

## The prevalence of self-harm behaviors among a sample of gastric surgery candidates

Randy A. Sansone<sup>a,b,c,\*</sup>, Michael W. Wiederman<sup>d</sup>,  
David F. Schumacher<sup>e,f</sup>, Lynn Routsong-Weichers<sup>f</sup>

<sup>a</sup>Department of Psychiatry at Wright State University School of Medicine in Dayton, OH, USA

<sup>b</sup>Department of Internal Medicine at Wright State University School of Medicine in Dayton, OH, USA

<sup>c</sup>Psychiatry Education at Kettering Medical Center in Kettering, OH, USA

<sup>d</sup>Department of Human Relations at Columbia College in Columbia, SC, USA

<sup>e</sup>Department of Surgery at Kettering Medical Center in Kettering, OH, USA

<sup>f</sup>Bariatric Surgery Program at Kettering Medical Center in Kettering, OH, USA

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### Abstract

**Objective:** The surgical treatment of obesity is becoming increasingly popular; yet, little is known about the self-harm characteristics and adjunctive self-regulation difficulties of those seeking such surgery. In the literature, one study has explored presurgery suicide attempts and several studies have explored the prevalence of postsurgical completed suicides. However, beyond suicide attempts and completions, little is known about the broader self-harm/self-regulation profiles of these patients. In this study, we examined the prevalence of 22 such behaviors among a sample of gastric surgery candidates. **Method:** Using a cross-sectional approach, we examined 121 surgical candidates for 22 self-reported self-harm and self-regulatory behaviors. **Results:** The

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studied behaviors with the highest prevalence rates in this cohort were sexual promiscuity (22.3%), torturing oneself with self-defeating thoughts (20.7%), alcohol abuse (19.0%), and engaging in emotionally abusive relationships (16.5%). With regard to suicide attempts, 9.1% of participants acknowledged a history and 9.1% reported past overdoses. **Conclusions:** These data suggest that (a) adjunctive self-regulatory difficulties may affect a substantial minority of individuals who are seeking gastric surgery for obesity (e.g., promiscuity and alcohol abuse), and (b) the anticipated prevalence rate for past suicide attempts in this population appears to be approximately 10%.

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Bariatric surgery is rapidly becoming the standard of care for the treatment of adults with severe obesity [1]. Surgical intervention has become increasingly advocated because of its efficacy, broader availability, coverage by insurance, and the recent use of laparoscopic entry [2]. Intervention is generally restricted to individuals with body mass indices (BMIs) greater than 40 or those with a BMI greater than 35 and concomitant medical comorbidities such as diabetes and

hypertension [3]. A recent increase in the surgical treatment of obesity is well documented [4–6].

With regard to the literature on the self-harm histories and adjunctive self-regulatory disturbances among obese individuals, there are a number of empirical studies on suicide attempts or completions. For example, in a general US population sample, Carpenter et al. [7] found that an increase in BMI was associated with an increase in suicidal ideation. In addition, in a large family sample of adults, Dong et al. [8] found that individuals with BMIs between 40 and 50 and those with BMIs greater than 50 reported suicide attempts at a rate 87% and 122%, respectively, higher than the general population. These findings suggest that, in the general US

\* Corresponding author. Sycamore Primary Care Center, 2115 Leiter Road, Miamisburg, OH 45342, USA. Tel.: +1 937 384 6850; fax: +1 937 384 6938.

E-mail address: [randy.sansone@kmcnetwork.org](mailto:randy.sansone@kmcnetwork.org) (R.A. Sansone).

population, increasing weight status is associated with an increased risk of suicide. However, other studies in general population samples indicate an *inverse* relationship between BMI and suicide [9–11].

In addition to studies in general populations, there are a handful of other empirical studies that reflect very diverse population samples but provide some insight into the complex relationship between weight status and suicide. For example, Goldstein et al. [12] reviewed the findings of 11 double-blind controlled trials of fluoxetine in various samples of obese individuals; the incidence of suicidal ideation among both active drug and placebo groups was identical (0.24%), and there were no completed suicides. Lester [13] examined Native American samples and found that suicide rates were not significantly associated with non-insulin-dependent diabetes, which is frequently associated with obesity. Frank and Dingle [14] studied US women physicians and found associations between depression and obesity and between depression and nonstatistically significantly higher rates of suicide. These data continue to present an inconsistent relationship between obesity and suicide attempts/completions.

In addition to the preceding studies, several investigators have directly examined the prevalence of suicide attempts or completions in pre- or post-gastric-surgery populations. For example, compared with obese women who declined bypass surgery, Rosen and Aniskiewicz [15] found that women who underwent the procedure had a significantly higher frequency of past suicide attempts. Adams et al. [16] prospectively examined nearly 8000 postsurgical patients for a mean follow-up period of 7.1 years; compared with nonsurgical matched obese controls, the suicide rate was higher in those undergoing gastric bypass surgeries (i.e., 15 patient suicides in the surgical vs. 5 patient suicides in the nonsurgical group). Hsu et al. [17] summarized the outcomes of four bariatric surgery studies (total  $N=1197$  patients) and found that, at various points in follow-up, only eight patients completed suicide. Omalu et al. [18] described three cases of postsurgical suicide. Higa et al. [19] found that, among 1040 patients, only one individual completed suicide in the postsurgical follow-up period. Finally, Omalu et al. [20] examined the suicide outcome among post-gastric-surgery patients up to 9 years following intervention. The study sample exceeded 16,000, and during the 9-year period, 440 patients died. Of these 440, 4% (16) suicided and 3% (14) overdosed on drugs and died. The suicide rate in this sample was 0.009%. These data indicate that (a) the lifetime history of suicide attempts among the obese seeking surgical intervention is not well studied, and (b) completed suicide following the surgical treatment of obesity is a very infrequent event.

In summary, the literature is controversial regarding the risk of suicide attempts among obese adults both in clinical and nonclinical settings. Coupled with this observation, the majority of studies in gastric surgery populations have

examined the suicide risk in the *aftermath* of intervention, and rates have been minimal. In this study, we examined among a sample of gastric surgery candidates the lifetime prevalence of various self-harm behaviors including suicide attempts as well as several self-regulation disturbances. To our knowledge, such a thorough inventory of these behaviors has never been examined in this type of study sample.

## Method

### Participants

Participants were both males and females, aged 18 years or older, who were undergoing consultations for gastric surgery for obesity (i.e., either a laparoscopic banding or bypass procedure). Exclusion criteria were medical, cognitive, or psychiatric (i.e., specifically psychosis) impairment that would preclude the successful completion of a survey. Of the 124 individuals who were approached, 121 agreed to participate for a response rate of 97.6%.

The resulting sample consisted of 104 women and 17 men, ranging in age from 20 to 70 years (mean, 44.6 years; SD, 11.8 years). The majority of participants had attained a high school diploma as their highest level of completed education (77.5%); only 19.2% of the sample had attained a college degree. The majority (82.6%) was white, 14.0% were black, one participant was Native American, two participants were Asian, and one participant was Hispanic. Body mass indices in this sample ranged from 27.2 to 92.1 (mean, 47.2; SD, 9.7).

### Procedure

All participants were seeking consultation from one surgeon, and each was recruited by the program's social worker as time permitted (i.e., a sample of convenience). Following an introduction to the project and successful recruitment, participants were given a survey booklet to complete. The survey booklet explored demographic information as well as the participant's height and weight history and history of self-harm behaviors.

Self-harm behaviors and difficulties with self-regulation were assessed with the Self-Harm Inventory (SHI) [21], which is a 22-item, yes/no, self-report inventory that explores participants' lifetime histories of intentional or purposeful self-damaging behavior as well as several behaviors relating to self-regulation difficulties. Each item in the inventory is preceded by the statement, "Have you ever intentionally, or on purpose,..." and items include, "overdosed, cut yourself on purpose, burned yourself on purpose," and "hit yourself." Each endorsement is in the pathological direction. Self-Harm Inventory total scores of 5 or higher are predictive of borderline personality disorder [21]. Indeed, in comparison with the Diagnostic Interview for Borderlines [22], the SHI demonstrates a diagnostic

accuracy of 84%. We are not aware of any SHI data in normal or general populations.

All participants signed a consent form for participation in this project. The project was approved by the institutional review boards of both the community hospital where the study took place and the local university.

## Results

In terms of the number of items endorsed by participants, 56 (46.3%) participants indicated no items on the SHI, 14 (11.6%) one item, 15 (12.4%) two items, 13 (10.7%) three items, 6 (5.0%) four items, 7 (5.8%) five items, and 10 (8.3%) more than five items. The lifetime prevalence of self-harm behaviors and self-regulation difficulties in this sample of gastric surgery candidates is shown in Table 1. Note that the behaviors with the highest prevalence rates were sexual promiscuity (22.3%), torturing oneself with self-defeating thoughts (20.7%), alcohol abuse (19.0%), and engaging in emotionally abusive relationships (16.5%). As for suicide attempts, 9.1% of participants acknowledged this behavior and 9.1% reported histories of overdoses.

We found no gender differences in SHI scores [ $F(1,119)=.01$ ,  $P<.92$ ]. In addition, SHI total scores were not related to BMI ( $r=.00$ ,  $P<.99$ ). We then examined whether there was a gender difference in frequency of endorsement for each of the 22 SHI items, and then whether there was a BMI difference between those respondents who endorsed each SHI item compared with those respondents who did not.

Table 1  
Number and percentage of respondents having reported engaging in each of 22 behaviors ( $N=121$ )

Self-harm item	<i>n</i> (%), endorsing item
Overdosed	11 (9.1)
Cut self	4 (3.3)
Burned self	2 (1.7)
Hit self	8 (6.6)
Banged head on purpose	9 (7.4)
Driven recklessly	14 (11.6)
Scratched self	2 (1.7)
Prevented wounds from healing	4 (3.3)
Made medical situations worse	3 (2.5)
Set self up in a relationship to be rejected	15 (12.4)
Distanced self from God as punishment	17 (14.1)
Engaged in emotionally abusive relationships	20 (16.5)
Engaged in sexually abusive relationships	6 (5.0)
Lost a job on purpose	7 (5.8)
Attempted suicide	11 (9.1)
Exercised an injury on purpose	1 (0.8)
Tortured self with self-defeating thoughts	25 (20.7)
Starved self to hurt self	8 (6.6)
Abused laxatives to hurt self	6 (5.0)
<b>Self-regulation item</b>	
Abused alcohol	23 (19.0)
Been promiscuous	27 (22.3)
Abused prescription medication	5 (4.1)

Given the subsequent 46 total analyses and using the .05 level of statistical significance, we would expect to encounter two statistically significant differences or relationships due to chance. The only two statistically significant relationships were that more men (3/17) than women (4/104) endorsed “lost a job on purpose,”  $\chi^2=5.11$ ,  $P<.03$ , and more women (21/105) than men (0/17) endorsed “engaged in emotionally abusive relationships,”  $\chi^2=4.11$ ,  $P<.05$ . Note that there were only 17 males in the sample, resulting in low statistical power for making gender comparisons.

## Discussion

To our knowledge, this is the first study to examine the self-harm profiles and adjunctive self-regulation difficulties of patients seeking gastric surgery for the treatment of obesity. These data indicate that, in this population, there appear to be acknowledged behaviors that suggest self-regulatory difficulties in various areas (e.g., promiscuity and alcohol abuse). This observation may indicate that there is a minority of individuals who exhibit broad self-regulatory difficulties (i.e., obesity, promiscuity, and alcohol abuse), which may be indicative of personality dysfunction. However, upon closer scrutiny of these data, we found that there was no meaningful overlap in these behavioral clusters (i.e., there was no identifiable subsample that endorsed most or all of these items).

In addition, we found that nearly 10% of the study population reported a history of attempted suicide. Suicide attempts have been previously examined in an obese surgery-seeking population [15]. However, the sample by Rosen and Aniskiewicz [15] was exceedingly small (i.e., 14 bypass patients) and the study was published in 1983. The date of the study may be particularly relevant because it remains unclear about whether or not greater availability of the surgery is affecting the types of populations seeking it. Specifically, compared with contemporary patients, were earlier populations more or less psychopathological? The remainder of the literature in this area describes postsurgical suicide rates [16–20], rather than suicide attempts, which appear very low.

While we do not know how these data might fare in a community control group, we believe that the identified prevalence of suicide attempts in this study (nearly 10%) is at a higher level than one would expect in the general population. Therefore, this particular behavior is certainly one worth evaluating at the time of surgical consideration. In our opinion, such a history does not exclude a candidate from surgery but rather enables a broader psychiatric evaluation and determination of current and past Axis II diagnoses. Regarding possible explanations for past suicide attempts, Sarwer et al. [23] found in their sample of bariatric surgery candidates that major depressive disorder was the most common Axis I disorder at 48%.

This study has several potential limitations. These include the use of a sample of convenience, the self-report nature of the data, and the lack of adjunctive measures to contextually clarify findings (e.g., depression rating scales and substance abuse measures). However, in this study, we experienced a relatively good response rate by participants and obtained a reasonable sample size. Also, the current data represent a novel area of empirical knowledge, that of self-harm behaviors and adjunctive self-regulatory disturbances among gastric surgery candidates. To our awareness, this is the first study to broadly explore self-harm behaviors as well as adjunctive self-regulatory disturbances among gastric surgery candidates. Hopefully, this information will help to further characterize the individuals who seek this increasingly popular form of obesity treatment.

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