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Preoperative Psychological Evaluation Outcomes, Reasoning, and Demographic and Diagnostic Correlates

Haley M. Kiser[1] · Keeley J. Pratt[1,2] · Brian C. Focht[1] · Lorraine Wallace[3] · Natasha Slesnick[1] · Sabrena Noria[2] · Bradley Needleman[2] · Ashleigh A. Pona[4]

Abstract

Purpose Little is known about associations between preoperative psychiatric, disordered eating, and substance use diagnoses with the clinical decision to require follow-up after the preoperative psychological evaluation. To determine the proportion of patients who require follow-up (no required follow-up (NFU), required follow-up (RFU), placed on hold (POH)) from the preoperative psychological evaluation, associations with diagnoses, and noted reasons for follow-up.

Materials and Methods The sample included 508 patients (77.6% female; 64.4% White) pursuing bariatric metabolic surgery with completed psychological evaluations between August 2019 and December 2020 at a Midwest medical center. Patient demographics, psychological evaluation outcome and corresponding reasoning, and psychiatric, disordered eating, and substance use diagnoses were extracted from the health record. Descriptive and bivariate analyses determined associations between demographics and diagnoses with psychological evaluation outcomes and corresponding reasoning.

Results The breakdown of psychological evaluation outcomes was 60.6% ($n = 308$) NFU, 38.4% ($n = 195$) RFU, and 1.0% ($n = 5$) POH. Demographic correlates of RFU included higher BMI, being single, lower educational attainment, unemployment, public/no insurance, and receiving multiple or any psychiatric diagnosis (all p-values < 0.05). Diagnostic correlates of RFU included anxiety, depression, not having a current trauma or stressor-related disorder, disordered eating, and substance use diagnoses (all p-values < 0.001). RFU/POH was primarily due to psychiatric (61%) reasons.

Conclusion Higher rates of RFU were observed for patients with higher economic need and with psychiatric, disordered eating, or substance use diagnoses. Future work should establish preoperative programming to assist patients with addressing ongoing psychiatric concerns prior to bariatric metabolic surgery.

Keywords Psychiatric · Substance use · Disordered eating · Psychological evaluation

Key Points

• Little is known about clinical decisions from the preoperative psychological evaluation and patients' current psychiatric, disordered eating, and substance use diagnoses.

• Demographics associated with receiving a recommended follow-up with the psychologist included having a higher BMI, being single, lower educational attainment, unemployment, and having public or no insurance.

• Diagnostic correlates of receiving a recommended follow-up included having multiple or any psychiatric diagnosis and, specifically, an anxiety, depression, not having a current trauma or stressor-related disorder, disordered eating, or substance use diagnosis.

• Future programming may be needed to aid patients who receive a clinical decision of required follow-up to address ongoing concerns prior to bariatric and metabolic surgery.

✉ Keeley J. Pratt
Pratt.192@osu.edu

Extended author information available on the last page of the article

Introduction

National guidelines recommend that all patients undergo a formal psychosocial-behavioral evaluation, often called a preoperative psychological evaluation (PPE), to identify current psychiatric, substance use, and disordered eating diagnoses before progressing to bariatric and metabolic surgery (BMS) [1]. This evaluation is conducted with a qualified behavioral health professional, commonly a psychologist [1]. Based on existing literature, 10–30% of patients required follow-up or were placed on a hold for BMS for at least a year due to contraindications (denied) after the PPE due to current psychiatric [2–5], disordered eating [3, 4], and/or substance use diagnoses [5, 6]. While there is extensive literature detailing the prevalence of specific diagnoses that patients present with during the preoperative psychological

evaluation, there is a deficit of recent evidence detailing how diagnoses associate with the decision to require follow-up after the psychological evaluation (i.e., no required follow-up, required follow-up, placed on hold). There is also variance in the rates of required follow-up and hold between BMS centers (i.e., 15% vs. 28%), [3, 7] and rates of requiring follow-up or being placed on hold are often not separated from one another in the literature [2–7]. These limitations indicate that information is needed to understand how preoperative diagnoses associate with the clinical decision to require follow-up from the PPE in order to determine the need for additional supports in the preoperative process [5]. Ultimately, this information is needed for the standardized reporting of outcomes to ensure consistency among providers and BMS centers in the preoperative psychological decision-making process.

There is evidence to suggest that preoperative patients have higher rates of psychiatric, disordered eating, and substance use diagnoses compared to the general population; however, the range of diagnosis rates for each diagnostic category and specific diagnoses vary between studies. For example, 30–56% of preoperative patients have one, and 38% have two or more psychiatric, disordered eating, and/or substance use diagnoses [4, 8]. The three most common preoperative diagnoses are depression (19–32%), anxiety (12–24%), and binge eating disorder (5–17%) [8–11]. In the limited literature available about associations between these diagnoses and PPE outcomes, researchers have noted that patients with more depression and anxiety symptoms and untreated/undertreated depression were more likely to require follow-up and/or be placed on hold for BMS [5].

With respect to substance use, rates vary across studies and substances in which 10% of patients reported a preoperative history of substance use [12, 13], and 2% met diagnostic criteria for an active substance use disorder [14, 15]. Furthermore, 8% of the preoperative patient population had a diagnosable alcohol use disorder [12], 8% reported chronic opioid use [16], and 17% had current tobacco use [17]. While prevalence rates are available on these diagnoses, updated literature is lacking on specific associations between diagnoses and outcome of the PPE.

Overall, the variance in the rates of preoperative psychiatric, disordered eating, and substance use diagnoses coupled with the limited information about associations between diagnoses and PPE outcome limit the ability to accurately understand how existing diagnoses associate with the outcomes of do not require follow-up, require follow-up, or place on hold for BMS. This information is essential to determine what level of preoperative intervention may be needed to aid patients with their behavioral health concerns as they pursue BMS. Given these limitations, the purpose of this study is to determine the rate of no required follow-up, required follow-up, and placed on hold due to contraindication, associations

with current demographics and diagnoses, and noted reasons for requiring clinical follow-up.

Methods

Study Design

This is a descriptive study that utilized retrospective electronic health record (EHR) data from patients seen for their initial PPE from August 2019 to December 2020. The study was approved by The Ohio State University Institutional Review Board (#2021H0243).

Procedures

During the PPE, patients meet with a psychologist to complete a clinical interview and testing [18–23] in which diagnoses are assessed. All patients ($N = 508$) who completed their initial evaluation during the study timeframe with a single psychologist were included in the study. Additional patient inclusion criteria included ≥ 18 years old and a BMI ≥ 35 with associated medical problems or a BMI ≥ 40 without a comorbidity [1].

Measures

Demographics

Patient age, race, sex, BMI, educational attainment, employment status, insurance type, and relationship status were extracted. BMS completion, defined as patients having completed surgery after the psychological evaluation and before January 2022 (i.e., time of data extraction), was coded as yes or no.

Psychological Evaluation Outcomes

The outcome from the psychological evaluation was coded: (a) did not require follow-up after the evaluation (no follow-up (NFU)), (b) required follow-up after the psychological evaluation (required follow-up (RFU)), and (c) placed on hold for BMS for at least 1 year due to a contraindication (placed on hold (POH)) [24].

The reason for RFU or POH was coded as psychiatric (i.e., undertreated or untreated diagnoses, psychiatric hospitalization in last 12 months, suicide attempt in last 18 months) and other behavioral health reasons (i.e., problematic eating, substance/alcohol use, poor adherence, lack of knowledge/understanding of BMS/eating guidelines, presence of major stressors). Completion of a follow-up visit for patients who required follow-up was coded as yes or no. Finally, the total number of encounters with the psychologist

(i.e., initial evaluation and follow-ups) was a continuous variable.

Psychiatric Treatment and Diagnoses

Patients who were currently receiving psychiatric treatment were coded as yes or no. Current psychiatric diagnoses were coded by category (yes, no) based on the DSM-5. Having multiple current psychiatric diagnoses was coded as yes or no. Specific to this study, the diagnoses of "adjustment disorder with physical complaints" and "psychological factors affecting obesity" were not included due to these diagnoses being part of the center's protocol to diagnose patients who did not have other noted diagnoses.

Disordered Eating Diagnoses

Current disordered eating diagnoses (any, binge, and unspecified) were coded by category (yes, no) per the DSM-5.

Substance Use Diagnoses

Substance use (any, alcohol, nicotine/tobacco, and cannabis) was coded based on criteria in the DSM-5 (yes, no).

Analysis Strategy

Data were analyzed using SPSS version 27 (IBM). Descriptive statistics were run for all variables. Bivariate analyses included independent sample t-tests and chi-square to assess differences based on demographics, psychiatric, disordered eating, and substance use diagnoses with PPE outcomes. Chi-square tests were only conducted for variables that had at least 5 counts per cell. Patients who received a POH ($n = 5$) for BMS were dropped from bivariate analyses due to the small sample size. Statistical significance was set at $p < 0.05$. There was no missing data.

Results

Demographics

Demographic associations based on psychological evaluation outcomes are in Table 1, with group comparisons made between NFU and RFU. Sixty percent of patients did not require follow-up after the psychological evaluation, 38.4% required follow-up, and 1.0% were placed on hold due to contraindications. There were 63.6% patients who completed BMS after the PPE, and of those patients that did not require psychological follow-up, 75% went on to receive BMS, while 47.2% of those who required follow-up completed surgery. Patients that received an RFU had a significantly higher

BMI at evaluation than those who received NFU ($p = 0.004$). Patients who were single were more likely to receive an RFU compared to patients who were coupled ($p = 0.005$). Patients with lower levels of educational attainment were more likely to receive an RFU ($p < 0.001$); specifically, those with a high school diploma/GED/or less (34.4%) and some college experience (36.4%) were more likely to receive an RFU compared to those that received an associate or bachelor's degree (24.1%) or a graduate degree or higher (5.1%). Patients who were employed were more likely to receive an NFU compared to patients who were not employed ($p < 0.001$). Private insurance holders were also more likely to receive an NFU compared to those with public/no insurance ($p < 0.001$).

Psychiatric Diagnoses

Psychiatric, disordered eating, and substance use diagnoses and associations with psychological outcomes are in Table 2. The most prevalent current psychiatric diagnoses at the time of the evaluation were depressive disorder diagnoses (42.7%; i.e., major depressive disorder), anxiety disorder diagnoses (42.1%; i.e., generalized anxiety disorder), and trauma or stressor-related diagnoses (15.6%; i.e., PTSD). Over half of the sample received at least one diagnosis (58.5%), and 39.2% of all patients received at least two psychiatric diagnoses at the time of the psychological evaluation. Patients currently receiving psychiatric treatment (with or without current diagnoses) were less likely to receive an RFU compared to patients who were not in treatment ($p = 0.006$). Those who did not have trauma or stressor-related disorder diagnoses were more likely to receive an RFU at the psychological evaluation compared to those that did receive the diagnosis ($p < 0.001$). Those diagnosed with an anxiety disorder were more likely to receive an RFU compared to those that did not receive the diagnosis ($p < 0.001$). Patients who received a depressive disorder diagnosis were more likely to receive an RFU compared to those that did not receive the diagnosis ($p < 0.001$). Patients who received multiple psychiatric diagnoses were also more likely to receive an RFU than those with one diagnosis ($p < 0.001$). Patients with any current psychiatric diagnosis were more likely to receive an RFU than those with no diagnosis ($p < 0.001$).

Disordered Eating Diagnoses

There were 19.7% of patients who received a current disordered eating diagnosis at the evaluation, with 6.1% of all patients diagnosed with a binge eating disorder diagnosis and 9.4% of all patients receiving an unspecified feeding or eating diagnosis. Patients not diagnosed with a disordered eating diagnosis were more likely to receive an RFU than those with a disordered eating diagnosis ($p < 0.001$).

Table 1 Patient demographics ($N = 508$) (mean (SD), range; frequency (%))

	All	POH	NFU	RFU	X^2 or t	df	p-value
Age	40.95 (11.23), 18–73	32.60 (10.46), 21–49	41.62 (11.48), 19–73	40.10 (10.75), 18–66	1.49	501	0.137
Sex							
Male	114 (22.4%)	0 (0.0%)	64 (20.8%)	50 (25.6%)	1.34	1	0.246
Female	394 (77.6%)	5 (100.0%)	244 (79.2%)	145 (74.4%)			
Race^							
White	327 (64.4%)	3 (60.0%)	196 (63.6%)	128 (65.6%)	.35	1	0.553
Black	146 (28.7%)	2 (40.0%)	92 (29.9%)	52 (26.7%)			
Other/multi	34 (6.7%)	0 (0.0%)	20 (6.5%)	14 (7.2%)	–		–
Relationship status							
Coupled	276 (54.3%)	1 (20.0%)	184 (59.7%)	91 (46.7%)	7.72	1	0.005*
Single	232 (45.7%)	4 (80.0%)	124 (40.3%)	104 (53.3%)			
Educational attainment							
High school diploma/GED or less	133 (26.2%)	3 (60.0%)	63 (20.5%)	67 (34.4%)	23.87	3	<0.001**
Some college	165 (32.5%)	2 (40.0%)	92 (29.9%)	71 (36.4%)			
Associate/bachelor's	160 (31.5%)	0 (0.0%)	113 (36.7%)	47 (24.1%)			
Graduate degree or higher	50 (9.8%)	0 (0.0%)	40 (13.0%)	10 (5.1%)			
Employment status							
Employed	333 (65.6%)	0 (0.0%)	236 (76.6%)	97 (49.7%)	37.37	1	<0.001**
Unemployed	174 (34.3%)	4 (80.0%)	72 (23.4%)	98 (50.3%)			
Insurance type^^							
Private	258 (50.8%)	0 (0.0%)	184 (59.7%)	74 (37.9%)	24.53	3	<0.001**
Medicaid	161 (31.7%)	5 (100.0%)	76 (24.7%)	80 (41.0%)			
Medicare	46 (9.1%)	0 (0.0%)	20 (6.5%)	26 (13.3%)			
None	3 (0.6%)	0 (0.0%)	3 (1.0%)	0 (0.0%)			
BMI at evaluation	49.45 (9.48), 32.00–90.50	48.28 (6.76), 39.90–55.00	48.47 (8.80), 32.00–90.50	51.03 (10.36), 34.80–90.40	−2.86	363.90	0.004*
Completed surgery	323 (63.6%)	0 (0.0%)	231 (75%)	92 (47.2%)	39.02	1	<0.001**

*$p < 0.05$; **$p < 0.001$ results between NFU and RFU (only). ^Black and White race was used. ^^Private or Medicaid/Medicare/none together was used

Substance/Alcohol Use Diagnoses

There were 14.8% of patients who currently used a substance/alcohol at the time of the evaluation; 5.5% of patients used alcohol, 7.1% used tobacco or nicotine, and 4.3% used cannabis. Patients not using substances were more likely to receive an NFU compared to those using substances ($p < 0.001$). Patients not using alcohol were more likely to receive an NFU compared to those that did use alcohol ($p = 0.001$). Patients not using cannabis were more likely to receive an NFU after the initial psychological evaluation compared to those using cannabis ($p = 0.008$).

Reasoning for Patients RFU or POH

Information regarding reasons for RFU and POH provided are in Table 3. Of the 195 patients that received an RFU, 61% were for psychiatric reasons (i.e., symptoms not well-managed, moderate to severe symptoms), while 39% were for other behavioral health reasons (i.e., not adhering to medications, recent binge eating, current continuation of substance use). The majority (82.1%) of those who received an RFU had a follow-up encounter with the psychologist, with an average of 2.23 ± 0.83 encounters. Of those who received an RFU, 47.2% completed BMS at the center. For the five patients who were POH, the reason was attributed

Table 2 Psychiatric, disordered eating, and substance use diagnoses ($N = 508$) (mean (SD), range; frequency (%))

	All	POH	NFU	RFU	X^2 or t	df	p-value
Current psychiatric							
In current treatment	88 (17.3%)	0 (0.0%)	42 (13.6%)	46 (23.6%)	7.52	1	0.006*
Any current psychiatric Dx							
Yes	297 (58.5%)	5 (100.0%)	135 (43.8%)	157 (80.5%)	64.48	1	<0.001**
No	211 (41.5%)	0 (0.0%)	173 (56.2%)	38 (19.5%)			
Total # of current psychiatric Dx	1.17 (1.22), 0–5	3.60 (1.14), 2–5	.77 (1.04), 0–5	1.75 (1.19), 0–5	−9.82	501	<0.001**
Multiple psychiatric Dx							
Yes	199 (39.2%)	5 (100.0%)	72 (23.4%)	122 (62.6%)	75.75	1	<0.001**
No	309 (60.8%)	0 (0.0%)	236 (76.6%)	73 (37.4%)			
Trauma or stressor Dx							
Yes	79 (15.6%)	3 (60.0%)	29 (9.4%)	47 (24.1%)	18.95	1	<0.001**
No	429 (84.4%)	2 (40.0%)	279 (90.6%)	148 (75.9%)			
Anxiety Dx							
Yes	214 (42.1%)	4 (80.0%)	92 (29.9%)	118 (60.5%)	44.85	1	<0.001**
No	294 (57.9%)	1 (20.0%)	216 (70.1%)	77 (39.5%)			
Depressive Dx							
Yes	216 (42.5%)	3 (60.0%)	94 (30.5%)	119 (61.0%)	44.27	1	<0.001**
No	292 (57.5%)	2 (40.0%)	214 (69.5%)	76 (39.0%)			
Bipolar and related Dx							
Yes	26 (5.1%)	2 (40.0%)	1 (0.3%)	23 (11.8%)			
No	482 (94.9%)	3 (60.0%)	307 (99.7%)	172 (88.2%)			
OCD and related Dx							
Yes	6 (1.2%)	0 (0.0%)	2 (0.6%)	4 (2.1%)			
No	502 (98.8%)	5 (100.0%)	306 (99.4%)	191 (97.9%)			
Neurodevelopmental Dx							
Yes	14 (2.8%)	0 (0.0%)	9 (2.9%)	5 (2.6%)	0.000	1	1.00
No	494 (97.2%)	5 (100%)	299 (97.1%)	190 (97.4%)			
Schizophrenia spectrum Dx							
Yes	6 (1.2%)	1 (20.0%)	0 (0.0%)	5 (2.6%)			
No	502 (98.8%)	4 (80.0%)	308 (100.0%)	190 (97.4%)			
Personality Dx							
Yes	4 (0.8%)	2 (40.0%)	0 (0.0%)	2 (1.0%)			
No	504 (99.2%)	3 (60.0%)	308 (100.0%)	193 (99.0%)			
Current eating disorders							
Eating disorder Dx							
Yes	100 (19.7%)	3 (60.0%)	6 (1.9%)	91 (46.7%)	150.54	1	<0.001**
No	408 (80.3%)	2 (40.0%)	302 (98.1%)	104 (53.3%)			
# eating disorder Dx	0.20 (.42), 0–2	0.80 (.84), 0–2	0.02 (.17), 0–2	0.48 (.52), 0–2	−11.79	220.32	<.001**
Binge eating Dx							
Yes	31 (6.1%)	2 (40.0%)	0 (0.0%)	29 (14.9%)			
No	477 (93.9%)	3 (60.0%)	308 (100.0%)	166 (85.1%)			
Unspecified feeding or eating Dx							
Yes	48 (9.4%)	0 (0.0%)	2 (0.6%)	46 (23.6%)			
No	460 (90.6%)	5 (100.0%)	306 (99.4%)	149 (76.4%)			
Current substance use							
Substance use							
Yes	75 (14.8%)	2 (40.0%)	19 (6.2%)	54 (27.7%)	42.87	1	<0.001**
No	433 (85.2%)	3 (60.0%)	289 (93.8%)	141 (72.3%)			
# substances used	0.17 (.45), 0–3	0.40 (.55), 0–1	0.07 (.28), 0–2	0.33 (.59), 0–3	−5.89	249.05	<0.001**

Table 2 (continued)

	All	POH	NFU	RFU	X^2 or t	df	p-value
Alcohol use Dx							
Yes	28 (5.5%)	0 (0.0%)	8 (2.6%)	20 (10.3%)	11.91	1	< 0.001*
No	480 (95.5%)	5 (100.0%)	300 (97.4%)	175 (89.7%)			
Nicotine/tobacco use							
Yes	36 (7.1%)	2 (40.0%)	4 (1.3%)	30 (15.4%)			
No	472 (92.9%)	3 (60.0%)	304 (98.7%)	165 (84.6%)			
Cannabis use							
Yes	22 (4.3%)	0 (0.0%)	7 (2.3%)	15 (7.7%)	7.14	1	0.008*
No	486 (95.7%)	5 (100.0%)	201 (97.7%)	180 (92.3%)			

*Significant ($p < 0.05$); **Significant ($p < 0.001$) results between NFU and RFU (only)

Dx diagnosis, *OCD* obsessive compulsive disorder

Table 3 RFU and POH reasons, follow-up, and surgery completion ($n = 200$) (mean (SD), range; frequency (%))

	RFU	POH
Reason		
Psychiatric	119 (61.0%)	5 (100.0%)
Other non-psychiatric	76 (39.0%)	0 (0.0%)
Follow-up		
Yes	160 (82.1%)	0 (0.0%)
No	35 (17.9%)	NA
# of visits with psychologist	2.23 (.83), 1–5	1.20 (.45), 1–2
Yes	92 (47.2%)	0 (0.0%)
No	103 (52.8%)	5 (100.0%)

to psychiatric factors (i.e., recent psychiatric hospitalization or suicide attempt, active substance or alcohol use disorder). None of those that received a POH completed BMS at the center.

Conclusions

The objective of this study was to provide evidence about which psychiatric, disordered eating, and substance use diagnoses associate with outcomes from the preoperative psychological evaluation for BMS. Overall, the percentage of patients who received an RFU (38%) in this study was higher compared to previous studies (i.e., 10–30%) [2–5]. Patients who received an RFU were more likely to have psychiatric, disordered eating, and substance use diagnoses, and only 45% proceeded to surgery. These results indicate that additional preoperative supports may need to be developed for patients with diagnoses. For example, preoperative supports may include pathways in which patients with current diagnoses have access to behavioral health services for ongoing

therapy, work on weight management goals, and addressing potential mental health and psychiatric challenges that may arise after surgery.

With respect to demographics, patients who were single, had lower educational attainment, unemployed, and with public/no insurance were more likely to RFU. Romantic relationship factors have consistent associations with patient health behaviors, such that patients in relationships often have more support compared to patients who are not in relationships [25, 26]. Patients with higher BMIs at the time of the preoperative evaluation were also more likely to RFU. This may be partially explained by these patients having less support and/or access to resources to make behavioral changes prior to pursuing BMS, resulting in a higher presenting BMI. Additionally, it is well documented that patients with more economic barriers or risk factors (lower educational attainment, unemployment, public or no insurance) often have worse postoperative weight loss [27, 28]. While demographic factors have not been previously extended to outcomes from the PPE, these findings may indicate that additional resources may need to be available to patients who have less social support and more economic barriers to aid them in progressing through the preoperative process.

Over half (58.5%) of all patients in this study were diagnosed with at least one current psychiatric diagnosis, which is within the range of previously reported percentages (48–63%) [4, 29]. However, in this study, there was an increased percentage of patients who received multiple current psychiatric diagnoses (39.2%) compared to previous reports (25–31%) [4, 29]. The percentage of patients with depression (42.7%) and anxiety (42.1%) were also higher than prior reports (depression 19%; anxiety 25–17%) [9, 11, 29]. A potential reason for the increased rate of psychiatric diagnoses may in part be due to the timing of evaluations, which were at the beginning of the COVID-19 pandemic when people, in general, may have experienced worsened or new diagnoses. Additionally, this study categorized psychiatric diagnoses based

on the DSM-5, compared to literature before 2013 which utilized prior DSM-IV criteria based on a multi-axial system.

Patients that reported receiving current psychiatric treatment were more likely to receive an NFU, likely attributed to them actively working to manage their psychiatric symptoms. However, patients with multiple psychiatric diagnoses were more likely to RFU. This finding may suggest that patients with multiple current diagnoses may be experiencing numerous and/or symptoms of varying intensity that need to be addressed prior to surgery. Therefore, by recommending follow-up, the patient has extended time to utilize additional resources (i.e., therapy and medication management). Having a current anxiety or depressive disorder was associated with RFU after the initial PPE. This is consistent with previous literature on rates of current depression (19–31.5%) and anxiety (12–24%) preoperative diagnoses and requiring follow-up [8–11]. Surprisingly, not having a current trauma or stressor-related disorder diagnosis was associated with receiving RFU in comparison to having a diagnosis after the initial psychological evaluation. This may be due to patients potentially addressing and managing symptoms prior to their PPE, though future research should explore this finding in greater detail, including patient efforts to manage past trauma and ongoing symptom management (i.e., ongoing therapy).

The percent of current binge eating and unspecified eating disorder diagnoses reported in this study (15.5%) was similar to previous reports (17%) [9, 11], while the percent of current substance use in the study (14.8%) was higher than the rate of diagnoses reported in other studies (2%) [14, 15]. This is in part because any substance use was combined with receiving a substance use diagnosis in this study due to the center's evaluation procedures, whereas select prior research only noted current substance use diagnoses not combined with any current use. Patients with a current disordered eating diagnosis or current substance use (alcohol or cannabis) were more likely to RFU after the initial psychological evaluation. This was expected, as addressing problematic eating and substance use behaviors in the preoperative process is essential as patients must adhere to significant changes to dietary quality, quantity, and patterns of eating following BMS. Additionally, discontinued current substance use is required to progress to BMS [1], and because of this, psychologists must RFU or POH if patients meet the DSM-5 criteria for an active substance use diagnosis and reevaluate after a year of abstinence.

In this study, 82.1% of those that RFU completed a follow-up consultation with the psychologist and 47.2%

progressed to BMS, while none of those POH completed a follow-up consultation or surgery. Primary reasons for RFU and POH were attributed to psychiatric factors (i.e., symptom severity and recent hospitalization) and behavioral health (i.e., disordered eating behaviors). The decision to RFU may provide patients with additional time to complete any recommendations or requirements from the psychiatric provider. However, there may need to be specific pathways for patients who RFU to stay engaged in the process to eventually progress to surgery. For example, Merrel and colleagues [2] reported the most common reasons for candidates to not complete BMS included withdrawal from the program, outstanding program requirements, self-canceled surgery, moving away, insurance denial, death, and switching to non-surgical weight management. Future research should explore how patients cope with RFU from their initial evaluation and the length of time and options they pursue to go forward with BMS.

Limitations

This study had several important limitations. The descriptive design of this study prevented any conclusions about causality. Given that a single psychologist was utilized, the results are not generalizable across providers or centers. Similar to prior work sampling BMS patients [30], the demographics of patients in this study were primarily female and White, therefore preventing the generalizability of these results to males and other racial/ethnic groups. By only coding data from the initial psychological evaluation (and not follow-up visits), changes (i.e., weight loss, change in diagnoses, and symptomatology) may have occurred between the time from psychological evaluation to follow-up. Additionally, severity of psychiatric diagnoses and history of diagnoses were not available to include in this study. Due to the timeline of this study, patients coded as "not progressing to surgery" may have eventually progressed after the study timeline. Finally, due to the limited number of POH decisions ($n = 5$), analysis was not possible with this category compared to NFU and RFU.

Future Research

Given the higher prevalence of psychiatric, disordered eating, and substance use diagnoses reported in this study and their association with outcomes from the preoperative psychological evaluation, future research should seek to assess these outcomes and associations across multiple providers

and centers [7]. Additionally, including important details regarding severity of diagnoses and which psychological assessments are utilized will help to standardize the psychological process across centers, providing consistency to patients pursuing BMS. Future research should also explore and provide more detailed descriptions of the requirements and recommendations provided by the psychologist to patients and further follow if these requirements and recommendations were completed. Finally, future work should explore if patients who RFU experience different postoperative outcomes compared to those who do not require follow-up after their initial evaluation.

Data Availability The data is not publically available.

Declarations

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent For this type of study, formal consent is not required.

Conflict of Interest The authors declare no competing interests.

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Authors and Affiliations

Haley M. Kiser[1] · Keeley J. Pratt[1,2] · Brian C. Focht[1] · Lorraine Wallace[3] · Natasha Slesnick[1] · Sabrena Noria[2] · Bradley Needleman[2] · Ashleigh A. Pona[4]

1 Department of Human Sciences, College of Education and Human Ecology, The Ohio State University, 1787 Neil Avenue, Columbus, OH 43210, USA

2 Department of Surgery, The Ohio State University Medical Wexner Center, Columbus, OH 43210, USA

3 Biomedical Education and Anatomy, College of Medicine, The Ohio State University, Columbus, OH 43210, USA

4 Psychiatry and Behavioral Health, College of Medicine, The Ohio State University, Columbus, OH 43210, USA