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Healthcare cost and utilization of bariatric surgical patients with and without preoperative mental health diagnoses

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Abstract

Background: Postoperative healthcare cost and use among patients with and without preoperative mental health illness are not well known.

Objective: This study compared total healthcare spending and use (emergency department [ED] visits and inpatient admissions) after 1 year post operation of those with and without preoperative mental health disorders.

Setting: United States.

Methods: Mental illness disorders were identified using International Classification of Disease-9/10 diagnosis codes in a statewide bariatric surgery registry and in claims databases that were linked to identify the study cohort. Generalized linear regression and zero-inflated negative binomial regression were used for the healthcare cost and use outcomes.

Results: Among 3580 registry patients with private insurance, 1610 patients with continuous enrollment and without missing body mass index data were included. Among patients, 56.8% (n = 915) had diagnosed mental health disorders before surgery. Those with mental illness spent more in total cost than those without mental illness (unstandardized coefficient = $18,513, *P* value < .01) in the first year after surgery. Those with mental illness had a 73% higher rate in ED visits (*P* value < .01), 83% higher rate in preventable ED use (*P* value < .01), and a 101% higher rate in hospital admissions (*P* value < .01) than those without mental illness.

Conclusions: Patients with mental health diagnoses before having bariatric surgery appear to have significant positive association with surgical outcomes relating to postsurgical healthcare cost and utilization. Greater postsurgical surveillance may be warranted for bariatric surgery patients with preoperative mental illness to reduce postoperative ED visits and inpatient admissions. (Surg Obes Relat Dis 2020;16:682–689.)

Key words: Bariatric surgery; Mental illness; Healthcare cost and utilization

Bariatric surgery has demonstrated significant and sustained weight loss, improved physical-related quality of life, and increased remission in co-morbid conditions, such as type 2 diabetes and hypertension [1].However, the potential for increased substance abuse and self-harm, including suicide, after bariatric surgery has also beenreported [2,3]. Furthermore, while studies have shown postbariatric surgery patients

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demonstrated lower healthcare use and spending [4–6], clinical and economic outcomes of bariatric surgery may vary depending on preexisting mental health diagnoses. Reported prevalence of mental health diagnoses among presurgical bariatric patients has varied widely from 23% to 68% [7–10]. The most commonly reported presurgical mental health issues have been depressive disorder [8,11,12].

Reported preoperative mental health illness among bariatric surgical patients may be associated with postsurgical weight loss and healthcare use outcomes. While studies have reported patients with preoperative mental health disorders have less postsurgery weight loss than those without mental disorder [11,13,14], other studies have described no difference in weight loss between patients with and without mental illness status [7,15–17]. Surgical patients with preoperative depression and anxiety have reportedly had longer postsurgical hospital length-of-stay and higher 30-day readmission rates compared with patients without mental health disorders [12,18]. Furthermore, mental health illness present in bariatric surgical patients has been associated with more frequent all-cause emergency department (ED) visits than surgical patients without mental health illness [7].

Differences in healthcare cost and utilization (ED visits, hospital admission, preventable ED visits, and hospital admissions) after bariatric surgery between patients with and without diagnosed preoperative mental health illness are not well known. In addition, limitations of healthcare use studies using health plan– or clinic/hospital–specific data have included the lack of postsurgical follow-up data due to patients switching to another health insurer or visiting out-of-network clinics or hospitals. The objective of this study was to compare healthcare cost and utilization of patients with and without preoperative mental health disorders who underwent bariatric weight loss surgery between 2013 and 2015 and were followed for up to 1 year using a statewide claims database. A significant strength of this study was to access the Utah All Payors Claims database that links statewide health claims with bariatric surgery data, allowing for identification of all clinical visits within Utah before and after bariatric surgery.

Methods

Data

The institutional review board approved this study. The Utah Bariatric Surgery Registry (UBSR) was used to identify patients who underwent bariatric surgery in Utah between July 1, 2013 and December 31, 2015. Using International Classification of Disease (ICD)–9 procedure codes and Current Procedural Terminology codes in the UBSR, identification of bariatric surgical procedures, included Roux-en-Y gastric bypass, adjustable gastric band, sleeve gastrectomy, and duodenal switch. Age of patients at the time of surgery was limited to 18 to 64 years. Patients with revisional bariatric surgical codes or <30 body mass index (BMI, calculated as weight in kilograms divided by height in meters squared [kg/m^2]) at surgery were excluded in the study [7].

Identified patients were linked to the Utah All Payors Claims Database (APCD) that contains approximately 80% of the Utah population covered by private insurance and Medicare Advantage [19,20]. For this study, only patients covered by private insurance were included in the analyses. Based on the APCD eligibility data, only surgical patients who had 6-month continuous enrollment before surgery and 12-month continuous enrollment after surgery were included for calculation of study outcomes. The UBSR- and APCD-identified patients were also linked to the Utah Population Database to acquire Rural-Urban Commuting Area Codes and to identify rural/urban residence at the time of surgery [21].

Study endpoints

Specific study endpoints included annual healthcare use and total healthcare cost after bariatric surgery (1 yr after surgery). Number of all-cause inpatient admissions and number of all-cause ED visits at 1 year after surgery were compared between patients with and without a mental health disorder diagnosis. The ED visits were identified by Current Procedural Terminology (99281 ~ 99285), place of service (23), and revenue codes (450, 459, 981). Inpatient admissions were identified by Current Procedural Terminology (99221 ~ 99223, 99231 ~ 99236, 99238 ~ 99239), place of service (21, 51), and revenue codes (100 ~ 169). Total annual healthcare costs, medical costs, and medication costs were also compared. Total annual healthcare costs were defined as the sum of medical costs (reimbursed, co-pay, co-insurance, prepaid, and deductible amounts) and total medication costs. Number of preventable inpatient admissions and ED visits between the 2 groups were compared at 1 year after surgery. Preventable inpatient admissions (e.g., 493, 250, J13, J14) and ED visits (e.g., 0030, 0039, A150, A530) were identified based on ICD-9/10 diagnosis codes from the Agency for Healthcare Research and Quality and the New York University Emergency Department algorithm [22,23]. Because healthcare resources use after the first 3 months after surgery can be dramatic, we compared healthcare use and cost with and without the first 3 months after surgery.

Inflation adjustment using the Personal Consumption Expenditure Health was applied to healthcare spending to adjust for variation in healthcare costs across years [24,25]. Costs were expressed in 2016 dollars because this was the last year of the APCD data used in this study.

Covariates

Preoperative covariates included BMI (kg/m^2), age (yr), sex (female/male), and race/ethnicity (non-Hispanic white, Hispanic, and others). Procedure types (Roux-en-Y gastric bypass, adjustable gastric band, sleeve gastrectomy, and duodenal switch) were controlled for in all regression-related analyses. Mental health illness and co-morbid conditions, such as type

Table 1
Baseline (within 6 mo presurgery) characteristics of patients with and without diagnosed mental illness

Variable	Before IPW					After IPW				
	Those with mental illness (n = 915)		Those without mental illness (n = 695)		*P* value	Those with mental illness (n = 915)		Those without mental illness (n = 695)		*P* value
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Age, yr	44.1	11.9	45.8	12.7	.01	44.6	13.6	47.7	11.8	.14
BMI*	46.3	8.3	47.5	9.1	.01	46.6	9.7	45.8	7.5	.41
Female, %	77.2		66.7			72.2		66.8		.46
Race/ethnicity, %					.15					.91
Non-Hispanic white	78.5		74.8			76.9		78.3		
Hispanic	18.1		20.3			19.0		18.1		
Other	3.4		4.9			4.1		3.6		
Urban, %	88.9		86.5			88.7		90.9		.26
Surgical procedure, %					<.01					.65
Roux-en-Y gastric bypass	49.4		41.6			45.9		52.7		
Band	8.1		6.9			7.6		5.5		
Sleeve	33.3		37.5			35.4		31.6		
Duodenal switch	9.2		14.0			11.2		10.2		
Co-morbid conditions, %										
T2D	39.4		32.6		.01	39.4		44.4		.43
Hypertension	56.3		34.9		<.01	50.4		58.9		.12
Dyslipidemia	55.2		31.5		<.01	48.1		54.4		.26
Sleep apnea	40.7		21.1		<.01	36.6		47.1		.12
Rheumatoid arthritis/osteoarthritis	40.7		21.1		<.01	35.0		44.4		.16
Low back pain	43.2		20.3		<.01	35.6		45.1		.16
Liver disease	27.0		14.9		<.01	23.8		28.5		.52
Chronic pain	16.3		3.7		<.01	13.0		7.7		.09
Asthma/chronic obstructive pulmonary disease	23.7		8.2		<.01	18.3		21.3		.50
Smoking (current), %	14.7		4.6		<.01	10.7		11.9		.75
Co-morbid score index	1.1	1.7	.3	1.1	<.01	.9	1.8	1.6	2.3	.20
Number of ED visits	.4	1.2	.1	.4	<.01	.3	1.1	.8	1.5	.31
Number of admissions	.3	1.1	.1	.7	<.01	.3	1.0	1.2	2.8	.32
Total healthcare cost, $	11,314	27,298	6847	22,723	<.01	9868	28,740	17,084	44,056	.23
Surgery yr, %					.30					.69
2013	19.1		20.4			20.5		18.2		
2014	39.8		42.3			40.0		45.4		
2015	41.1		37.3			39.5		36.4		

IPW = inverse probability weighting; SD = standard deviation; BMI = body mass index; T2D = type 2 diabetes; ED = emergency department.
* Calculated as weight in kilograms divided by height in meters squared.

2 diabetes were identified from the UBSR (i.e., presurgical history and physical examination patient reports) and the APCD (i.e., type 2 diabetes, hypertension, dyslipidemia, sleep apnea, rheumatoid arthritis/osteoarthritis, low back pain, liver disease, chronic pain, and asthma/chronic obstructive pulmonary disease identified by ICD-9/10 diagnosis codes and based on 6-mo presurgery claims data). In addition, number of ED and hospital visits along with healthcare cost in the 6 months before surgery were calculated from the APCD. Place of residence (rural versus urban) was identified based on Rural-Urban Commuting Area Codes (1 ~ 3.99 as urban and 4 ~ 10.99 as rural) [21]. Extracting APCD preoperative diagnosis codes 6 months before surgery, the combined co-morbid index scores (Charlson Index and Elixhauser Index) were used to calculate the baseline co-morbidity index score [26]. Preoperative mental health disorders were identified by ICD-9/10 diagnosis codes from both the UBSR and APCD and included the following: depression/depressive disorders, anxiety disorders, substance abuse–related mental disorders, bipolar disorders, personality disorders, schizophrenia, and psychotic disorders. Associated ICD-9/10 codes to identify mental health disorders were obtained from Centers for Medicare and Medicaid Services Chronic Conditions Data Warehouse website and from Agency for Healthcare Research and Quality Chronic Condition Indictor [27,28].

Statistical methods

Because baseline characteristics of patients with and without preoperative mental health illness were different, the inverse probability weighting (IPW) approach was used to calculate weight for each patient and weighted baseline characteristics were balanced between the 2 groups [29]. To calculate IPW, the logit model with the binary

outcome (1 = those with mental health illness and 0 = those without mental health illness) was used. In this regression, baseline characteristics, such as age at surgery, baseline BMI, sex, race/ethnicity, rural versus urban, co-morbid conditions, and the combined co-morbid index score, were controlled. Also, presurgical healthcare use and costs (6 mo before surgery), such as total cost, number of ED visits, and number of inpatient admissions, were controlled in the regression model. Statistically significant covariates in IPW were again controlled in the healthcare use and cost regressions.

Summary statistics, such as mean, standard deviation (SD), and percentage, were used to summarize characteristics of the patients, while standardized differences after IPW were used to compare baseline variables between the patient groups with and without preoperative mental health disorders. Unweighted baseline characteristics (i.e., before IPW) between the 2 groups were compared with t test and χ^2 tests.

Healthcare utilization outcomes, such as number of annual inpatient admissions and number of annual ED visits, were analyzed using zero-inflated negative binomial regressions. The zero-inflated negative binomial regression was used due to count outcomes with high-to-the-right skewness. Because patients may not have ED or inpatient visits, a zero inflated approach was considered. Overdispersion was modeled with mean dispersion and the results were shown as incidence rate ratios.

Generalized linear models with log link function and gamma distribution were used for the analyses with the healthcare cost outcomes. Because healthcare spending was highly skewed to the right, due to a small number of patients with extremely high spending, generalized linear models were adopted. Because of the log link function in generalized linear models, those with zero dollars in healthcare spending would be eliminated. To avoid elimination, $.5 was added to any patient with zero dollars in healthcare spending. A P value $< .05$ was considered statistically significant.

Results

Among 3580 registry patients with private insurance, 3535 adult patients (18- to 64-yr old at surgery) were linked with specified APCD claims. Of these patients, 1655 were continuously enrolled from 6 months before surgery and 12 months after surgery. After excluded patients with missing BMI (n = 45), the number of patients used in the study analyses was 1610. Table 1 incudes baseline demographic, clinical, and healthcare cost/utilization characteristics of patients. Of 1610 patients, 56.8% (n = 915) had diagnosed mental health disorders before surgery. Average (SD) age at surgery of patients was 44 (12) years and 46 (13) years, with and without mental illness, respectively. Mean (SD) BMI at surgery was 46.3 (8.3) and 47.5 (9.1) kg/m^2 for those with and without diagnosed mental health illness, respectively. Of patients with presurgical mental health disorders, 77% were female, while 67% without mental health illness were female.

Mean total (SD) healthcare costs of those with and without mental health disorders during 6 months before surgery were $11,314 ($27,298) and $6847 ($22,723), respectively. Among these total costs, mean (SD) medical costs were $8438 ($25,824) for the mental health illness group and $4021 ($21,200) for the no mental health illness group. Mean medication (SD) costs 6 months before surgery

Table 2
Healthcare spending and utilization: 1-year postsurgical follow-up

Outcome	Year 1 after surgery (including first 3 mo after surgery)			
	Those with mental illness		Those without mental illness	
	Mean (SD)	Median	Mean (SD)	Median
Total healthcare cost, $	43,306 (95,112)	26,589	22,833 (69,615)	5734
Medical cost	38,425 (93,999)	23,250	18,692 (67,476)	2341
Medication cost	4882 (12,748)	1306	4140 (17,348)	646
Healthcare use (No. of visits)				
All-cause ED visits	1.1 (2.3)		.5 (1.2)	
Preventable ED visits	.7 (1.7)		.3 (.9)	
All-cause inpatient admissions	1.1 (3.4)		.5 (2.0)	
Preventable inpatient admissions	.1 (.3)		.0 (.1)	
Total healthcare cost, $	13,752 (53,914)	4061	9953 (42,669)	1743
Medical cost	10,356 (39,804)	2446	6854 (39,804)	449
Medication cost	3396 (9181)	608	3098 (14,471)	277
Healthcare use (No. of visits)				
All-cause ED visits	.6 (1.7)		.3 (1.0)	
Preventable ED visits	.5 (1.3)		.2 (.7)	
All-cause inpatient admissions	.4 (1.8)		.2 (1.0)	
Preventable inpatient admissions	.1 (.3)		.0 (.1)	

SD = standard deviation; ED = emergency department.

Table 3
Regression results using healthcare spending as outcome

Outcome	Coefficient	*P* value	95%CI	
Total cost: 1-yr follow-up after surgery, $	18,513	<.01	11,961	25,066
Total cost: 1 yr (excluding 3 mo after surgery), $	3947	<.01	1584	6310
Medical cost: 1-yr follow-up after surgery, $	18,869	<.01	12,741	24,996
Medical cost: 1 yr (excluding 3 mo after surgery), $	3670	.01	1748	559
Medication cost: 1-yr follow-up after surgery, $	479	.19	−241	1201
Medication cost: 1 yr (excluding 3 mo after surgery), $	292	.34	−311	895

CI = confidence interval.

were similar in each group, $2875 ($7542) and $2825 ($8327) for the with and without mental health illness groups, respectively.

Table 2 includes healthcare spending and utilization 1-year follow-up after surgery, with and without the first 3 months of postsurgical data. Mean (SD) total costs for 1 year after surgery were $43,306 ($95,112) and $13,752 ($53,914) with and without the first 3-months postoperative costs, respectively, for those with presurgery mental illness, and $22,833 ($69,615) and $9953 ($42,669) with and without the first 3-months postoperative costs, respectively, for those without mental illness. Within the first-year post-surgery, mean (SD) medical and medication costs of patients with mental disorder were $38,425 ($93,999; $10,356 excluding the first 3 mo) and $4882 ($12,748; $3396 excluding the first 3 mo), respectively.

During the first-year follow-up after surgery, mean (SD) number of all-cause ED visits of those with and without mental illness were 1.1 (2.3) and .5 (1.2), respectively, and mean (SD) number of hospital admissions of those with and without mental illness were 1.1 (3.4) and .5 (2.0), respectively. The mental illness group had higher preventable ED visit and inpatient admission than the nonmental illness group during 1-year follow-up after surgery (mean ED visit: .7 versus .3, respectively; mean admission: .1 versus .0, respectively).

After controlling for baseline characteristics (Table 1), such as demographic characteristics (e.g., age at surgery, sex, rural/urban), co-morbid score index, co-morbid conditions, type of surgery, surgery year, and baseline healthcare spending/use, those with presurgical mental illness spent more in total cost than those without mental illness (unstandardized coefficient [B] = $18,513, $P < .01$). Both medical spending (B = $18,869, P value $< .01$) and medication spending (B = $480, $P = .19$) were higher for those with mental illness, but the medication spending was not statistically significantly different between the 2 groups (Table 3).

All-cause ED and hospital admissions 1 year after surgery were higher for those with presurgical mental illness than those without mental illness. Those with preoperative mental illness had 73% higher rate of ED visits ($P < .01$), and 83 % higher rate of preventable ED use ($P < .01$) (Table 4).

Hospital admissions of those with presurgery mental illness were higher than those without mental illness. Patients with mental illness had 101% higher rate in hospital admissions than those without mental illness ($P < .01$), but preventable hospital admissions were not statistically different for the 2 groups (incidence rate ratios = .95, $P = .90$) (Table 5).

Because severity of mental illness could be associated with healthcare spending and use, 4 groups were created as follows: (1) no mental disorder; (2) mild-to-moderate anxiety or depression disorders; (3) severe depression or anxiety; and (4) bipolar, psychotic, and schizophrenia. Patients who were severely sick or had bipolar/psychotic/schizophrenia had statistically significant higher total cost and medical costs than those with no mental illness. Those who had mild-to-moderate anxiety or depression had 62% higher ED use than those without mental illness. Severely sick patient had 128% higher ED visits than those without mental illness (Appendix B).

Discussion

To further advance the understanding of association between mental health status of presurgical bariatric surgical patients and postsurgical healthcare cost and utilization, this retrospective observational cohort study identified

Table 4
Regression results using ED visits use as outcome

Outcome variable	IRR	*P* value	95%CI	
ED use 1-yr follow-up after surgery	1.73	<.01	1.38	2.17
ED use 1-yr follow-up after surgery (excluding the first 3 mo after surgery)	1.63	<.01	1.24	2.15
Preventable ED use 1-yr follow-up after surgery	1.83	<.01	1.42	2.37
Preventable ED use 1-yr follow-up after surgery (excluding the first 3 mo after surgery)	1.86	<.01	1.35	2.56

ED = emergency department; IRR = incidence rate ratio; CI = confidence interval.

Table 5
Regression results using inpatient admissions as outcome

Outcome variable	IRR	*P* value	95%CI	
Inpatient admission 1-yr follow-up after surgery	2.01	<.01	1.45	2.77
Inpatient admission 1-yr follow-up after surgery (excluding the first 3 mo after surgery)	2.60	<.01	1.51	4.50
Preventable inpatient admission 1-yr follow-up after surgery	.75	.43	.37	1.54
Preventable inpatient admission 1-yr follow-up after surgery (excluding the first 3 mo after surgery)	.95	.90	.42	2.15

IRR = incidence rate ratio; CI = confidence interval.

mental health disorders, total healthcare costs, and healthcare utilization 6-months before bariatric surgery and 1 year after surgery. Prevalence of presurgical mental health disorders was 57% for all patients in the present study. Controlling for presurgical healthcare costs and utilization and patient demographic characteristics, at 1-year postbariatric surgery, patients with presurgical mental health disorders experienced significantly greater total cost ($18,513 higher), ED visits (73% higher), and hospital admissions (101% higher) compared with surgical patients without preoperative mental health disorders. Furthermore, when considering calculated preventable healthcare utilization, patients with presurgical mental health disorders had significantly greater preventable postoperative ED visits (83% higher) compared with patients without presurgical mental health disorders. Excluding the first 3 months after surgery, similar results were found.

Previous bariatric surgery studies have consistently published presurgical prevalence for mental health disorders at relatively high rates. Litz et al. [30], analyzing data from the Pennsylvania Healthcare Cost Containment Council (2011–2014), reported a preoperative mental health disorder prevalence of 61.5% among 19,259 bariatric surgery patients [30]. Of 199 bariatric surgery patients participating in the Longitudinal Assessment of Bariatric Surgery observational study, Mitchell et al. [9] found 68.8% of presurgical patients to have had $\geq$1 lifetime Axis I mental health disorder and 33.7% $\geq$1 current (time of surgery) Axis I disorder. Specific and more prevalent mental health issues have included major depressive disorder, anxiety disorder, bipolar disorder, and binge eating disorder [7,8,12,13].

While some studies have reported improvement in mental health illness, such as depressive disorder after bariatric surgery [8,14], greater postsurgery mental health disorders associated with presurgery mental health disorders has also been reported [30]. Irrespective of preoperative mental health disorder status, Adams et al. [1] reported that after gastric bypass surgery, although patients on average reported improvement in physical health domain of the short form-36 questionnaire, similar improvements were not seen in the mental health domain.

Our analyses showed a significantly greater total healthcare cost due to medical costs as well as greater ED visits and inpatient hospital admissions among bariatric surgical patients diagnosed with preoperative mental health disorders compared with patients without diagnosed presurgery mental health disorders. Similar findings have been reported. For example, using electronic medical record data of 8129 patients from multiple healthcare systems, Fisher et al. [7] showed higher rates of ED follow-up and hospital days after bariatric surgery among patients with diagnosed preoperative mental health disorders compared with patients without presurgery mental health illness. Following 354 bariatric surgical patients, Jalilvand et al. [12] reported significantly greater 30-day hospital readmission rates after surgery in patients with preoperative mental health disorders compared with patients without (10.5% versus 3.7%, respectively, $P = .02$). With reference to postbariatric surgery–related healthcare costs, most studies have compared postsurgical costs of bariatric patients with nonsurgical control patients, irrespective of preoperative mental health status [4,6]. We reported significantly increased total healthcare costs, as represented by mean medical care and mediation costs at 1 year after surgery for patients who prebariatric surgery had diagnosed mental health disorders compared with preoperative nonmental health disorder patients ($43,306 versus $22,833, respectively). However, when only postoperative pharmaceutical costs were compared between groups, there were no significant differences in costs between patients with and without preoperative mental health disorders.

Important strengths related to this study are the statewide medical claims and surgery databases used to extract pre- and postsurgical data. For example, the APCD accessed as part of this study contains close to 80% of the Utah population covered by private insurance. Also, we examined preventable ED and inpatient admissions as parts of healthcare use.

There are several limitations in the study. One potential weakness of this study was related to the limited number of patients who met the enrollment criteria of the study. Because this study accessed an administrative database, patients who were not continuously enrolled with medical/health insurance were dropped from the analysis. Absent the inclusion of these patients may statistically underestimate the burden of co-morbid conditions and generate biased results. Because this study considered patients only enrolled in private insurance and did not include nonelderly bariatric surgical patients who covered by Medicaid, additional underestimation of comorbidities may have occurred. Furthermore, follow-up of certain clinical variables, such as BMI, were not available for associating with and without presurgical mental health disorders with short-term clinical outcomes. Because the current APCD does not provide behavioral health–related claims, this study was limited to consideration of medical costs only. Had behavioral health–related costs been available, study results relating to clinical cost recommendations

may have been possible. Patient socioeconomic status, such as income and years of education, has been shown to be associated with healthcare use and spending. However, because socioeconomic status data were not available in the present study, variables such as education and income were not controlled for in the regression analyses. Approximately 28% of those who had presurgery mental health disorders were not reportedly prescribed any psychotropic medication. For these patients, it is possible that mental health disorders may have been resolved before their bariatric surgery. Because different health insurance carriers charge different amounts for the same or similar healthcare-related services, individual bariatric surgical patient's healthcare costs are likely to be impacted. Unfortunately, this study was not able to test for these cost differences as part of the analysis because the access to identification of specific health carriers was not allowed the current APCD.

Conclusion

As evidenced by results of this study, mental health status of patients seeking bariatric weight loss surgery, as well as patients who have undergone bariatric surgery, appears to have strong association with surgical outcomes relating to clinical health as well as healthcare cost and utilization. While increased postoperative healthcare utilization is important to consider, we believe this finding should not result in discouraging providers from treating patients with psychiatric diagnoses with bariatric surgery. Research findings have demonstrated bariatric surgery has the potential to improve health-related quality of life as well as increase the risk for suicide and self-harm. In view of these findings, and in consideration of the high prevalence of psychiatric co-morbidities in this population, it is our opinion that clinical providers and bariatric centers should obligate themselves to work closely with patients in an effort to determine surgical appropriateness from a psychological standpoint and if indicated, to provide counseling and screening.

Additional research addressing mental health-related screening (pre- and postoperatively) as well as treatment strategies (pre- and postsurgical) merits significant clinical relevance.

Disclosures

Dr. Cottam reports personal fees and other from Medtronic and GI Windows, outside the submitted work. All other authors have no conflict of interest.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at https://doi.org/10.1016/j.soard.2020.01.035.

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