Problematic Pre-Surgical Intake of High-Sugar/Low-Fat and High GI Foods is Associated with Development of Post-Bariatric Surgery Substance Use Disorders

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Introduction
Post-bariatric surgery patients, particularly those who have had the Roux-en-Y procedure, are overrepresented in substance abuse treatment, constituting about 3% of admissions; about 2/3 of such patients deny problematic substance use prior to their weight loss surgery (WLS; Ivezaj et al., 2012; Saules et al., 2010; Wiedemann et al., 2013). Therefore, it is important to advance our understanding of the emergence of substance use disorders (SUDs) – particularly the New Onset variant. Surging research with both animal models and humans suggests that “food addiction” may play a role in certain forms of obesity (Avena & Gold, 2011; McFadden, 2010), with particular risk conferred by foods high in sugar but low in fat.

Hypotheses
1. Participants who report a greater number of problematic foods that are high sugar and low fat will be more likely to develop SUD post-WLS, and specifically at greater risk for being a New-Onset user.
2. Participants who select a greater number of foods that are high on the glycemic index (GI) will be at greater risk of developing SUD post-WLS.

Method
Secondary data analyses were conducted using a de-identified database from 154 bariatric surgery patients (88% female, mean age of 48.7, mean of 2.7 yrs since surgery, 92.9% Roux-en-Y procedure).

Measures
Pre-Surgical (retrospective):
• Yale Food Addiction Scale (YFAS, Gearhardt et al., 2009) “Problematic Foods” Section.
Foods were classified according to macronutrient content, based on FDA recommendations.
• The 28 Problem foods were classified as High Sugar, High Fat, High Carbohydrate, High GI, or High Sodium based on nutrient content and USDA standards.
Ex: Pizza = High Fat & High Sodium
Pre-surgical (retrospective) and Current:
• Michigan Assessment Screening Test for Alcohol and Drugs (MAST-AD, Westermeyer et al., 2004); MAST-AD scores ≥ 5 were used as the cutoff for probable SUD.

Data Analysis
Four SUD status groups were created, using pre- and post-surgical MAST-AD scores, as summarized below.

<table>
<thead>
<tr>
<th>MAST-AD Post&lt;5</th>
<th>MAST-AD Pre&lt;5</th>
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<tbody>
<tr>
<td>Never SUD (n=102; 66.2%)</td>
<td>Recovered (n=23; 14.9%)</td>
</tr>
<tr>
<td>New Onset SUD (n=19; 12.3%)</td>
<td>Relapsed (n=10; 6.5%)</td>
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Results
The percentage of macronutrient specific foods endorsed on the YFAS was calculated from the total macronutrient specific foods presented in the problematic foods section of the survey.

Results Cont.
Logistic regression analyses revealed that participants who endorsed pre-surgical problems with high sugar-low fat foods and those high on the GI were at greater risk for New Onset SUD in the post-surgical period. These findings remained significant after controlling for other known predictors of post-surgical SUD.

Data Analysis Cont.
Means for endorsement of pre-surgical problematic foods classified as high sugar-low fat and as high GI were significantly different between the Never SUD (“Never”) group and New Onset SUD group.

Discussion
Results have theoretical implications for the possibility of addiction transfer among certain bariatric surgery patients. Our findings also have practical implications for individuals considering bariatric surgery who may be at risk for development of SUD post-bariatric surgery. Future research should examine the putative addictive quality of specific macronutrients, particularly high sugar-low fat foods, and foods high on the glycemic index. Our results also provide further evidence for the existence of differing SUD groups among WLS patients.

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References


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