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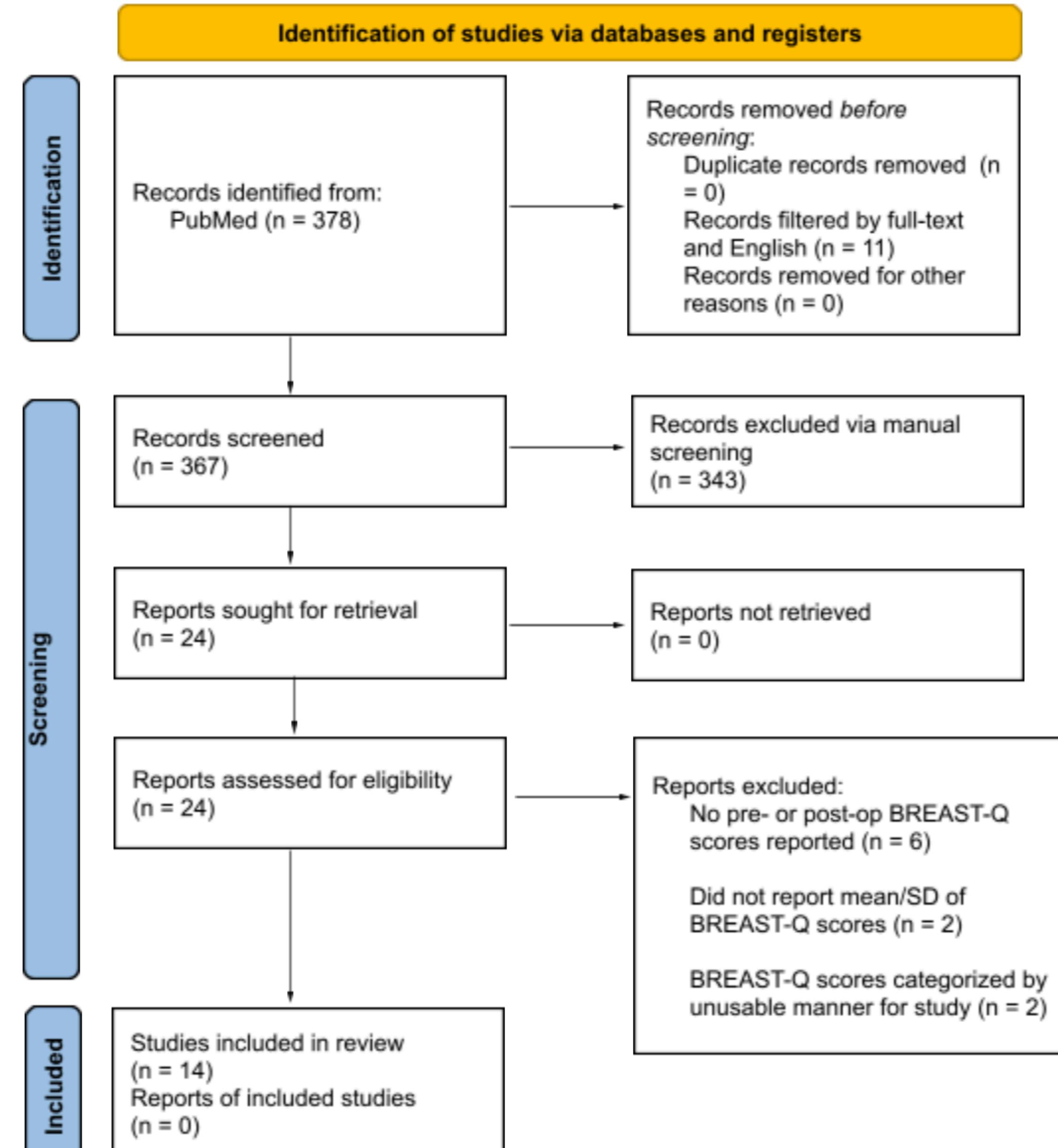
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## Background

Reduction mammoplasty was the seventh most common plastic surgery procedure performed worldwide in 2019, with an estimated 600,219 cases in that year. In evaluating patient satisfaction following reduction mammoplasty, numerous validated patient related outcome measures (PROMs) have been utilized to collect data but heterogeneity across surveys makes direct comparison challenging. The BREAST-Q PROM, developed in 2009, has become an increasingly utilized questionnaire providing quality measures across various aspects of the patient experience. The reduction BREAST-Q module offers survey questions encompassing the following subscales: Satisfaction with Breasts, Psychosocial Well-Being, Physical Well-Being, Sexual Well-Being, Satisfaction with Outcome, Satisfaction with Nipples, and Satisfaction with Care (Information, Surgeon, Medical Team, Office Staff). Each scale displays a score from 0 to 100, with higher scores indicating greater satisfaction. To date, no systematic reviews or meta-analyses of reduction module BREAST-Q outcomes have been performed. Our study aims to evaluate demographic and surgical factors associated with positive satisfaction and quality of life scores on BREAST-Q for reduction mammoplasty patients.

## Methods

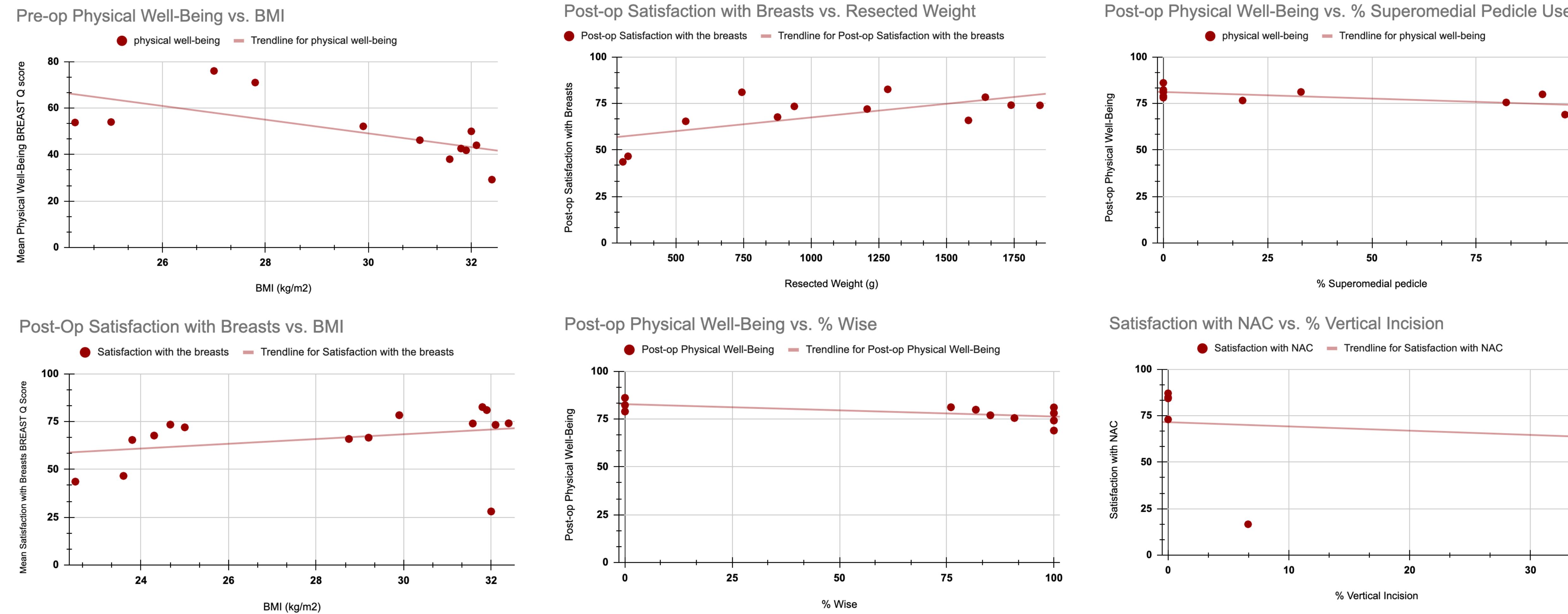


A systematic review was performed using PubMed from inception through August 6, 2021 for the term ("breast q") OR ("breast-q") AND ("Mammoplasty"[Mesh] OR mammoplast\* OR mammoplast\* OR (breast n3 reduc\*)). Studies that recorded pre-op, post-op, or both pre-op and post-op BREAST-Q scores were included. Studies examining breast reconstruction, breast augmentation, oncoplastic reduction, or breast cancer patients were excluded. Non-cohort studies (i.e. case series, technique papers), studies for which full-text was not available, and studies not in English were also excluded. Microsoft Excel was used to calculate mean differences, conduct univariate linear regression analysis, calculate Spearman's Rank Correlation Coefficients (SRCC), and to create scatterplots.

## Results

Literature search identified 378 unique articles, of which 14 met our inclusion criteria. Eight papers provided data on both pre-op and post-op BREAST-Q scoring. With the exception of 2/8 studies that did not provide sufficient information to determine a p-value, all studies demonstrated significant improvements in BREAST-Q scoring across categories following reduction mammoplasty. Positive correlations included mean age and preoperative sexual well-being (SRCC +0.61, p<.05), BMI and postoperative satisfaction with breasts (SRCC +0.53, p<.05), resected weight and postoperative satisfaction with breasts (SRCC +0.61, p<.05). Negative correlations included BMI and preoperative physical well-being (SRCC -0.78, p<.01), superomedial pedicle usage and postoperative physical well-being (SRCC -0.67, p<.05), Wise pattern incisions and postoperative sexual well-being (SRCC -0.66, p<.05)/physical well-being (SRCC -0.70, p<.05), vertical incision usage and postoperative satisfaction with the NAC (SRCC -0.78, p<.05).

BREAST-Q CATEGORY													
N preop	N postop	Satisfaction with the breasts	Satisfaction with the breasts (post op)	pvalue	Psychosocial well-being	Psychosocial well-being (post-op)	pvalue	sexual well-being	sexual well-being (post-op)	pvalue	physical well-being	physical well-being (post-op)	pvalue
675	659	21.504 ± 12.772	73.639 ± 20.04	<0.0001	34.478 ± 15.493	77.482 ± 21.587	<0.0001	33.978 ± 19.188	72.181 ± 23.302	<0.0001	48.158 ± 13.894	76.023 ± 16.654	<0.0001
		Mean Difference	52.135		Mean Difference	43.004		Mean Difference	38.203		Mean Difference	27.865	
		SE	0.918		SE	1.027		SE	1.168		SE	0.839	
		95% CI	50.3344, 53.9356		95% CI	40.9894, 45.0186		95% CI	35.9126, 40.4934		95% CI	26.2192, 29.5108	



## Conclusions

Breast reduction surgery significantly improves patient-reported satisfaction outcomes as measured by a validated survey tool. These benefits are most pronounced for patients with larger BMIs and those with larger resected breast volume. Post-procedural complication rates and mean age at time of procedure do not seem to influence patient satisfaction. Head to head comparisons are needed in order to draw definitive conclusions regarding the impact of pedicle or incision type on satisfaction. Limitations included heterogeneity across survey administration protocols and BREAST-Q outcome reported, as well as a low number of studies which categorized BREAST-Q scores by operative technique. Future studies reporting on this information would allow for meta analysis.

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