

# INPLASY

## Meta-analysis of the Effect of Sexual Health Intervention Nursing on Improving Post-treatment Sexual Dysfunction and Partner Relationship Satisfaction in Breast Cancer Patients

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### ADMINISTRATIVE INFORMATION

**Support -** No.

**Review Stage at time of this submission -** Completed but not published.

**Conflicts of interest -** None declared.

**INPLASY registration number:** INPLASY202630032

**Amendments -** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 9 March 2026 and was last updated on 9 March 2026.

### INTRODUCTION

**Review question / Objective** Population (P): Female patients with pathologically diagnosed breast cancer who have completed anti-tumor treatments (surgery, chemotherapy, endocrine therapy) and have a stable partner.

Intervention (I): Sexual health nursing interventions, including but not limited to sexual health education and counseling, cognitive-behavioral psychotherapy, couple-based intimate relationship counseling, pelvic floor muscle training, and vaginal moisturizing care guidance. Interventions could be delivered in-person, online, individually, or in group settings.

Comparison (C): Usual care, including postoperative rehabilitation guidance, routine health education and psychological support, without targeted sexual health intervention.

Outcomes (O): Primary outcome: improvement in sexual dysfunction measured by standardized scales (e.g., FSFI, FSDS-R). Secondary outcomes:

sexual quality of life (SQL, SQOL-F) and sexual satisfaction (SSS-W).

Study design (S): Randomized controlled trials (RCTs).

**Condition being studied** Sexual dysfunction in breast cancer survivors following treatment completion. Breast cancer and its treatments (surgery, chemotherapy, radiation, endocrine therapy) frequently lead to significant sexual health problems, including vaginal dryness, decreased libido, dyspareunia, arousal difficulties, and orgasmic disorders. These conditions arise from multiple mechanisms: treatment-induced estrogen depletion causing vaginal atrophy and lubrication deficiency; surgical alterations affecting body image and self-esteem; chemotherapy-related ovarian failure and premature menopause; and psychological sequelae including anxiety, depression, and fear of recurrence.

Epidemiological data indicate that 60-80% of breast cancer survivors experience sexual dysfunction, substantially higher than age-matched

healthy women. Beyond physiological symptoms, these conditions profoundly impact psychological well-being, intimate partner relationships, and overall quality of life. Partner relationship satisfaction often deteriorates due to reduced sexual intimacy, communication difficulties, and mutual distress.

Despite its high prevalence and significant impact, sexual dysfunction in breast cancer survivors remains under-recognized and undertreated in clinical practice due to patient reluctance to discuss sexual concerns, healthcare providers' insufficient attention to sexual health, and limited integration of sexual rehabilitation into routine oncology care. This meta-analysis focuses on evaluating interventions designed specifically to address this condition in young breast cancer patients.

## METHODS

**Participant or population** Female patients with pathologically diagnosed breast cancer who have completed anti-tumor treatments (surgery, chemotherapy, endocrine therapy, radiation), present with sexual dysfunction or have sexual health needs, and have a stable partner. No restrictions on age, disease stage, or time since diagnosis.

**Intervention** Sexual health nursing interventions, including: sexual health education and counseling, cognitive-behavioral psychotherapy, couple-based intimate relationship counseling, pelvic floor muscle training, vaginal moisturizing care guidance, mindfulness-based interventions, and PLISSIT model interventions. Interventions could be delivered in-person, online, individually, or in group settings, with any duration or frequency.

**Comparator** Usual care, including postoperative rehabilitation guidance, routine health education, and general psychological support, without targeted sexual health intervention components.

**Study designs to be included** Randomized controlled trials (RCTs), regardless of whether blinding was used.

**Eligibility criteria** Inclusion: RCTs published in English; female breast cancer patients post-treatment; interventions targeting sexual health; outcomes measured using validated scales (FSFI, FSDDS-R, SQL, SQOL-F, SSS-W). Exclusion: Non-RCT studies; interventions where sexual health component could not be isolated; outcomes not involving sexual dysfunction or partner relationship satisfaction; duplicate

publications; incomplete data; reviews, meta-analyses, case reports, conference abstracts; non-English publications.

**Information sources** Electronic databases: PubMed, Embase, Web of Science Core Collection. Search period: from database inception to January 31, 2026. Additional manual searches of reference lists of included studies. No restrictions on publication language during searching, but only English publications were included.

**Main outcome(s)** Primary outcome: Improvement in sexual dysfunction measured by standardized scales (Female Sexual Function Index [FSFI], Female Sexual Distress Scale-Revised [FSDDS-R]). Effect measures: standardized mean difference (SMD) or mean difference (MD) with 95% confidence intervals. Measurements taken at baseline and post-intervention.

Secondary outcomes: Sexual quality of life (Sexual Quality of Life Questionnaire [SQL], Sexual Quality of Life-Female [SQOL-F]) and sexual satisfaction (Sexual Satisfaction Scale for Women [SSS-W]). Effect measures: MD with 95% CI. Post-intervention measurements compared to baseline.

### Quality assessment / Risk of bias analysis

Quality assessment was performed using the Cochrane Collaboration's risk of bias tool for randomized controlled trials. Two reviewers independently evaluated the included studies across seven domains: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting, and other sources of bias. Each domain was judged as "low risk," "high risk," or "unclear risk" based on study reporting. Any disagreements between reviewers were resolved through discussion or consultation with a third reviewer. The overall risk of bias for each included study was summarized, and results were presented in a risk of bias summary figure.

**Strategy of data synthesis** Meta-analysis was conducted using RevMan 5.4 software (Cochrane Collaboration). For continuous outcomes, mean difference (MD) or standardized mean difference (SMD) with 95% confidence intervals (CIs) were calculated as effect measures. SMD was used when different scales measured the same outcome; MD was used when identical scales were employed.

Heterogeneity was assessed using the Q test and  $I^2$  statistic. If  $P \geq 0.1$  and  $I^2 \leq 50\%$ , indicating low heterogeneity, a fixed-effect model was applied. If

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$P > 50\%$ , indicating substantial heterogeneity, a random-effects model was used, and sources of heterogeneity were explored.

For studies reporting median, range, or interquartile range, data were converted to mean and standard deviation using established formulas. When necessary, authors were contacted for missing data. All statistical tests were two-sided, with  $P < 0.05$  considered statistically significant.

**Subgroup analysis** Subgroup analyses were pre-specified to explore sources of heterogeneity and compare intervention effects across different categories based on intervention orientation:

(1) Counseling and psychotherapy-oriented interventions (e.g., cognitive-behavioral therapy, mindfulness, psychological counseling)

(2) Partner and relationship-oriented interventions (e.g., couple-based therapy, intimate relationship counseling)

(3) Education and skill training-oriented interventions (e.g., sexual health education, pelvic floor training, PLISSIT model)

Subgroup analyses were performed using the same meta-analytic methods as the main analysis, with heterogeneity reassessed within each subgroup.

**Sensitivity analysis** Sensitivity analysis was conducted using the leave-one-out method, sequentially excluding each individual study and recalculating the pooled effect size for the primary outcome (overall improvement in sexual dysfunction). This approach assessed whether any single study disproportionately influenced the overall results. Additionally, sensitivity analyses were planned to examine the impact of including studies with high risk of bias, different statistical models (fixed-effect vs. random-effects), and various methods for handling missing data. Results were considered robust if the direction and statistical significance of the pooled effect remained unchanged after each exclusion.

**Country(ies) involved** CHinas.

**Keywords** Breast Cancer; sexual dysfunction; partner relationship satisfaction; sexual health intervention; Meta-analysis; randomized controlled trial.

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