewise, Hameed et al. (2020) determined that cognitive-behavioral interventions applied to individuals exposed to spousal violence were effective on anxiety and depression and reduced the level of anxiety and depression in individuals (Hameed et al., 2020). Turner and colleagues (2020) found that cognitive-behavioral interventions applied to individuals exposed to spousal violence reduced the possible effects of violence (Turner et

al. 2020), indicating that cognitive-behavioral intervention methods are an effective psychotherapeutic intervention method.

The type of violence was found to have a significant effect on the effectiveness of psychotherapeutic interventions applied to individuals. Psychotherapeutic interventions regarding intimate partner violence were found to be effective. Paphitis et al. (2022) also argued that psychosocial approaches applied to women exposed to intimate partner violence were effective. Psychosocial treatments have been shown to promote women's sense of self-efficacy, enhance their capacity for problem-solving, and motivate them to use resources and services (Paphitis et al., 2022). No matter the form, violence has a detrimental impact on people and is a sign of the necessity of psychotherapy treatments.

It was shown that the length of the intervention had a substantial impact on how well the participants received their psychotherapy sessions. Therapies lasting two weeks and 12 weeks were shown to be successful. According to the meta-analysis of Keynejad et al. (2020), therapy sessions lasting 1–6 weeks were more successful (Keynejad et al., 2020). Our study found that interventions in sessions of 2, 12, and 52 weeks were more effective. In line with these

results, the duration of the sessions in the interventions may play a role in the effectiveness of the study.

In addition, it was found that psychotherapeutic interventions for women who were subjected to violence did not affect women's self-esteem levels. Costa and Gomes (2018) pointed out that psychosocial interventions for women exposed to intimate partner violence reduced women's anxiety and depression levels and increased self-esteem (Costa and Gomes, 2018), which may be associated with the fact that self-esteem research on women who had been subjected to violence is scarce. In this context, studies on the effect of psychotherapeutic interventions on women's self-esteem are recommended.

Conclusion and recommendations

This meta-analysis demonstrated that psychotherapy therapies given to women who had experienced violence were successful in lowering the symptoms of post-traumatic stress disorder. Additionally, applying psychotherapy therapies to women who had experienced violence reduced their levels of depression but had no effect on their levels of self-esteem. Cognitive behavioral therapy was found to be particularly effective in such individuals. More research is needed on the effectiveness of psychotherapeutic interventions for women. Policies should be prepared to reduce violence against women, and the effects of violence should be minimized through effective psychotherapeutic interventions.

Limitations

The main identified limitation of this study is that some of the studies included in this systematic review and meta-analysis were conducted with small sample sizes and unblinded and pre-post-test designs, which may reduce the strength of the evidence. In addition, the short therapy duration in most studies can be considered a study limitation.

Authors' contribution The authors share the responsibility for the manuscript.

Conception and design: EGE, SU; data collection: EGE, SU; analysis and interpretation: SU, EGE, and manuscript writing: SU, EGE.

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Data availability All data generated or analyzed during this study are included in this published article and its supplementary information files.

Declarations

Ethical statement This study is a systematic review and meta-analysis and is based on studies published in the literature.

Consent Since the study is a systematic review and meta-analysis, it is unnecessary and cannot be applied.

Conflict of interest The authors declare no conflict of interest. The study did not receive any financial support or relationships that may pose potential conflict of interest.

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