Chronic Post Surgical Pain is prevalent after Breast Cancer Surgery, affecting between 23-45% of women depending on whether surgery involved axillary lymph node dissection
Half of these experience moderate to severe pain.

Objective

- Chronic post-surgical pain (CPSP) is a common complication after breast cancer surgery; but reported prevalence rates vary widely ranging from 10% to 69%.
- We conducted a systematic review to explore the prevalence and intensity of chronic postsurgical pain following breast cancer surgery using meta-analysis

Methods

Study Eligibility Criteria

- Patient: Breast cancer surgery patients
  Sample size ≥100 patients
- Outcome: CPSP at ≥3 months
  (IASP criteria)
- Design: Cohort or cross-sectional study
- Language: English only

Data source:

- MEDLINE/ PubeMd
- EMBASE
- CINAHL
- PsycInfo

Risk of bias assessment:

- Representative of study population
- Validity of outcome measure
- Loss to follow-up
- CPSP definition

Study Selection & Data Abstraction

Pairs of reviewers, independently and in duplicate, screened titles and abstracts of identified citations, reviewed the full texts, and extracted information from eligible studies.

Meta-analysis:

- Random-effects model to pool CPSP prevalence and intensity across studies
- Freeman-Tukey transformation to stabilize variance
- All pain scales were converted to a 10 cm VAS for pain

Subgroup analysis:

- Patient-reported vs clinician-assessed pain
- Any pain vs localized pain
- High threshold vs low threshold
- ALND vs SLNB
- Risk of bias
- High-income countries vs low- or middle-income countries
- Clinically assessed vs valid instrument assessed neuropathic pain

Meta-regression:

- Publication year
- Mean/median age
- Length of follow-up
- Proportion of loss to follow-up
- Proportion of breast conserving surgery, breast reconstruction, radiotherapy, chemotherapy and endocrine therapy

Figures

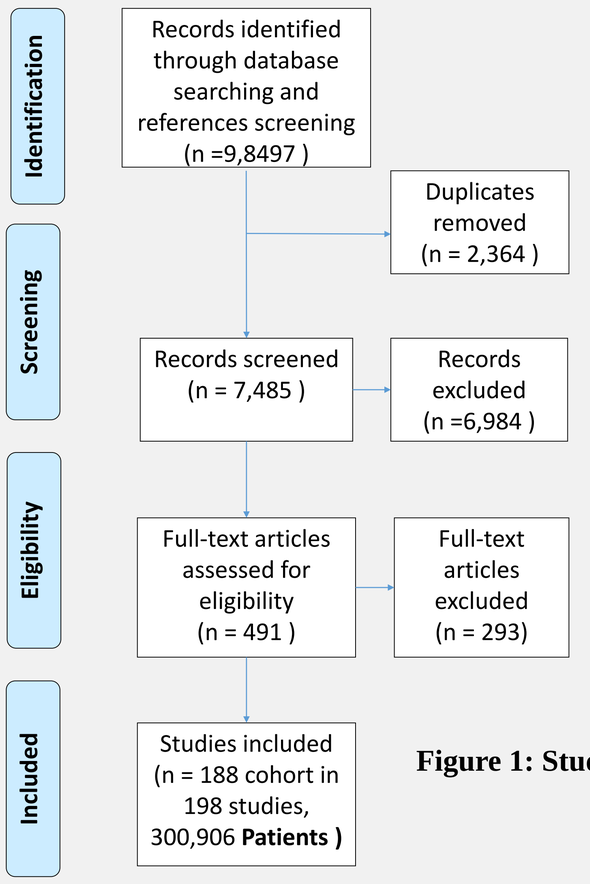

Figure 1: Study flow

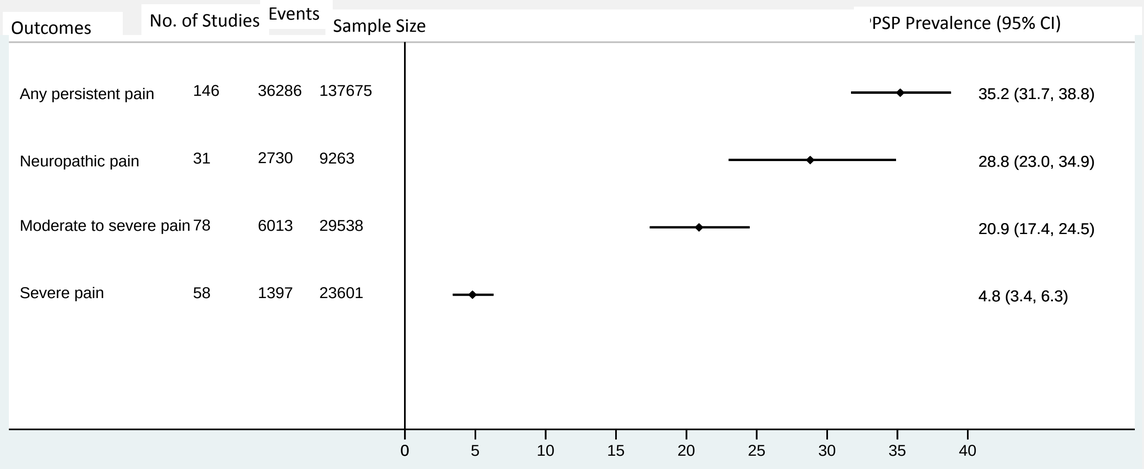

Figure 2: CPSP prevalence summary

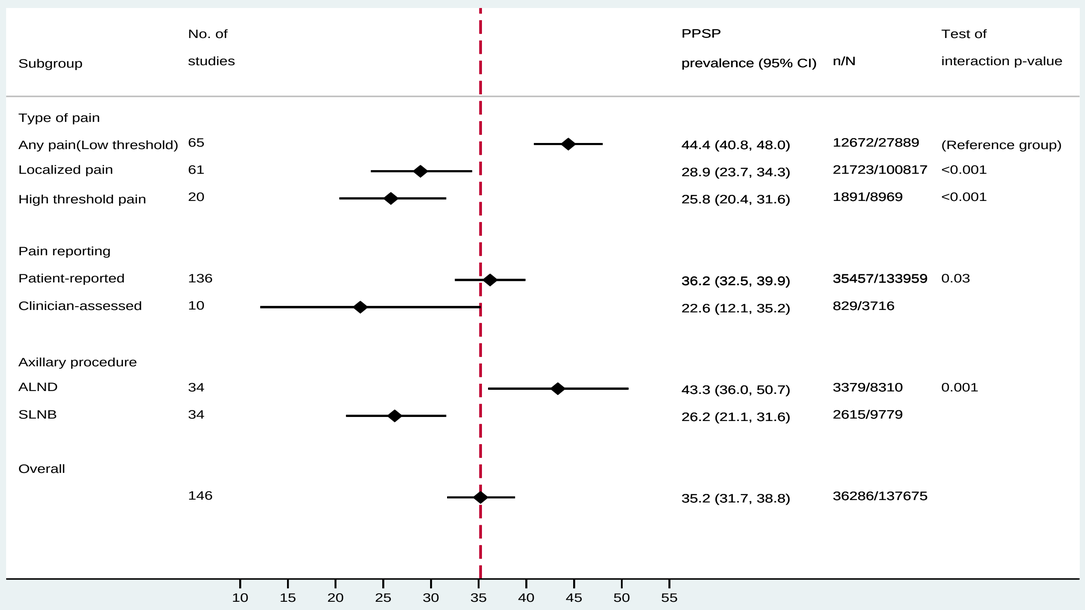

Figure 3: Subgroup analyses summary

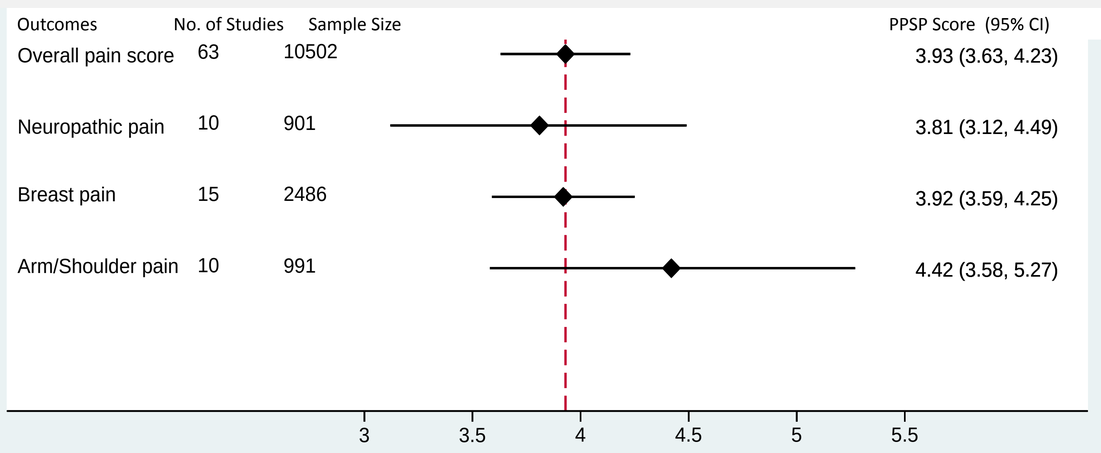

Figure 4: chronic pain intensity summary

Included Studies

Publication year

1986: 1;
1990-1999: 17;
2000-2009: 44;
2010-2018: 126

Countries:

Europe: 89
North America: 52
Asia: 27
Australia & New Zealand: 9
South America: 7
Africa:2

Study design

122 cohort studies; 66 cross-sectional studies

Sample size

Median & IQR: 300 (178, 520)
Range: 100 to 119,576

Patient age

Median & IQR: 56 (53, 60)

Risk of bias

- Representative sample: 155 (82%)
- Valid outcome measure: 129 (69%)
- Loss to follow-up: median 16.2%, IQR 7.4%, 33.3%
- Meeting 4 criteria of CPSP definitions: 22(12%)

Results

CPSP prevalence summary: Figure 2

CPSP intensity summary: Figure 4

Subgroup analysis: Figure 3

Higher pain prevalence was found with:

- Any pain vs. localized pain
- Low threshold of pain measure
- Axillary lymph nodes dissection

Meta-regression:

No significant association between CPSP and

- Publication year
- Age
- Length of follow-up
- Proportion of loss to follow-up
- Proportion of breast conserving surgery, breast reconstruction, radiotherapy, chemotherapy and endocrine therapy

Summary

- CPSP after breast surgery is common and affects 23% to 45% women with breast cancer surgery
- CPSP after breast surgery most likely to be neuropathic pain
- CPSP on average is mild to moderate, also indicating about half of patients with CPSP suffered moderate to severe pain
- Studies report different rates of CPSP, heterogeneity is explained by:
  - Definition of pain (site and threshold)
  - Type of surgery (ALND vs. SLNB)

Future studies

- Nerve sparing for axillary procedures to reduce CPSP
- Standardize a definition of CPSP after breast cancer surgery

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Global Burden of Chronic Postsurgical Pain Following Breast Cancer Surgery: a Systematic Review of 188 Observational Studies with 300,906 Patients

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