



Satisfaction Outcomes in Women Who “Choose to Go Flat” After Mastectomy

An Integrative Review

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A considerable number of women undergoing mastectomies are “choosing to go flat,” foregoing reconstruction. This integrative review sought to identify satisfaction outcomes and relevant factors among these women. Using variations of the key word “going flat,” a systematic search of 7 databases was conducted. Fifteen articles met the inclusion criteria and were reviewed. Decisional and breast/chest appearance satisfaction in women who did not have reconstruction was mixed when compared with other surgical options. Body image, body mass index, radiation therapy, and access to information/resources affected satisfaction. Nurses are in a pivotal role to address the communication and informational needs of these women to support optimal surgical decision-making processes and improve patient satisfaction and clinical outcomes. **Key words:** *decision making, flat, flat closure, going flat, integrative review, literature review, living flat, mastectomy, patient-reported outcomes, satisfaction*

IN THE UNITED STATES, breast cancer is the second leading cause of cancer in women, with approximately 3 477 866 women living with breast cancer as of 2016.¹ Unfortunately, 1 in 8 women will develop breast cancer over her lifetime.² Mastectomies are generally recommended for

women with more advanced-stage breast cancers. Women who are at high risk of breast cancer, or those with early-stage breast cancers, are also electing to undergo mastectomies for a variety of reasons. The bilateral mastectomy rate has tripled from 2005 to 2013, with an overall mastectomy rate increase of 21%.³

Breast reconstruction is commonly performed immediately at the time of the mastectomy or delayed to any time following other cancer treatments. However, many women undergoing a mastectomy do not always have reconstruction. Of 197 387 women with breast cancer who had a mastectomy from the National Surgical Quality Improvement Program (NSQIP) database, roughly 27% did not have reconstruction, 22% had a mastectomy with implant or flap reconstruction, and 51% had breast-conserving therapy in 2016.⁴ The increasing number of women having bilateral mastectomies and the considerable proportions of women not having reconstruction expose a large population of women to the physical and psychosocial effects of losing a breast.

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Statement of Significance

What is known or assumed to be true about this topic?

An increasing number of women are undergoing mastectomies, and many of these women are forgoing reconstruction. Recently, health care journalists have reported concerns regarding satisfaction outcomes in women “choosing to go flat” after mastectomy. These women report being left with excess skin as opposed to a smooth flatly contoured chest. Some women have been told that the excess skin was left in case she changes her mind and wants breast reconstruction later. Others have reported feeling pressured by their surgeons and health care teams to pursue reconstruction, as having breasts is considered the “societal norm.” Little is known about satisfaction outcomes and factors affecting these outcomes in the mastectomy population who “chooses to go flat.”

What this article adds:

This integrative review sheds light on a lack of research that has addressed the satisfaction outcomes of women who had flat closure after mastectomy. The majority of the existing studies included women who underwent a mastectomy without reconstruction as part of the total sample; only 2 qualitative studies specifically address women who “chose” to go flat. In the existing studies, decisional and breast/chest appearance satisfaction in women who did not have reconstruction was mixed, higher, or lower than the satisfaction of women who had other surgical procedures. A variety of factors affected satisfaction: body image, BMI, radiation therapy, quality of life, and access to information and resources on all surgical options. This integrative review highlights future research opportunities to further address satisfaction in women who “choose to go flat” so that patients and clinicians can make optimal decisions and improve patient satisfaction and other health outcomes.

There are a variety of reasons why a woman may not have reconstruction after mastectomy, including surgeon recommendation based upon the patient’s cancer profile, safety concerns related to immediate surgical or medical needs, comorbidities, age, the need for radiation therapy, and the patient’s decision to delay reconstruction or forgo reconstruction and remain flat. Satisfaction outcomes after mastectomy without reconstruction may differ by such reasons among these women.

Recently, health care journalists have reported concerns regarding satisfaction outcomes in women “choosing to go flat” after mastectomy.⁵⁻⁷ The decision not to have reconstruction and to remain flat after mastectomy has been coined as “going flat” or “flat closure.” As reported in several journalistic articles, women wanting a flat closure expect surgeons to remove not only the breast tissue but also the excess skin and tissue, leaving a nice smooth flat contoured chest wall. Unfortunately, some women are left with excess amounts of skin, often termed as “dog ears,” along the lateral aspects of the chest wall, leading to an unsatisfactory aesthetic appearance and the accompanying physical and psychological sequela. Satisfaction outcomes in women “choosing to go flat” after mastectomy never to have reconstruction have been little known.

Patient satisfaction outcomes after mastectomy can have a significant impact on a woman’s physical and psychological health, quality of life, and overall well-being. This integrative review aimed to identify the extent of satisfaction and factors related to satisfaction in women “choosing to go flat” after mastectomy. An integrative review was chosen to study this phenomenon as it offers a comprehensive yet focused appraisal of diverse methodologies (eg, quantitative, qualitative, experimental, nonexperimental) based on a systematic and rigorous approach of the search process and data analysis. This integrative review would enhance the understanding of issues experienced by women “choosing to go flat” after mastectomy and offer nurses and health care workers the opportunity to

identify and provide the needed support and resources these women are seeking.

METHODS

Search process

A systematic search was conducted on October 10, 2019, utilizing the following databases: PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Academic Search Complete, Google Scholar, PsycINFO, GenderWatch, and Cochrane Database of Systematic Reviews.

Various combinations of the Medical Subject Heading (MeSH) terms, CINAHL, and Academic Search Complete Subject Headings, and key words were used with Boolean operators and truncation (Table 1). For restrictively finding articles that included women who “chose to go flat” after mastectomy, the following key words were used: “flat,” “flat closure,” “going flat,” and “living flat.” The search was further limited to full-text peer-reviewed articles; published in the past 5 years (October 1, 2014, to October 10, 2019); the English language; and female subjects older than 18 years. The 5-year limitation was utilized to ensure search results included the most current practices, as surgical techniques are continually improving.

Articles selected for inclusion

A PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram was utilized to describe the selection process and inclusion/exclusion criteria (Figure). The initial search identified a total of 577 articles. Twenty-three duplicate articles were removed, leaving 554 articles.

Inclusion criteria

This integrative review included articles that addressed chest/breast appearance satisfaction, aesthetic or scar satisfaction, decisional satisfaction, and satisfaction with health care provider interaction/care in

women who underwent a mastectomy without reconstruction.

Exclusion criteria

The articles were excluded if they focused on the following: male patients with breast cancer; transgender males who underwent subcutaneous mastectomy “top” surgery; “all” women in the study population underwent some form of reconstruction or were in any phase of the reconstruction process; breast augmentation or reduction surgical procedures; and satisfaction with cancer therapies only. We excluded any article that was not a case report, clinical trial, systematic review, meta-analysis, or observational study. We also eliminated articles on sexuality or sexual satisfaction as they were embedded in the quality-of-life outcomes, along with social, emotional, and functional well-being, which was not the focus of this review.

The titles and abstracts of the 554 articles were screened; 26 articles met the inclusion and exclusion criteria. The full-texts of these 26 articles were read and then 15 articles were included in the final integrative review. Table 2 provides a summary of the articles.

Appraisal

The quality of each study was assessed using the Johns Hopkins Evidence-Based Practice (JHEBP) Appraisal Tool,²³ which offers guidelines for the assessment of both quantitative and qualitative studies. Studies were evaluated for generalizability, adequacy of sample size based on design, use of validated measurement tools, and the presence of consistent and reliable conclusions using a thorough literature review. After a critical appraisal of 15 studies, 8 were considered high quality, 6 good quality, and 1 low quality; all studies met level III evidence, which includes nonexperimental studies only, explanatory mixed-methods design, or systematic review of a combination of randomized controlled trials, quasi-experimental, and nonexperimental studies (Table 2). A review of the

Table 1. Database Search Terms and Results for October 10, 2019

Database	Search Terms	Search Results
PubMed	((((("Mastectomy"[Mesh])) OR "Mammaplasty"[Mesh])) AND (((("Personal Satisfaction"[Mesh] OR "Patient Satisfaction"[Mesh] OR "Quality of Life"[Mesh])) OR ((appearance*[tiab] OR scar*[tiab] OR dissatisf*[tiab]))) AND (((without reconstruction[tiab] OR without breast reconstruction[tiab] OR no reconstruction[tiab])))	416 ^a
CINAHL	(((("Mastectomy"[Mesh])) OR "Mammaplasty"[Mesh])) AND (((flat closure) OR go* flat) OR liv* flat)	1 ^a
	(MH "Mastectomy+") OR (MH "Breast Reconstruction") AND (MH "Personal Satisfaction+") OR (MH "Patient Satisfaction+") OR (appearance* OR scar* OR dissatisf*) AND "without reconstruction" OR "without breast reconstruction" OR "no reconstruction"	6 ^a
Academic Search Complete	"flat closure" OR "go* flat" OR "liv* flat"	2 ^a
	((DE "MASTECTOMY") OR (DE "MAMMAPLASTY")) OR (DE "BREAST cancer surgery") OR (DE "BREAST surgery") AND (DE "SATISFACTION") OR (DE "QUALITY of life") OR (appearance* OR scar* OR dissastis*) AND ("without reconstruction" OR "without breast reconstruction" OR "no reconstruction")	5 ^b
	((DE "MASTECTOMY") OR (DE "MAMMAPLASTY")) OR (DE "BREAST cancer surgery") OR (DE "BREAST surgery") AND (flat OR "flat closure" OR "go* flat" OR "liv* flat")	10 ^b
Google Scholar	(mastectomy OR "breast reconstruction") AND (satisfaction OR appearance OR scar OR dissatisfaction) AND ("without reconstruction" OR "without breast reconstruction" OR "no reconstruction") AND (flat)	81 ^c
PsycINFO	(exp Mastectomy/ OR mammaplasty.mp. OR breast reconstruction.mp.) AND (exp Satisfaction OR exp "Quality of Life"/ OR appearance* OR scar* OR exp Dissatisfaction/)	37 ^b
	(exp Mastectomy/ OR mammaplasty.mp. OR breast reconstruction.mp.) AND (flat OR "flat closure" OR "go* flat" OR "liv* flat")	2 ^b
GenderWatch	(mastectomy OR (breast reconstruction)) AND (satisfaction OR (quality of life) OR appearance OR scar OR dissatisfaction) AND (flat OR (flat closure) OR (going flat) OR (living flat))	13 ^b
Cochrane Database of Systematic Reviews	mastectomy AND satisfaction	4 ^b
	mastectomy AND flat	0 ^b

Abbreviations: MeSH, Medical Subject Heading; MH, mesh heading; tiab, title/abstract.

^aSearch limiter: last 5 years, English Language, human, female older than 18 years.

^bSearch limiter: last 5 years, English Language.

^cSearch limiter: last 5 years.

articles identified common themes related to satisfaction outcomes among women who forwent reconstruction after mastectomy: sat-

isfaction with decision making, breast/chest appearance, health care provider interac-
tion/care, and factors affecting satisfaction.

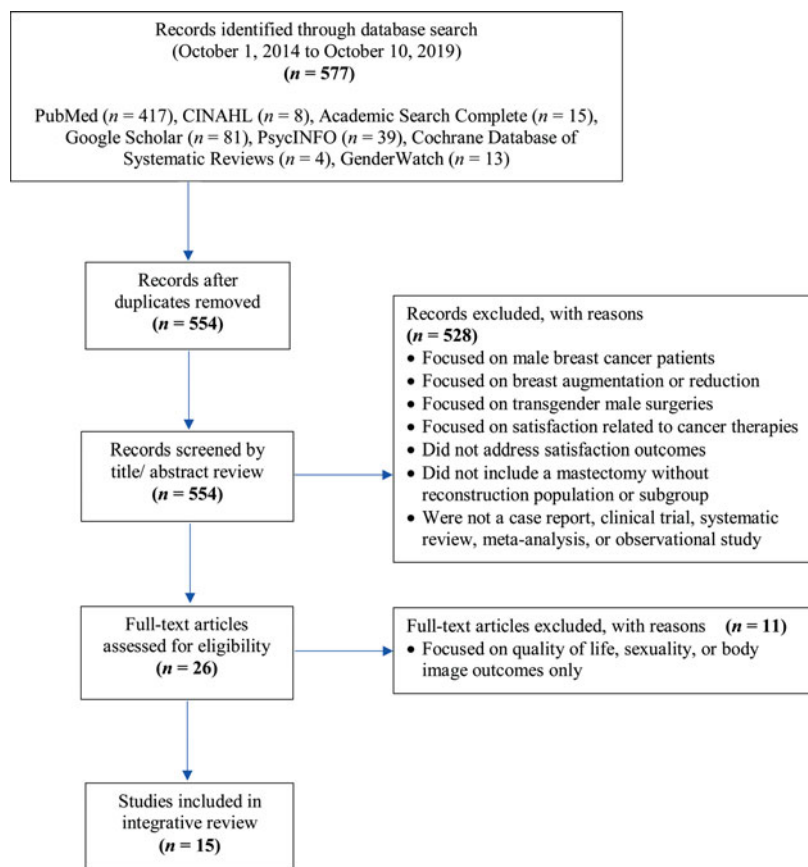


Figure. PRISMA flow diagram. This figure is available in color online (www.advancesinnursingscience.com).

RESULTS

Study design

There were 13 quantitative studies,^{8-10,12,14-22} 1 mixed-methods study,¹¹ and 1 qualitative study.¹³ Most studies utilized surveys for data collection; 1 study used an interview process.¹³ The majority of the studies used descriptive, cross-sectional designs; 2 studies implemented a longitudinal design.^{10,14}

Population

The women who underwent a mastectomy without reconstruction were part of the total sample as the majority of the studies compared satisfaction outcomes among women who underwent different surgical options, including breast-conserving surgery (BCS),

mastectomy without reconstruction, and mastectomy with implant reconstruction, autologous flap reconstruction, or both. The number of women who underwent a mastectomy without reconstruction regardless of the reason ranged from 6 to 1269, accounting for 19.7% of all women across all studies. Only 2 studies specifically considered the patient's decision of “choosing” no reconstruction after mastectomy when recruiting the sample. Holland et al¹³ recruited women who “chose” no reconstruction after mastectomy as the total sample, whereas Brown and McElroy¹¹ specifically identified women who “chose to go flat” as part of the study participants. Brown and McElroy¹¹ discussed mastectomy without reconstruction in sexual and gender minority (SGM) patients.

Table 2. Literature Review Summary

Authors (Year)	Design, Sample, Setting, and Country	Sample Size per Surgery Option	Satisfaction Measures	Evidence Level and Quality by JHNEBP Model
Anderson et al ⁸ (2017)	Quantitative: observational, cross-sectional Women with unilateral BC who had a sister with BC, BRCA 1/2 negative recruited from the Sister Study in the United States	N = 1176: CPM w/o recon (n = 79) CPM w/ recon (n = 183) UM w/o recon (n = 94) UM w/ recon (n = 82) BCS (n = 738)	*Ad hoc survey for decision satisfaction with BCS, CPM, UM (5-pt Likert: very satisfied to very dissatisfied) *Modified BIS for breast appearance satisfaction (5-item, 5-pt Likert: strongly disagree to strongly agree)	Level III, B Good quality
Atisha et al ⁹ (2015)	Quantitative: observational, cross-sectional Women w/ BC, recruited from the Army of Women e-mail database in the United States	N = 7619: Mx w/o recon (n = 1269) Mx w/ recon (n = 2328): Implants (n = 1400) LD flap (n = 177) Abd flap (n = 657) Gluteal/thigh flap (n = 9) BCS (n = 3507) CS (n = 515) Missing (n = 85)	*BREAST-Q for satisfaction post-operative (4-pt Likert: very dissatisfied to very satisfied; total summed score = 0-100) $\alpha = .87-.98$; test-retest reliability = 0.85-0.98	Level III, A High quality
Boughey et al ¹⁰ (2015)	Quantitative: observational, longitudinal cohort Women with unilateral BC with an FHx of BC who had a CPM between 1960 and 1993, recruited from the Mayo Clinic (Minnesota), United States	10-y survey (N = 583): CPM w/o recon (n = 180) CPM w/ recon (n = 403) 20-y survey (N = 269): CPM w/o recon (n = 59) CPM w/ recon (n = 210)	*Ad hoc survey for decision satisfaction with CPM at 10 and 20 y (5-pt Likert: very satisfied to very dissatisfied) *Ad hoc survey for body appearance satisfaction with CPM at 10 and 20 y (3-pt Likert: decreased to increased)	Level III, B Good quality

(continues)

Table 2. Literature Review Summary (Continued)

Authors (Year)	Design, Sample, Setting, and Country	Sample Size per Surgery Option	Satisfaction Measures	Evidence Level and Quality by JHNEBP Model
Brown and McElroy ¹¹ (2018)	Mixed-methods: observational, cross-sectional, and phenomenological SGM women w/ BC who had BMx recruited from LGBTQ and mainstream BC social media groups, colleagues and researchers in the United States	N = 68: Chose Mx w/o recon (Flattoppers) (n = 16) Surgical tx choice not disclosed (n = 52)	10 written open-ended questions: *Provider reactions to going flat -Inferred as satisfaction with provider *Life after flat -Inferred as satisfaction with appearance or scar	Level III, B Good quality
Ho et al ¹² (2018)	Quantitative: observational, cross-sectional Asian women, w/ BC dx from 1990-2015 who had BC surgery, spoke English or Mandarin, recruited at clinic appt between 2014 and 2015 from a single institution in Singapore	N = 384: Mx w/o recon (n = 201) Mx w/ recon (n = 32) BCS (n = 152)	*Ad hoc satisfaction with overall cosmetic appearance (3-pt Likert: very satisfied/satisfied to dissatisfied/very dissatisfied)	Level III, A High quality
Holland et al ¹³ (2016)	Qualitative: interpretive phenomenological Young women w/ BC who chose Mx w/o recon, recruited via advertising in BC charity Web forum in the United Kingdom	N = 6	4 open-ended questions *Defending the decision -Inferred as satisfaction with provider	Level III, B Good quality

(continues)

Table 2. Literature Review Summary (Continued)

Authors (Year)	Design, Sample, Setting, and Country	Sample Size per Surgery Option	Satisfaction Measures	Evidence Level and Quality by JHNEBP Model
Jagsi et al ¹⁴ (2015)	Quantitative: observational, longitudinal Non-Asian women w/ BC recruited from the National Cancer Institute's SEER registry between 2005 and 2007 in Los Angeles and Detroit (United States)	N = 1450: Mx w/o recon (n = 263) Mx w/ recon (n = 222) BCS (n = 963) Missing (n = 2)	*Modified BREAST-Q for satisfaction with breasts in English and Spanish (6-item, 5-pt Likert: not at all to very much) $\alpha = .90$	Level III, A High quality
Lagendijk et al ¹⁵ (2018)	Quantitative: observational, cross-sectional Women w/ BC who had breast surgery, recruited from a Dutch BC association and local institutions' social media page, between February 12 and March 13, 2017, in the Netherlands	N = 496: Mx w/o recon (n = 73) Mx w/ implant (n = 73) Mx w/ flap (n = 38) BCS (n = 223)	*BREAST-Q, post-op, V1 for satisfaction with breasts (4-pt Likert: very dissatisfied to very satisfied; total summed score = 0-100) $\alpha = .87-.98$; test-retest reliability = 0.85-0.98	Level III, A High quality
Lagendijk et al ¹⁶ (2018)	Quantitative: observational, cross-sectional Women w/ BC who had UM or BMx w/ same surgery both sides between 2005 and 2016, recruited from a single institution in the Netherlands	N = 764: Primary BC (n = 612) Mx w/o recon (n = 162) Mx w/ implant (n = 110) Mx w/ flap (n = 83) BCS (n = 257) Secondary BC (n = 152) - Subgroups not described	*BREAST-Q, post-op V1 for satisfaction with breasts (4-pt Likert: very dissatisfied to very satisfied; total summed score = 0-100) $\alpha = .87-.98$; test-retest reliability = 0.85-0.98	Level III, A High quality

(continues)

Table 2. Literature Review Summary (Continued)

Authors (Year)	Design, Sample, Setting, and Country	Sample Size per Surgery Option	Satisfaction Measures	Evidence Level and Quality by JHNEBP Model
Lee and Knobf ¹⁷ (2015)	Quantitative: observational, cross-sectional Chinese American women w/ BC recruited via multipatform advertising who could read Chinese and were living in New York City (United States)	N = 123: Mx w/o recon (n = 62) Mx w/ recon (n = 14) BCS (n = 47)	*DSS (Chinese version) (3-item, 5-pt Likert: strongly agree to strongly disagree; total summed score = 0-100), $\alpha = .82$ *DRS (Chinese version) (5-item, 5-pt Likert: strongly agree to strongly disagree; total summed score = 0-100), $\alpha = .91$	Level III, A High quality
Ng et al ¹⁸ (2016)	Quantitative: retrospective cohort Women who had therapeutic or prophylactic Mx between 2000 and 2010, recruited from a hospital and private practice database in Australia	N = 143: Mx w/o recon (n = 64) Mx w/ recon (n = 79) Implant (n = 16) Flap (n = 41) Implant + flap (n = 7)	*BREAST-Q, post-op, V1 -Satisfaction with breasts -Satisfaction w/ surgeon, medical staff and office staff (4-pt Likert: very dissatisfied to very satisfied; total summed score = 0-100) $\alpha = .87-.98$; test-retest reliability = 0.85-0.98	Level III, A High quality
Oh et al ¹⁹ (2018)	Quantitative: observational, cross-sectional Older women who had BC surgery, recruited between 2009 and 2016 from a single institution in Australia	N = 135: Mx w/o recon (n = 87) Mx w/ recon (n = 48)	*BREAST-Q post-op for satisfaction with breast (4-pt Likert: very dissatisfied to very satisfied; total summed score = 0-100) $\alpha = .87-.98$; test-retest reliability = 0.85-0.98 *BIS (10-item, 4-pt Likert: not at all to very much; total summed score = 0-30) $\alpha = .87-.97$; .87 (satisfaction subscale) *DRS (5-item, 5-pt Likert: strongly agree to strongly disagree; total summed score = 0-100) $\alpha = .91-.92$	Level III, A High quality

(continues)

Table 2. Literature Review Summary (Continued)

Authors (Year)	Design, Sample, Setting, and Country	Sample Size per Surgery Option	Satisfaction Measures	Evidence Level and Quality by JHNEBP Model
Rojas et al ²⁰ (2018)	Quantitative: observational, cross-sectional Women w/ BC who had BC surgery between 2000 and 2013, recruited from a single academic cancer center in Rhode Island (United States)	N = 255: Mx w/o recon (n = 22) Mx w/ recon (n = 59) Lumpectomy (n = 174)	*Ad hoc questionnaire included 1 question on satisfaction of chest appearance (1-item, 5-pt Likert: very satisfied to very dissatisfied)	Level III, B Good quality
Soran et al ²¹ (2015)	Quantitative: observational, cross-sectional Women w/ unilateral BC who underwent CPM between 2000 and 2010, recruited using a Network Cancer Registry from a single institution in Pittsburgh (United States)	N = 206: Mx w/o recon (n = unclear) Mx w/ recon (n = unclear) BCS (n = unclear)	*Ad hoc questionnaire on satisfaction with surgical procedure and overall decision (3 items, scale not described)	Level III, C Low quality
van Vuuren et al ²² (2015)	Quantitative: observational, cross-sectional Women undergoing 2-stage recon w/ implant and women w/ Mx w/o recon, recruited between 2008 and 2011 from a single institution in the Netherlands	N = 171: Mx w/o recon UM (n = 63) BMx (n = 8) Mx w/ 2-stage implant recon UM (n = 70) BMx (n = 30)	*Ad-hoc questionnaire on pre & post-operative overall satisfaction (5-pt Likert: completely disagree to completely agree; then dichotomized to 1, 2, 3 = unsatisfied or false and 4, 5 = satisfied or true) *Ad hoc question rating satisfaction related to their treatment (scale 1-10)	Level III, B Good quality

Abbreviations: abd, abdominal; BC, breast cancer; BCS, breast-conserving surgery; BIS, Body Image Scale; BMx, bilateral mastectomy; BRCA1/2, BRCA1 gene 1/gene 2; CPM, contralateral prophylactic mastectomy; CS, complicated; multiple types of surgery; DRS, Decisional Regret Scale; DSS, Post-Decisional Satisfaction Scale; dx, diagnosis; FHx, family history; JHNEBP, Johns Hopkins Nursing Evidence-Based Practice; LD, latissimus dorsi; LGBTQ, lesbian, gay, bisexual, transgender, questioning, or queer; Mx, mastectomy; na, not applicable; post-op, postoperative; pt, point; recon, breast reconstruction; SEER, Surveillance, Epidemiology, and End Results; SGM, sexual gender minority; tx, treatment; UM, unilateral mastectomy; w/, with; w/o, without; y, year(s).

The average age at the time that women participated in the studies ranged from 38.6 to 71.2 years (age range = 18-93 years). At the time of study participation, the average time since surgery across all studies was 0.78 to 18.4 years (range = 0.25-44.5 years). Only 5 studies reported race in their descriptive analysis^{8,9,12,14,17}; 2 studies differentiated race in the women who did not receive reconstruction. Anderson et al⁸ found that of the 14.7% of women who did not have reconstruction, 91.1% were White, 2.9% Black, and 2.3% Hispanic. In a study by Jaggi et al,¹⁴ 18.1% of women did not have reconstruction; of these, 42.2% were White, 25.1% Black, and 32.7% Hispanic.

Satisfaction with decision making

Four articles discussed satisfaction outcomes related to decision making when electing to forgo reconstruction after mastectomy (Table 3). Two studies used validated measurement tools; the Decisional Regret Scale (DRS) and the Post-Decisional Satisfaction Scale (DSS).^{17,19} The DRS consisted of 5 items on a 5-point Likert scale to measure regret after health care treatment decisions, and its reliability (Cronbach α) ranged from 0.81 to 0.92.²⁴ Lee and Knobf¹⁷ used the Chinese version of the DRS, with high reliability (Cronbach α = 0.91). The Chinese version of the DSS was also used and measured the level of dissatisfaction with the decision on a 3-item, 5-point Likert scale with a Cronbach α of 0.82.¹⁷

Decisional satisfaction was compared across surgery types in 3 studies.^{10,17,19} Boughey et al¹⁰ found higher decisional satisfaction in the mastectomy without reconstruction group than that in the mastectomy with reconstruction group at both the 10- and 20-year survey points (90% vs 79%, 95% vs 89%, respectively); these results also indicated that satisfaction might improve over time. In Lee and Knobf's¹⁷ study, decisional satisfaction in women with mastectomy without reconstruction was also higher than the satisfaction in the mastectomy with recon-

struction group, although it was not statistically significant. Oh et al¹⁹ reported no statistically significant differences in decisional regret between the groups. SGM patients expressed satisfaction with their decision to go flat after a bilateral mastectomy, as the choice coincided better with their gender identity.¹¹

Satisfaction with breast/chest appearance

Table 4 describes the 12 studies that measured satisfaction with breast/chest appearance in women who underwent a mastectomy without reconstruction. The used instruments included the BREAST-Q, a modified BREAST-Q, the Body Image Scale (BIS), and a modified BIS.

The BREAST-Q is a measure designed to evaluate outcomes among women undergoing different types of breast surgery and comprises 6 modules, following 2 overarching domains: patient satisfaction and quality of life.²⁵ The studies in this integrative review measured satisfaction with breasts and satisfaction with care, which is under the patient satisfaction domain in the Mastectomy Module of the BREAST-Q. The breast/chest appearance satisfaction was measured by asking women how they look clothed and unclothed, satisfaction with fitted clothing, and comfort with wearing bras. The BIS includes 10 questions encompassing physical/scar appearance, femininity, sexuality, and feelings of wholeness in patients with cancer.²⁶ These instruments showed good reliability, as presented in Table 2. A qualitative study¹¹ used open-ended questions to identify breast/chest appearance satisfaction.

Lower breast/chest appearance satisfaction scores were found among women who underwent mastectomy without reconstruction than among women who underwent mastectomy with reconstruction,^{10,18} mastectomy with autologous flap reconstruction,^{14-16,18} and BCS.^{8,9,12,14-16}

There were, however, conflicting outcomes in some studies; women who had a mastectomy without reconstruction

Table 3. Satisfaction With Decision Making

Study	Sample Size (Mx w/o recon)	Instrument	Compare BCS, Mx w/ recon, and Mx w/o recon	Satisfaction With Decision-Making
Boughey et al ¹⁰ (2015)	583 (180) 269 (59)	Ad hoc (5-point Likert)	Y	10-y survey: -Satisfied with decision for CPM w/o recon (90%), CPM w/ recon (79%) -Would choose CPM w/o recon again (78%), CPM w/ recon again (71%) 20-y survey: -Satisfied with decision for CPM w/o recon (95%), CPM w/ recon (89%) ($P =$.03) -Would choose CPM w/o recon again (84%), CPM w/ recon again (90%) ($P =$.16)
Brown and McElroy ¹¹ (2018)	68 (16)	Open-ended questions	N	-SGM women choosing bilateral Mx w/o recon were pleased with the decision
Lee and Knobl ¹⁷ (2015)	123 (62)	DRS ^a DSS ^b	Y	-Across all surgery types, 81.3% were satisfied with surgery type decision -No significant difference in decision satisfaction or regret based on surgery type -Decision satisfaction mean scores: BCS (29.1), Mx w/o recon (28.1), Mx w/ recon (22.6)
Oh et al ¹⁹ (2018)	135 (87)	DRS ^c	Y	-No difference in decisional regret between Mx w/o recon and Mx w/ recon

Abbreviations: BCS, breast-conserving surgery; CPM, contralateral prophylactic mastectomy; DRS, Decisional Regret Scale; DSS, Post-Decisional Satisfaction Scale; Mx, mastectomy; N, no; recon, breast reconstruction; SGM, sexual gender minority; w/, with; w/o, without; Y, yes.

^aChinese version of DRS: Cronbach $\alpha = 0.91$ (5-item, 5-point Likert: strongly agree to strongly disagree; total summed score 0-100).

^bChinese version of DSS: Cronbach $\alpha = 0.82$ (3-item, 5-point Likert: strongly agree to strongly disagree; total summed score 0-100).

^cDRS Cronbach $\alpha = 0.81$ to 0.92 (5-item, 5-point Likert: strongly agree to strongly disagree; total summed score 0-100).

Table 4. Satisfaction With Breast Appearance

Study	Sample Size (Mx w/o recon)	Instrument	Compared BCS, Mx w/ and w/o recon	Satisfaction With Breast Appearance
Anderson et al ⁸ (2017)	1176 (173)	Modified BIS	Y	-Satisfaction lowest for UM with and w/o recon (2.9) and CPM w/o recon (2.3) vs BCS (3.4) and CPM w/ recon (3.2)
Atisha et al ⁹ (2015)	7619 (1269)	BREAST-Q	Y	-Mx w/o recon had lowest satisfaction compared with BCS (−10.1, $P < .0001$) -Mx w/o recon satisfaction scores improved over time
Boughey et al ¹⁰ (2015)	583 (180) 269 (59)	Ad hoc (3-point Likert)	Y	-10-y satisfaction with body appearance higher in CPM w/ recon vs w/o recon ($P = .0005$) -20-y satisfaction with body appearance remained higher in the recon vs no recon group ($P = .01$)
Brown and McElroy ¹¹ (2018)	68 (16)	Open-ended questions	N	-Many women did not see the appearance change as negative -Women reported flat as sexy, strong, and that they loved their scars
Ho et al ¹² (2018)	384 (201)	Ad hoc (3-point Likert)	Y	-20% dissatisfaction across all surgery types -22% dissatisfaction with Mx w/o recon -Mx w/o recon was 1.7 times as likely to be dissatisfied as BCS
Jagsi et al ¹⁴ (2015)	1450 (263)	Modified BREAST-Q	Y	-Satisfaction was lower in Mx w/o recon vs BCS ($P = .0002$)
Lagendijk et al ¹⁵ (2018)	496 (73)	BREAST-Q	Y	-Flap (3.6), BCS (3.4), implant (3.3), Mx w/o recon (3.0) -Mean breast appearance satisfaction scores were highest for Mx with flap vs BCS ($P = .004$) -Mx with Flap (71.9), BCS (62.3), Mx w/o recon (59.5), Mx with implant (53.8) -Breast appearance satisfaction is higher in Mx w/o recon (59.5) vs Mx with implant (53.8)

(continues)

Table 4. Satisfaction With Breast Appearance (Continued)

Study	Sample Size (Mx w/o recon)	Instrument	Compared BCS, Mx w/ and w/o recon	Satisfaction With Breast Appearance
Legendijk et al ¹⁶ (2018)	764 (162)	BREAST-Q	Y	-Breast appearance satisfaction was lower in Mx w/o recon vs BCS ($P = .006$) and Mx with flap ($P = .004$) -After adjusting for tumor and treatment characteristics, satisfaction with breast scores remained unchanged -Mean breast satisfaction scores were higher in Mx w/o recon (61.8) vs Mx with implant (61.2) -Pts w/o XRT had higher breast satisfaction scores vs BCS ($P < .009$)
Ng et al ¹⁸ (2016)	143 (64)	BREAST-Q	Y	-Satisfaction was higher in Mx w/ recon vs Mx w/o recon ($P < .0001$)
Oh et al ¹⁹ (2018)	135 (87)	BREAST-Q, BIS	Y	-No difference in satisfaction for Mx w/o recon vs Mx w/ recon -No difference with scar satisfaction across groups
Rojas et al ²⁰ (2018)	255 (22)	Ad hoc (5-point Likert)	Y	-Obese and overweight women were more dissatisfied with chest appearance than normal weight women ($P = .02$)
van Vuuren et al ²² (2015)	171 (71)	Ad hoc (5-point Likert)	Y	-Satisfaction was slightly higher with immediate implant recon (7.2) vs Mx w/o recon (7)

Abbreviations: BCS, breast-conserving surgery; BIS, Body Image Scale; CPM, contralateral prophylactic mastectomy; Mx, mastectomy; N, no; recon, breast reconstruction; Pts, patients; UM, unilateral mastectomy; vs, versus; w/, with; w/o, without; XRT, radiation therapy; Y, yes.

showed higher,^{15,16} or lower breast/chest satisfaction,^{14,22} compared with women who underwent mastectomy with implant reconstruction.^{14,22} In a study out of Singapore, Ho et al¹² found that women who had a mastectomy with reconstruction were more likely to be dissatisfied with cosmetic breast appearance than women who did not have reconstruction with mastectomy. In a study with women 60 years and older, there was no difference in breast satisfaction between mastectomy with and without reconstruction.¹⁹ Atisha et al⁹ reported that breast/chest appearance satisfaction improved over time for women who underwent mastectomy without reconstruction.

Satisfaction with health care provider interaction/care

Discussion of satisfaction with health care provider interaction surrounding the decision to go flat after mastectomy was a common theme in 2 qualitative studies. Women reported satisfaction with providers when they felt their choice to forgo reconstruction was supported and respected, whereas others reported gender bias, paternalism, and pressure toward reconstruction from health care providers, leading to anxiety, frustration, and anger in the women.^{11,13} Women who disclosed their sexual orientation and gender identity (SOGI) were mostly satisfied with their provider interaction by helping the provider to better understand the rationale behind their choice.¹¹ However, a quantitative study found no difference in satisfaction with surgeons between mastectomy groups.¹⁸

Factors affecting satisfaction

Recurring factors affecting satisfaction in women who underwent mastectomy without reconstruction included body image, body mass index (BMI), and radiation therapy (Table 5). Women, who were comfortable with their body image, reported higher satisfaction with their decision not to have reconstruction.^{8,10,11,19} Women who associ-

ated their femininity and sexuality to their breasts might have difficulty accepting their new body shape.^{8,10,11,16,19} Three studies reported that higher BMI negatively affected satisfaction with breast appearance.^{9,14,20} The use of radiation therapy resulted in lower chest appearance satisfaction in mastectomy without reconstruction^{16,22} and was found to be an independent factor of chest appearance satisfaction across all surgery types.¹⁶

The factors associated with health care provider interaction/care satisfaction included information and resources on all surgical options, provider support regardless of the surgical decision, and an environment in which women felt comfortable in disclosing their SOGI information.^{11,13,18} Women who chose to go flat reported a lack of resources and information about life post-mastectomy without reconstruction and expressed a desire to preview images of women who had undergone a mastectomy without reconstruction.¹³ A few women found themselves in what they called a pro-reconstruction atmosphere and reported being pressured to reconsider, as their decision was an “unattractive option.”^{11,13} After having to maintain and defend their decision, the women were left feeling as if they had defied the perceived norm of reconstruction.

DISCUSSION

About a third of women with breast cancer who had a mastectomy did not have reconstruction.⁴ However, there has been a lack of studies focused on the satisfaction of these women and their surgical decisions and aesthetic outcomes. This integrative review revealed mixed results across studies regarding decisional satisfaction and breast/chest appearance satisfaction among women who had a mastectomy without reconstruction as they were reported higher in some studies and lower in other studies. It was notable that in a longitudinal study with the 10- and 20-year surveys, many women who had the

Table 5. Factors Affecting Satisfaction

Study	Factors Affecting Satisfaction
Anderson et al ⁸ (2017)	-Body image was lower due to self-consciousness and body appearance, resulting in lower satisfaction in the CPM w/o recon group ^a
Atisha et al ⁹ (2015)	-Lower satisfaction: higher disease stage (II-III), BC recurrence, undergoing current treatment, inability to work, higher BMI -Higher satisfaction: income >\$100 000/y, graduate-level education, ability to work or volunteer, longer time since surgery ^a
Boughey et al ¹⁰ (2015)	-In the 10-y survey, after adjusting for age at the time of survey, marital status, and length of follow-up, each of the psychosocial aspects of self-esteem ($P = .0002$), body appearance ($P = .0007$), and femininity ($P = .0002$) remained significantly improved for the recon vs no recon group; sexual relationship was higher in the recon group ($P = .03$) ^a -In the 20-y survey, only satisfaction with body appearance remained significantly higher for the recon vs no recon group ($P = .01$) ^a
Brown and McElroy ¹¹ (2018)	-Body image and comfort with own body were factors in the decision to choose Mx w/o recon again ^a -Higher satisfaction: comfort with the body, body appearance; disclosure of SOGI data ^a -Lower satisfaction: gender bias related to decision making ^a
Ho et al ¹² (2018)	-After adjusting for stage and surgery type, ethnicity is independently associated with satisfaction of chest appearance ($P = .001$); Malay and Indian women are 0.4 times more likely to be dissatisfied than Chinese women; women w/ in situ and stage III/IV BC are 2.2 times more likely to be dissatisfied than women with stage I/II BC
Holland et al ¹³ (2016)	-Depression (using HADS) was associated with satisfaction for cosmetic appearance ($P < .001$) -Lower provider interaction/care satisfaction: pressure from providers and staff toward recon, paternalism, surgical priming for possible future recon despite request for no recon, lack of information or resources on life postmastectomy w/o recon ^a
Jagsi et al ¹⁴ (2015)	-Lower breast appearance satisfaction across all surgery types: chemotherapy ($P = .028$), higher BMI ($P < .0001$), lower income ($P = .011$), and smoking ($P = .016$)
Legendijk et al ¹⁵ (2018)	-Lower breast symptoms ($P = .001$), higher arm symptoms ($P = .005$), higher physical functioning ($P < .001$), and lower psychosocial functioning ($P = .009$) for Mx w/o recon compared with BCS ^a
Legendijk et al ¹⁶ (2018)	-Mx w/o recon had lower mean physical functioning scores than BCS ($P = .001$), Mx with implant ($P < .001$), and Mx with flap ($P = .006$) ^a -Mx w/o recon had lower body image scores vs BCS ($P = .005$) ^a -Mx w/o recon had lower mean sexual functioning scores vs Mx with implant ($P < .001$) and Mx with flap ($P = .001$) ^a
	-Mx w/o recon had lower Q-psychosocial scores than Mx with implant ($P = .004$) and Mx with flap ($P < .001$) ^a -Pts w/o XRT had higher breast satisfaction scores vs BCS with XRT ($P < .009$) ^a -XRT was an independent factor for satisfaction across all surgery types ^a

(continues)

Table 5. Factors Affecting Satisfaction (Continued)

Study	Factors Affecting Satisfaction
Lee and Knobf ¹⁷ (2015)	-Postdecisional satisfaction and regret were not affected by age, marriage, or surgical choice ^a -Higher decisional satisfaction: financially independent, resources, recon and nonrecon options explained, better English fluency -Lower decision satisfaction: limited English fluency, financially dependent, less involved in the decision-making process
Ng et al ¹⁸ (2016)	-Psychological ($P = .0068$) and sexual well-being ($P = .0001$) were higher in Mx w/ recon vs Mx w/o recon
Oh et al ¹⁹ (2018)	-Body image (dissatisfied with the body) score was higher for Mx w/o recon vs Mx w/ recon ($P = .048$) ^a -Number of comorbidities is related to the reason for not having recon [surgeon against recon] ($P = .018$) -QOL measures using FACT-B were high for both Mx w/o recon and Mx w/ recon
Rojas et al ²⁰ (2018)	-After adjusting for age, median total FSFI scores did not significantly differ between BMI groups based on the surgical option Lower chest appearance satisfaction: obese and overweight women ($P = .02$)
Soran et al ²¹ (2015)	-Higher decision satisfaction for CPM if no prior diagnosis or other cancer, no chronic disease, insurance, availability for reconstruction -Women more satisfied with CPM decision if spouse/partner and family/friends had a positive opinion about the surgery
van Vuuren et al ²² (2015)	-Satisfaction was higher for Mx w/o recon and no XRT (54%) vs Mx w/o recon and XRT (37%) ($P = .199$) Anxiety score >11 on HADS was related to lower satisfaction in the Mx w/o recon group ($P = .044$) ^a

Abbreviations: BC, breast cancer; BCS, breast-conserving surgery; BMI, body mass index; CPM, contralateral prophylactic mastectomy; FACT-B, Functional Assessment of Cancer Therapy-Breast; FSFI, Female Sexual Function Index; HADS, Hospital Anxiety and Depression Scale; Mx, mastectomy; QOL, quality of life; recon, breast reconstruction; SOGI, sexual orientation and gender identity; vs, versus; w/ with; w/o, without; XRT, radiation therapy.

^aFactor specifically affecting the mastectomy without reconstruction group.

mastectomy without reconstruction would choose the same surgery again.¹⁰

The majority of the studies compared satisfaction outcomes among women who underwent different surgical options. No quantitative studies looked solely at the mastectomy without reconstruction population. Also, the existing studies did not distinguish subgroups of women who forgo reconstruction based on the reason for the decision—“chose” to go flat after mastectomy—within the group of women who underwent a mastectomy without reconstruction. The samples included women who had a mastectomy without reconstruction, but there was no information on which subjects chose to go flat forever versus those who went flat with the hopes of undergoing reconstruction in future and those who were unable to undergo reconstruction. Therefore, it is challenging to carve out the extent of satisfaction in women who chose no reconstruction after mastectomy.

Women who choose to go flat typically want a flat, smooth chest wall without excess skin and limited deformities, whereas women who are currently flat but wanting future reconstruction may be satisfied with excess skin or deformities, knowing these defects will be corrected with future reconstruction. Satisfaction in these two subgroups can be comparable and may be vastly different. Furthermore, women with bilateral mastectomies who choose to go flat may not wear bras, so the question related to bras in the BREAST-Q instrument may only apply to some women, such as those who have had a unilateral mastectomy or those who wear prostheses. Appropriate tools are needed to evaluate satisfaction with decision making in women who did not have reconstruction after mastectomy, including longitudinal studies to evaluate decisional satisfaction and regret over time. Further studies with more subgroups within women who had a mastectomy without reconstruction are necessary to better define decisional and breast/chest satisfaction and identify areas to improve their satisfaction.

In one study of women who chose to go flat, the women reported feeling sexy and strong with their flat chests, embracing their scars.¹¹ These women seemed confident in their decision and comfortable with their bodies, suggesting that satisfaction outcomes may be different among women who choose not to have reconstruction by their perceptions of femininity. How are women who choose to go flat likely to define their femininity, sexuality, and sense of wholeness? Further studies are needed to investigate these relationships and their effects on satisfaction outcomes.

Limited articles looked at satisfaction outcomes in women younger than 35 years or older than 65 years who did not undergo reconstruction after mastectomy. Quantitative studies are also needed in the SGM populations who choose to go flat after mastectomy so that we may better evaluate this hidden population.

Most of the studies did not discuss satisfaction outcomes in relation to race and ethnicity. The incorporation of race, ethnicity, sexual orientation, and cultural diversity in future studies involving women who “choose to go flat” after mastectomy is necessary for understanding the rationale behind a woman’s surgical choice.

The majority of the articles recruited women in a single institution, limiting the subject to a select group of surgeons. Satisfaction with care can be affected by the skill level, communication style, and personality of the health care team in different institutions.^{27,28} Extensive studies with more diverse samples are needed. Also, it would be beneficial to explore prospective clinical trials looking at patient satisfaction outcomes before and after mastectomy without reconstruction.

There are several limitations to this integrative review. Despite the use of a systematic search strategy with a robust group of key words, there is always the possibility of missed articles. Search restrictions related to publication year and English language filters may have excluded other relevant articles. Also, judgment on the quality of the studies could be biased. Although studies conducted

in different countries with large sample sizes were included in this review, more studies will be needed to bring multicultural aspects regarding satisfaction outcomes among women who “choose to go flat.”

IMPLICATIONS FOR PRACTICE AND/OR POLICY

This integrative review identified a variety of factors affecting decisional satisfaction, breast/chest appearance satisfaction, and provider interaction/care satisfaction: body image, BMI, undergoing radiation therapy, information and resources on all surgical options, health care provider support, and a comfortable environment in which women can disclose their SOGI information.

Education and support for women undergoing mastectomy without reconstruction are vital across all health care disciplines. Discussing current evidence-based outcomes related to different surgical options is critical in the preoperative period and can alter patient satisfaction. Providing women with information on all surgical options, including flat closure, is necessary so that women can make informed decisions. Resources may include educational handouts, written and online resources, and support group information specific to each surgical option when possible. Access to postsurgery images, both flat and reconstructive outcomes, or providing the option for women to speak with someone who has undergone a similar surgery can be extremely beneficial in the decision-making process and lead to better satisfaction outcomes. The development and use of validated decision-making tools that can guide women through the advantages and disadvantages of different surgical options using personal and clinical data may be of assistance to some women struggling with the decision process. Nurses are in a strategic position to address the needs of these women as they play a pivotal role in patient communication and education delivery with appropriate information and resources.

As reported earlier, an elevated BMI impacts satisfaction; nurses can assist patients in developing a weight loss plan and support their efforts to cope better with their postsurgery body. This is especially true for women with weight problems related to cancer treatments or medications. As breast/chest appearance satisfaction was significantly worsened by radiation therapy in the reviewed studies, it is essential for health care workers to have informed conversations with women about treatment options and expected outcomes. Furthermore, nurses should discuss body image and sexuality-related issues that may be affected by the patient’s surgical decision and provide early referrals for women with physical and psychological distress. Pressure toward reconstruction in women choosing flat closure was one of the primary factors leading to dissatisfaction with health care provider interaction/care.^{11,13} It is critical for all health care providers to be supportive and nonjudgmental toward women choosing no reconstruction as an option in an interprofessional approach. Identifying and avoiding implicit and explicit biases toward commonly held societal norms that often associate breasts to femininity and a sense of wholeness can be beneficial in developing mutual and respectful patient-provider relationships. Being open to patients’ opinions, without imposing nurses’ personal values or societal standards on patients, will cultivate an opportunity for meaningful dialogue and build trusting, caring, and therapeutic relationships, which is the hallmark of nursing.

CONCLUSION

This integrative review found a significant paucity in the literature on satisfaction outcomes focusing specifically on women who “chose to go flat” after mastectomy, allowing for numerous research opportunities. In the existing studies, decisional and breast/chest appearance satisfaction outcomes of women

who did not have reconstruction were mixed, higher, or lower than the satisfaction of women who chose other surgical options. A variety of factors affecting satisfaction outcomes were identified: body image, BMI, radiation therapy, quality-of-life outcomes, and access to information and resources on all surgical options. Women who felt supported by their surgeon in their decision to go flat and felt comfortable disclosing their SOGI data reported higher provider interaction/care satisfaction. Future research, with appropriate instruments, is needed to investigate satisfaction outcomes in the population who chooses to go flat forever. The comparisons of the

outcomes with women choosing other surgical options and with women who are flat for other reasons can provide nurses an in-depth understanding of their satisfaction and effective care tailored to their needs of support. Studies, inclusive of multicultural, age-diverse, and multi-institutional populations, looking at satisfaction outcomes and factors affecting those outcomes in women who “choose to go flat” are necessary. Future studies can provide high-quality evidence for both clinicians and patients, allowing for optimal surgical decision-making processes and improved patient satisfaction and clinical outcomes.

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