

# Associations among BMI and patient-reported body image dissatisfaction after breast reconstruction

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## INTRODUCTION

- Breast reconstruction surgery aims to restore breast appearance after mastectomy.
- Body image dissatisfaction is an assessment reflecting the aesthetic outcomes and quality of life as reported by patients.
- We assessed body image concerns using established psychometric measures.
- We investigated the associations among body mass index (BMI) and patient-reported body image dissatisfaction since obesity is known to be associated with the latter<sup>1</sup>.

## PSYCHOMETRIC ANALYSIS

- We used patient-reported outcome measures: Body Image Scale (BIS), Brief Symptom Inventory (BSI), Appearance Schemas Inventory (ASI-R), and BREAST-Q.
- Preoperative independent variables for univariate analysis: age, race, ethnicity, BMI, laterality, BIS, BSI, ASI-R, BREAST-Q psychosocial wellbeing score (PWBS), and BREAST-Q satisfaction with breast score (SWBS).
- The postoperative dependent variables are BIS, BREAST-Q PWBS, and BREAST-Q SWBS.
- A higher BIS score means a higher level of body image disturbance.
- A higher BREAST-Q score means a higher level of satisfaction or well-being.
- Univariate analyses were conducted to identify potential factors among preoperative ones.
- Multivariable linear regression models were used to assess the relationship between the dependent and the selected predictive variables.

## SAMPLE POPULATION

- Forty-four breast cancer patients who underwent immediate autologous (DIEP/TRAM) breast reconstruction, and completed the BIS<sup>2</sup>, BSI<sup>3</sup>, ASI-R<sup>4</sup>, and BREAST-Q<sup>5</sup>, preoperatively and postoperatively at 12+ months.
- Enrolled in an IRB approved study from 2011 to 2014 at The University of Texas MD Anderson Cancer Center. Patients provided consent to the study.

Table 1. Demographics of sample population

Variables	Mean ± STD (Range)
Age, years	48.8±7.6 (33 – 65)
BMI, kg/m <sup>2</sup>	30.5±4.8 (22.3 – 47.4)
<b>Race</b>	<b>N (%)</b>
Caucasian	33 (75)
Asian	2 (4.5)
African American	3 (6.8)
American Indian/Alaskan	1 (2.3)
Not available	5 (11.4)
<b>Ethnicity</b>	
Hispanic	11 (25)
Non-Hispanic	31 (70.5)
Not available	2 (4.5)

## RESULTS

- The independent variable BMI group demonstrated statistical significance only in the first regression model.

Table 2. Multivariable linear regression models

Dependent Variable (Postoperative)	R <sup>2</sup> (AIC)	Predictors	Coefficients (β)	Std Error	t	p-value	95.0% Confidence interval for β	
<b>BIS</b>	0.437 (130.48)	(Intercept)	13.399	2.542	5.270	<0.001	8.227 to 18.572	
		Age	-0.412	0.092	-4.489	<0.001	-0.598 to -0.225	
		BMI group						
		Healthy	reference					
		Overweight	-9.034	2.756	-3.278	0.002	-14.641 to -3.428	
Obese	-5.844	2.755	-2.121	0.042	-11.449 to -0.239			
<b>BREAST-Q PWBS</b>	0.210 (265.86)	(Intercept)	76.469	3.361	22.750	<0.001	69.652 to 83.286	
		Preoperative BSI	-2.921	-0.829	-3.522	0.001	-4.603 to -1.239	
		Anxiety score						
<b>BREAST-Q SWBS</b>	0.205 (267.34)	(Intercept)	75.259	4.175	18.027	<0.001	66.783 to 83.734	
		Preoperative BSI	-2.812	-0.785	-3.582	0.001	-4.405 to -1.218	
		Anxiety score						
		Laterality						
		Bilateral	reference					
Unilateral	-13.311	6.432	-2.069	0.046	-26.369 to -0.253			

- Age and BMI group were significant predictors for postoperative BIS score.
- Older patients and those with BMI categorized as overweight and obese tend to feel less dissatisfied with their body image after immediate autologous breast reconstruction compared to patients with healthy BMI.

## CONCLUSIONS

- Women with higher BMI may experience improved body image after undergoing immediate autologous breast reconstruction, as compared to women with healthy BMI.
- The use of BIS may provide more insight to plastic surgeons compared to relying solely on the body image correlates provided by the BREAST-Q.
- Body image counseling can be beneficial for individuals across all BMI categories, including those with healthy BMI.

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