

# ASSESSING THE RELATIONSHIP BETWEEN BREAST RECONSTRUCTION AND PSYCHIATRIC COMORBIDITIES AMONG BREAST CANCER PATIENTS

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Background

- Breast cancer patients experience significant changes in psychosocial and sexual health after undergoing mastectomies.
- The risk of complications following breast reconstruction (BR) presents physical and psychological challenges.
- Studies have investigated psychosocial and quality of life changes after BR.
- There is a paucity of information regarding the prevalence of psychiatric disorders following BR.

In this study, we aimed to:

- Compare postoperative onset of psychiatric disorders among previously healthy patients undergoing different forms of breast reconstruction.
- Identify the probability of a psychiatric outcome among all breast reconstruction patients based on procedure.

Methods & Experimental Design

Database

- PearlDiver, a national database encompassing private payers with 153 million unique patients, was queried from 2010-2020.

Study Population

- Post-mastectomy patients with a history of breast cancer or increased risk of breast cancer
- Patients who underwent implant-based or autologous tissue BR using deep inferior epigastric perforator (DIEP) free flap
- Utilized International Classification Codes 9 and 10 and Current Procedural Terminology codes

Outcome Measurements

- Prevalence of disorder and timing of diagnosis (pre- vs. post- operative)

Analysis

- Binomial outcomes were compared using Pearson’s Chi-square
- Logistic regression was used to identify procedures associated with developing a psychiatric disorder up to 3 years post-operatively
- Statistical analysis was conducted in R (R Core Team, 2014) with significance level set at p<0.05

Results

**Aim 1. Compare postoperative onset of psychiatric disorders among previously healthy patients undergoing different forms of breast reconstruction.**

**Mastectomy alone was associated with a significantly increased onset of a psychiatric disorder when compared to all forms of breast reconstructions.**

**Table 1.** Sub-Analysis of Women Without a Preoperative Psychiatric Diagnosis: Post-Mastectomy Breast Reconstructions and Postoperative Onset of Psychiatric Disorder

Type of Surgery	No Preoperative Diagnosis	Postoperative Onset	Postoperative Psychiatric Disorder			
			Bipolar and related	Depressive	Anxiety	Trauma- and Stressor-related
Mastectomy alone	74,201	22,982 (31.0%)	698 (3.03%)	13,902 (60.5%)	15,458 (67.3%)	2,772 (12.1%)
Immediate DIEP flap	3,408	952 (27.9%)	22 (2.3%)	525 (55.2%)	667 (70%)	161 (16.9%)
Delayed DIEP flap	1,872	468 (25.0%)	0 (0%)	240 (51.3%)	325 (69.4%)	95 (20.3%)
Implant-based reconstruction	40,032	11,072 (27.7%)	240 (2.16%)	5,898 (53.3%)	7,951 (71.8%)	1,627 (14.7%)
P-value		<0.01	<0.01	<0.01	<0.01	<0.01

DIEP: Deep Inferior Epigastric Perforator

**Figure 1.** Of the 204,860 post-mastectomy cancer patients, 111,804 underwent mastectomy alone while 81,786 underwent either DIEP free flap or implant-based reconstruction. Representative flow charts of psychiatric onset among previously healthy patients undergoing mastectomy alone (A), immediate DIEP flap (B), delayed DIEP flap (C), and implant-based reconstruction (D). Dotted lines indicate time of surgery and delineate the preoperative (left of line) versus postoperative (right of line) periods.

Results

**Aim 2. Identify the probability of a psychiatric outcome among all breast reconstruction patients based on procedure.**

**Delayed DIEP flap & implant-based reconstructions were associated with an increased probability of a postoperative anxiety and trauma- and stressor-related diagnosis, while mastectomy alone was protective against these disorders.**

**Table 2.** Logistic Regression Analysis of All Breast Patients up to 3-years Postoperatively: Odds Ratios Associated with Breast Reconstruction and Postoperative Psychiatric Diagnosis

Type of Surgery	Postoperative Psychiatric Disorder				
	Depressive	Anxiety	Bipolar and related	Trauma- and Stressor-related	
Mastectomy alone	0.997	0.893**	1.210**	0.751**	
Immediate DIEP flap	1.011	1.016	1.113	1.093	
Delayed DIEP flap	1.275**	1.380**	1.337*	1.321**	
Implant-based reconstruction	1.039	1.152**	1.114*	1.094**	

\*p<0.05 \*\*p<0.01  
DIEP: Deep Inferior Epigastric Perforator

Conclusions & Future Directions

- Sub-analysis trends were supported by primary outcomes among all post-mastectomy patients.
- Results are possibly suggestive of the inherent challenges faced by patients undergoing complex breast reconstruction.
- Further research is necessary to better understand the possible interplay between breast reconstruction outcomes and psychiatric comorbidities.

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