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Patient-Reported Impact of Oncoplastic Breast Conservation Compared to Mastectomy with Reconstruction: A Systematic Review

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ABSTRACT

Background: Given the oncologic safety and clinical benefits of oncoplastic breast conservation surgery (O-BCS), we conducted a systematic review to evaluate patient-reported outcomes, including breast satisfaction and physical, psychosocial, and sexual well-being in those undergoing O-BCS compared to mastectomy and reconstruction (M-R). This study aimed to inform clinical decision-making for patients with breast cancer not suitable for standard breast conservation.

Methods: According to PRISMA Guidelines, we identified studies from MEDLINE, Embase, PubMed, and Google Scholar. Studies were included where they compared patient-reported outcomes between O-BCS and M-R using a validated assessment tool such as the BREAST-Q questionnaire. The quality of studies was appraised using the Newcastle-Ottawa Scale (NOS).

Results: Out of the 3434 citations identified by our search, a total of 11 studies were deemed suitable for inclusion, and 9 studies used the validated BREAST-Q assessment tool. There were a total of 1808 O-BCS and 1413 M-R patients. All studies showed improved or equivalent breast satisfaction, psychosocial well-being, and sexual well-being after O-BCS. Physical well-being was reported to be superior in the M-R group. The findings are limited by the moderate to high risk of bias, heterogeneity, variation in outcome measures, differing follow-up durations, and differences in adjustment.

Conclusion: Given the potentially positive impact on patient-reported outcomes, where indicated and feasible, oncoplastic breast-conserving surgery should be offered as a valid surgical alternative to mastectomy and reconstruction as part of a patient-centered individualized treatment approach for breast cancer.

INTRODUCTION

In the context of surgical de-escalation strategies for breast cancer, including high-risk subtypes, there is an increasing possibility for certain patients to undergo breast conservation using oncoplastic breast-conserving surgical techniques. These include volume replacement, whereby autologous tissue from outside the breast is used to reconstruct the defect following excision, and volume displacement, whereby breast tissue itself is used for reconstruction.[1] As a result of these techniques, many individuals can now undergo breast conservation when previously they were deemed unsuitable due to disease factors such as multifocal disease or a large tumor-to-breast ratio. With increasing training and expertise in oncoplastic surgery, there has been an

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increase in oncoplastic breast conservation globally. One center in the UK reported an increase from 10.5% to 22.9% from 2016–2023 in a cohort of 3638 breast cancer patients.[2]

Oncoplastic breast conservation has been shown to confer oncologic safety compared to traditional breast conservation surgery as well as mastectomy with or without reconstruction.[3-5] This aligns with data favoring breast conservation over mastectomy.[6,7] There are also multiple clinical benefits, including fewer postoperative complications and revision surgeries,[8] as well as a lower rate of wound complications including infection and dehiscence[9] and reports of less postoperative chest pain and preserved breast sensation following oncoplastic breast conservation.[8,10]

In addition, the impact on patients is profound, with potential benefits relating to satisfaction, body image, well-being, and quality of life. Multiple studies show significant improvement in patient-reported outcomes compared to traditional breast conservation surgery, particularly regarding satisfaction with breasts and psychosocial well-being.[11,12] This is supported by a recent meta-analysis of 55 studies and 11 186 breast cancer patients demonstrating improved breast satisfaction (72.0% vs 62.9%, P = 0.02) and psychosocial well-being (78.9% vs 73.3%, P = 0.0001) compared to standard breast conservation surgery.[13] Other studies have shown no difference in long-term breast satisfaction, sexual well-being and psychosocial well-being over 5 years.[14] In regard to the patient-centered benefits of oncoplastic breast conservation surgery compared to mastectomy with reconstruction, a recent retrospective cohort study of 405 patients found that oncoplastic breast conservation conferred increased breast satisfaction, psychosocial, and sexual well-being.[15] Another recent retrospective study showed significantly improved sexual well-being following oncoplastic breast conservation and a non-significant trend towards improved breast satisfaction and psychosocial well-being.[16]

Given the increasing options for oncoplastic breast conservation as well as potential patient-centered benefits, we conducted a systematic review to compare oncoplastic breast conservation surgery and mastectomy with reconstruction in regard to their impact on patient-reported breast satisfaction and quality of life relating to physical, psychosocial, and sexual well-being. This aimed to inform clinical decision-making for patients not suitable for standard breast conservation. To our knowledge, this is the first systematic review comparing patient-reported outcomes of oncoplastic breast conservation surgery (O-BCS) versus mastectomy with reconstruction (M-R) across multiple validated tools.

METHODS

Study protocol

The most recent Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Guidelines were used to identify all relevant publications for this systematic review.[17] A search was performed until February 23, 2025, of the following databases: PubMed, Ovid MEDLINE, and Embase. Ovid MEDLINE, as a subset of PubMed, was searched in addition to PubMed to reduce the risk of missing relevant studies. The search strategy used for PubMed, Ovid MEDLINE, and Embase comprised the following keywords: ('breast cancer' OR 'ductal carcinoma in situ' OR 'DCIS') AND 'oncoplastic' AND 'mastectomy*'. In addition, Google Scholar was used as part of the search strategy. The terms were: ('breast cancer' OR 'ductal carcinoma in situ' OR 'DCIS') AND 'oncoplastic' AND 'mastectomy', and the first 20 pages (i.e., 200 results) were screened. Publications included studies published in English and translated from languages other than English. In addition, the reference lists of all relevant studies identified by the search were screened for additional relevant publications. The search was conducted by 2 independent investigators.

Study selection

Studies were assessed as eligible for inclusion in this systematic review if they were either a prospective or retrospective cohort study comparing patients undergoing breast conservation surgery with oncoplastic reconstruction and mastectomy with implant-based or autologous reconstruction. Studies had to report on any of the following patient-reported outcomes: breast satisfaction, quality of life, body image, self-esteem, and psychosocial, physical, and sexual well-being. Studies were included if they reported these outcomes using a validated patient-reported outcome measure, such as the BREAST-Q questionnaire. This tool quantifies outcomes as a score out of 100, with higher scores indicating greater satisfaction and well-being.[18] If these inclusion criteria were not met, the study was excluded from the systematic review.

Data extraction

Data were collected from each study according to a predetermined form, which included the year and country of publication, study type, data source, median follow-up time, number of patients in the oncoplastic breast conservation and mastectomy with reconstruction cohorts, patient-reported outcomes measured, and the outcome measure tool used. The quality of studies assessed as suitable for inclusion was appraised using the Newcastle-Ottawa Scale (NOS) for nonrandomized studies.[19]

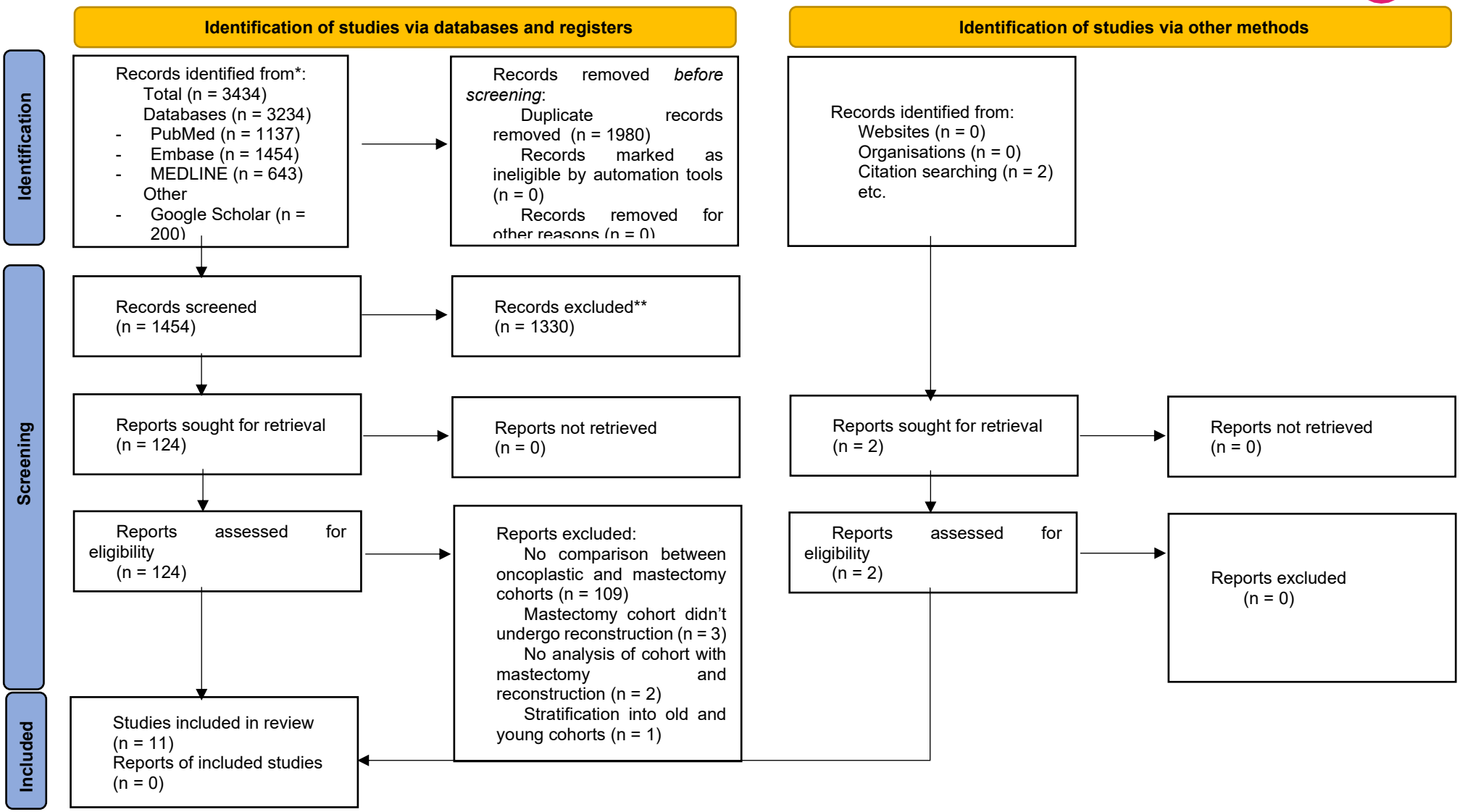
RESULTS

Out of the 3434 citations identified by our search, a total of 11 studies were deemed suitable for inclusion in the systematic review. Three studies were excluded on the basis that the mastectomy cohort did not undergo reconstruction.[20-22] Two studies were excluded on the basis of not reporting outcomes for the mastectomy and reconstruction cohort.[23,24] One study was excluded on the basis of stratifying patients into young and old cohorts to compare patient-reported outcome measures.[25] See Figure 1 for the PRISMA flow chart outlining the selection of studies.

Table 1. Study Characteristics

First author	Year	Study type	Country	Data source	Median follow-up (mo)	O-BCS (n)	M-R (n)	Outcomes measured	Outcome measure tools
Davies[30]	2024	PCS	UK	32 UK Breast Units (‘20-’22)	25	284	35	SB, PhW, PsW, SW	BREAST-Q
Gulis[29]	2024	PCS	Sweden	Kristianstad Central Hospital (‘19-‘20)	12	160	26	SB, PhW, PsW, SW, BI, SF, and more	BREAST-Q EORTC QLQ-C30 and QLQ-BR23
Foley[31]	2024	RCS	USA	Montefiore Einstein Comprehensive Cancer Center (’15-’21)	25	57	204	SB, SO, PsW, SW	BREAST-Q
Lisboa[15]	2023	PCS	Brazil	2 hospitals in Goiana (’14-’22)	57	405	355	SB, SO, PhW, PsW, SW, and more	BREAST-Q Harvard-Harris BCCT.core software
Koppiker[32]	2023	RCS	India	Prashanti Cancer Care Mission (’15-’20)	38	121	25	SB, SO, PhW, PsW, SW	BREAST-Q
Bolliger[28]	2022	PCS	Austria	University Hospital of Vienna (’11-’16)	12	46	43	SB, PhW, PsW, SW, BI	BREAST-Q BIS
Mason[16]	2022	RCS	Italy	Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Multidisciplinary Breast Center (’07-’21)	N/A	56	91	SB, PhW, PsW, SW	BREAST-Q
Di Leone[10]	2022	RCS	Italy	Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Multidisciplinary Breast Center (’16-’21)	39.5	87	210	SB, PhW, PsW, LS	BREAST-Q
Rautalin[26]	2021	PCS	Finland	Uusimaa Hospital District (’08-’15)	24	248	51	BI, HrQOL and more	EORTC QLQ-C30 and QLQ-BR23 15-D
Kelsall[27]	2017	PCS	UK	Nottingham City Hospital Breast Institute (’99-’14)	12	286	281	SB, BI and more	BIS Institute-specific PROMs
Chand[33]	2017	RCS	UK	Royal Hampshire County Hospital (’91-’14)	84	58	92	SB and more	BREAST-Q

PCS, prospective cohort study; RCS, retrospective cohort study; mo, months; O-BCS, oncoplastic breast conservation surgery; M-R, mastectomy with reconstruction; SB, satisfaction with breasts; SO, satisfaction with outcome; PhW, physical well-being; PsW, psychosocial well-being; SW, sexual well-being; BI, body image; SF, sexual functioning; LS, loss of sensitivity; HrQOL, health-related quality of life; BIS, body image scale; PROMs, patient-reported outcome measures; RTx, radiation therapy



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).
**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.
From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

Table 2. Quality of Studies According to the Newcastle-Ottawa Scale

First author	Selection				Comparability		Outcome			Total score (/9)
	Representativeness of exposed cohort	Selection of non-exposed cohort	Ascertainment of exposure	Demonstration that outcome not present at start of study	Adjustment for most important risk factor	Adjustment for other risk factors	Assessment of outcome	Long enough follow-up	Adequacy of follow-up	
Davies[30]	1	1	1	1	1	1	0	1	1	8
Gulis[29]	1	1	1	1	1	1	0	1	1	8
Foley[31]	1	1	1	1	1	1	0	1	0	7
Lisboa[15]	1	1	1	1	1	1	0	1	0	7
Koppiker[32]	1	1	1	1	1	1	0	1	1	8
Bolliger[28]	1	1	1	1	1	1	0	1	1	8
Mason[16]	1	1	1	1	1	1	0	1	1	8
Di Leone[10]	1	1	1	1	1	1	0	1	0	7
Rautalin[26]	1	1	1	1	1	1	0	1	1	8
Kelsall[27]	1	1	1	1	1	1	0	1	1	8
Chand[33]	1	1	1	1	0	0	0	1	1	6

Of the 11 studies included, 6 were prospective and 5 were retrospective cohort studies. All were recently published, between 2017 and 2024, with patient data being collected from 1991 to 2022. There were a total of 1808 patients in the oncoplastic breast conservation surgery cohort and 1413 patients in the mastectomy with reconstruction cohort. All studies except two[26,27] used the validated BREAST-Q questionnaire to assess patient-reported outcomes. Other outcome assessment tools were also used in some studies, including the Body Image Scale (BIS),[27,28] EORTC QLQ-C30 and QLQ-BR23[26,29], Harvard-Harris scale[15], BCCT.core software tool[15] and the 15-D assessment tool.[26] See Table 1 for a summary of the study characteristics.

Using the NOS assessment, risk of bias was assessed as moderate (represented by a score of 7 or 8) for 10 studies (7 studies with scores of 8 and 3 studies with scores of 7) and high for one study with a score of 6. See Table 2 for a summary of appraisal according to the NOS.

While most studies showed higher scores for O-BCS in satisfaction and psychosocial well-being, results for physical well-being were mixed, with some favoring M-R. Of the six studies reporting raw unadjusted median BREAST-Q scores, scores were higher for the oncoplastic breast conservation group compared to the mastectomy and reconstruction group regarding psychosocial well-being and tended to be higher for breast satisfaction and sexual well-being, with the exception of Mason *et al.*[16] and Foley *et al.*[31], respectively. Median BREAST-Q scores tended to be lower regarding physical well-being in the oncoplastic group, with the exception of Koppiker *et al.*[32] See Table 3 for a summary of the raw, unadjusted median BREAST-Q satisfaction and well-being scores.

Of the nine studies that compared satisfaction with breasts, five studies[15,29,31–33] showed improved breast satisfaction in the oncoplastic breast conservation group, and four[10,16,28,30] showed no difference compared to mastectomy and reconstruction.

Table 3. Postoperative patient-reported outcomes according to raw unadjusted median BREAST-Q scores

First author	Satisfaction with breasts		Psychosocial well-being		Physical well-being		Sexual well-being	
	O-BCS	M-R	O-BCS	M-R	O-BCS	M-R	O-BCS	M-R
Davies*[30]	67 (95% CI 64-70)	65.5 (95% CI 58-73)	66 (95% CI 63-69)	64 (95% CI 56-72)	64 (95% CI 61-67)	72 (95% CI 66-78)	53 (95% CI 46-60)	48 (95% CI 33-63)
Foley[31]	71.5	58	72.5	68.5	N/A	N/A	52	53
Lisboa[15]	75 (IQR 62-91)	69 (IQR 58-81)	86 (IQR 67-100)	82 (IQR 65-100)	66 (IQR 57-74)	68 (IQR 58.5-77)	72 (IQR 54-100)	63 (IQR 49-83)
Koppiker[32] (mean)	81 ± 14 SD	68 ± 16 SD	87 ± 17 SD	83 ± 16 SD	73 ± 13 SD	72 ± 17 SD	80 ± 25 SD	52 ± 37 SD
Mason[16]	64 (IQR 48-82)	71 (IQR 53-100)	71 (IQR 51-100)	62 (IQR 47-82.3)	26 (IQR 8-43)	32 (IQR 20-45)	60.5 (IQR 43-79)	48 (IQR-41-59)
Di Leone[10]	61	51.6	64.2	58.1	28.6	40.3	N/A	N/A

* O-BCS group shown underwent therapeutic mammaplasty.
O-BCS, oncoplastic breast conservation surgery; M-R, mastectomy with reconstruction; CI, confidence interval; IQR, interquartile range; SD, standard deviation.

Of the eight studies reporting on psychosocial well-being, one[15] showed superiority after oncoplastic breast conservation, and seven[10,16,28–32] showed no significant difference. Regarding sexual well-being, two studies[15,16] showed that oncoplastic breast conservation conferred improved sexual well-being, five[28–32] showed no difference, and one study[29] reported improved sexual functioning in the oncoplastic group. Of the seven studies reporting on physical well-being, two[15,30] favored mastectomy and reconstruction, four[16,28,29,32] showed no difference[10], and one[10] favored oncoplastic breast conservation. Further, of the three studies comparing body image, two[27,29] favored oncoplastic breast conservation, and one[28] showed no difference. See Table 4 for a summary of the main findings of the included studies.

DISCUSSION

This systematic review highlights multiple patient-reported benefits regarding satisfaction and well-being for those undergoing oncoplastic breast conservation compared to those undergoing mastectomy and reconstruction, supporting its use as a valid surgical treatment approach for breast cancer patients. The trend favoring improved breast satisfaction is in line with multiple studies demonstrating improvements for those undergoing conventional breast conservation compared to mastectomy, including after implant-based reconstruction.[34,35]

The non-inferiority of psychosocial well-being is also consistent with published data regarding breast conservation versus mastectomy.[34,35] In addition, the trend towards improved sexual well-being in our review also supports published findings favoring traditional breast conservation and radiation over mastectomy with or without reconstruction[36] and has been shown to strongly correlate with breast satisfaction.[37] These results highlight the potentially profound psychological benefits of preserving overall breast integrity for an individual confronted with breast cancer.

The trend towards worse physical well-being for the oncoplastic breast conservation group is highlighted in Davies *et al.,* whereby both therapeutic mammaplasty and chest wall perforator subgroups had significantly worse physical well-being scores at 3 and 12 months, both compared to their respective baselines and to the mastectomy and mastectomy with immediate reconstruction cohorts.[30]

This has also been demonstrated after conventional breast conservation and may reflect radiation-related chest wall discomfort, which disproportionately affects O-BCS patients undergoing adjuvant therapy.[13] It is interesting that the psychosocial benefit has been shown to prevail despite the adverse impact on chest symptoms and physical well-being.

This systematic review highlights the utility of oncoplastic breast conservation in the modern era of increasing neoadjuvant systemic therapy use for high-risk subtypes of breast cancer, with uses including the assessment of tumor biology, treatment of occult metastatic disease, and downstaging of large tumors to render breast conservation possible.

Two studies in this systematic review evaluated clinical and patient-reported outcomes following neoadjuvant chemotherapy for breast cancer. Koppiker *et al.* showed a 72.8% rate of conversion from planned mastectomy to oncoplastic breast conservation, with significantly higher satisfaction with breasts and outcome in the oncoplastic group compared to the mastectomy and immediate reconstruction group.[32]

Table 4. Summary of patient-reported outcome measures

First author	Outcome measure tools	Time of measurement	Summary of patient-reported outcome measures
Davies[30]	BREAST-Q	At baseline 3, 12 mo	Therapeutic mammaplasty (subgroup of O-BCS) conferred improvements from baseline in breast satisfaction (P<0.001) and psychosocial well-being (P<0.001) at 3 and 12 mo Therapeutic mammaplasty (p<0.001) and chest wall perforator flap (P<0.001) conferred a significant decrease in physical well-being at 3 and 12 mo No significant difference over time in satisfaction, physical, psychosocial, or sexual well-being for M-R Worse physical well-being for therapeutic mammaplasty compared to M-R at 12 mo (P=0.007), no difference in breast satisfaction, psychosocial, or sexual well-being
Gulis[29]	BREAST-Q EORTC QLQ-C30 and QLQ-BR23	At baseline and 12 mo	O-BCS conferred improved breast satisfaction (P<0.001), body image (p=0.06), and sexual functioning (P=0.027) than for M-R No difference in psychosocial or sexual well-being
Foley[31]	BREAST-Q	From 6 mo to 5 yrs	O-BCS conferred improved breast satisfaction (median 71.5 vs 58, P=0.0165) and satisfaction with outcome (median 100 vs 75, P=0.0197) No significant difference in psychosocial or sexual well-being
Lisboa[15]	BREAST-Q Harvard-Harris, BCCT.core software	After 6 mo	O-BCS conferred higher breast satisfaction (median 75 vs 69, P<0.001), satisfaction with outcome (median 100 vs 100, P<0.001), psychosocial well-being (median 86 vs 82, P=0.049) and sexual well-being (P=0.002) O-BCS conferred worse physical well-being (median 66 vs 68, P=0.009)
Koppiker[32]	BREAST-Q	At 12 mo	Following NACT, O-BCS conferred improved breast satisfaction compared to M-R (mean 81 ± 14 vs 68 ± 16, P=0.046) and improved satisfaction with outcome (mean 84 ± 9.5 vs 88 ± 16.6, P=0.0188) No difference in psychosocial, sexual or physical well-being
Bolliger[28]	BREAST-Q BIS	At baseline, 6, 12 mo	Significant improvement from baseline at 6, 12 mo for breast satisfaction, physical well-being, and psychosocial well-being for O-BCS and M-R, no significant difference between groups, including for body image
Mason[16]	BREAST-Q	At 6 mo	O-BCS confers improved sexual well-being (median 59 vs 48.2, P = 0.015) Non-significant trend favouring O-BCS for psychosocial well-being (median 71.3 vs 64.1, P=0.116) and satisfaction with breasts (median 71.7 vs 63.9, P=0.064) Non-significant trend favoring M-R for physical well-being (median 31.6 vs 27.8, P=0.305)
Di Leone[10]	BREAST-Q	9 mo post-radiation	Following NACT, O-BCS conferred better physical well-being compared to M-R and less loss of sensitivity (P<0.001) No difference in breast satisfaction or psychosocial well-being
Rautalin[26]	EORTC QLQ-C30 and QLQ-BR23 15-D	At 3, 6, 12, 24 mo	Highest body image for O-BCS at 24 mo (mean 86.019 ± 18.131 SD) Highest HrQOL post-treatment at 12 mo for O-BCS, 24 mo for M-R
Kelsall[27]	BIS Institute-specific PROMs	12 mo post-treatment	O-BCS conferred better body image (0.002), self-rated breast appearance (P<0.001), return to work (P<0.001), and return to function (p<0.001)
Chand[31]	BREAST-Q	Up to 5, 10, 15, 23 yrs	Satisfaction with breasts greater for therapeutic mammaplasty than mastectomy and LD miniflap

O-BCS, oncoplastic breast conservation surgery; M-R, mastectomy with reconstruction; NACT, neoadjuvant chemotherapy; HrQOL, health-related quality of life; BIS, body image scale; LD, latissimus dorsi.

Di Leone showed better physical well-being and equivalent breast satisfaction and psychosocial well-being, but no difference in disease-free or overall survival between the oncoplastic and mastectomy with reconstruction groups.[10] The oncologic safety of oncoplastic breast conservation for high-risk subtypes is highlighted by a SEER analysis of 24 621 triple-negative and HER2-positive breast cancer patients showing improved 5-year breast cancer-specific survival in those undergoing oncoplastic breast conservation with radiation compared to standard breast conservation or mastectomy with radiation.[38]

Both in the setting of upfront surgery and neoadjuvant systemic therapy, our systematic review has important therapeutic implications. In addition to the oncologic safety and clinical benefits of oncoplastic breast conservation compared to mastectomy and reconstruction, the overall improved patient-reported outcomes support the validity of oncoplastic breast conservation as an alternative to mastectomy and reconstruction. This enhances the notion that oncoplastic breast conservation should be offered as a valid option where it is indicated and feasible as part of a patient-centered, individualized treatment approach. This may also confer more global benefits regarding healthcare expenditure, with lower costs of care for those undergoing oncoplastic surgery with adjuvant radiation compared to mastectomy and reconstruction.[39]

To our knowledge, this is the first systematic review to compare patient-reported outcomes regarding satisfaction and well-being in multiple domains between breast cancer patients undergoing oncoplastic breast conservation and mastectomy with reconstruction. This is clinically relevant with the ability to guide patient-centered decision-making and a collaborative and multidisciplinary treatment approach for those diagnosed with breast cancer. This is particularly important in the modern context of breast surgery, where advances in volume replacement and displacement oncoplastic techniques allow many patients to undergo breast conservation with an aesthetically favorable reconstruction when they would have previously been deemed unsuitable. This is also important in the setting of increasing indications for breast conservation, particularly with the more widespread use of neoadjuvant systemic therapy. Our study also benefited from a comprehensive publication search of multiple databases by 2 investigators. Although comprehensive, the use of Google Scholar may introduce bias due to the inclusion of non-peer-reviewed sources.

Despite these strengths, this study has several limitations. Inherent to the nature of qualitative patient-reported data, there is subjectivity in the results, which is compounded by multiple sources of heterogeneity both within and between the included studies. The majority of studies did not adjust for preoperative baseline scores, for which there may be considerable variation between individuals. Only Gulis *et al.* adjusted for psychiatric comorbidities of the patients, and the lack of adjustment in all other studies may have significantly influenced the outcomes, given the potentially strong impact of pre-morbid psychological state on well-being and satisfaction, particularly in the setting of a derailing breast cancer diagnosis.

Further, there were differing time courses for patient-reported outcome assessments between the studies, from 6 months to 12 months and longer, with a potential impact on contemporaneous well-being scores, especially if the patients were undergoing adjuvant chemotherapy. The different types of reconstruction also add to the heterogeneity of results. The mastectomy cohort in most studies comprised both implant-based and autologous reconstruction, while Chand *et al.* compared oncoplastic breast conservation to latissimus dorsi mini-flaps.[33] This heterogeneity is reflected in the moderate to high risk of bias of each study as appraised by the NOS (Table 2).

In addition, the presentation of data in multiple ways resulted in an inability to reliably collate the results as a meta-analysis, limiting their significance and applicability. This systematic review was also subject to selection bias of patients, with a significant rate of loss to follow-up in several of the included studies.[15,31] This may reflect the attrition of patients, both highly satisfied with their outcome and not wanting to attend further surgical follow-up as well as those dissatisfied with their outcome and seeking a second opinion.[15] Further, this study was subject to publication bias as a systematic review of published studies rather than original data.

To strengthen the validity and applicability of our results, future research should incorporate longitudinal BREAST-Q tracking across multiple time points. This would evaluate the impact of oncoplastic breast conservation and mastectomy with reconstruction over the long term to evaluate the continuing effect of patient-related outcomes over time. When patient volume allows, future studies should perform subgroup analyses between different oncoplastic breast conservation techniques and different post-mastectomy reconstruction techniques to determine the most favorable patient-centered surgical options. In addition, the impact of satisfaction and well-being should be evaluated following neoadjuvant systemic therapy, not just after conventional chemotherapy and targeted HER2 treatment, but also following neoadjuvant

immunotherapy, including PD-1 inhibitors for high-risk early triple-negative breast cancer.[40]

CONCLUSION

Our systematic review highlights the positive impact of oncoplastic breast conservation compared to mastectomy and reconstruction, especially in regard to potentially improved breast satisfaction, psychosocial, and sexual well-being. This shows that, where indicated and feasible, oncoplastic breast-conserving surgery should be offered as a valid surgical alternative to mastectomy and reconstruction as part of a patient-centered individualized treatment approach for breast cancer. These findings can inform shared decision-making and personalized surgical planning, particularly in borderline or high-risk cases.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

DATA AVAILABILITY

Data was procured from the studies included in the meta-analysis.

ETHICAL CONSIDERATIONS

Ethical approval was not required for this study.

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