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FOOD ADDICTION AND ADULT ADHD SYMPTOMS AMONG BARIATRIC SURGERY CANDIDATES: ARE THEY ASSOCIATED WITH POORER QUALITY OF LIFE?

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Abstract

Background and objective: Both food addiction (FA) and adult ADHD symptomatology have a significant impact on quality of life (QOL), which in turn may affect bariatric surgery outcomes in the context of severe obesity. The main objective of this study was to investigate the association between FA, ADHD symptomatology and QOL in the specific population of bariatric surgery candidates.
Method: Three hundred and twenty-two adult bariatric surgery candidates were recruited during the systematic preoperative psychiatric assessment. The participants completed questionnaires assessing body mass index (BMI), QOL (QOL-Obesity, and Dietetics rating scale, QOLOD), FA (YFAS 2.0), and adult ADHD symptoms (ASRS).
Results: Prevalence for FA and significant adult ADHD symptoms were 26.7% and 9% respectively. All QOL dimensions were negatively correlated with FA and adult ADHD symptoms. The age, the ASRS, and YFAS 2.0 scores independently predicted the QOL score. The participants with FA had significantly lower QOL scores on the five dimensions of the QOLOD. The participants with adult ADHD symptoms had significantly lower scores on the physical and psycho-social QOL dimensions only.
Discussion: This study supports the hypothesis of FA and ADHD symptoms are associated with poorer QOL, in bariatric surgery candidates. Because they affect QOL and poorer surgery outcomes, investigation, and management of FA and ADHD symptoms may be interesting clinical interventions.

Keywords: *Bariatric surgery, quality of life, food addiction, addictive behaviors, adult ADHD.*

1. Introduction

Food addiction (FA) is prevalent among bariatric surgery candidates, and it is associated with poorer postoperative outcomes (Guerrero Pérez et al., 2018). Disordered eating is associated with poorer quality of life (QOL) and reduced weight loss after bariatric surgery (Devlin, 2018). It is important to identify risk factors for FA in this population. Davis et al. (2011) showed that persons with FA have a higher risk of childhood attention deficit hyperactivity disorder (ADHD) and current inattention and hyperactivity/impulsivity symptoms. They suggested this symptomatology involves a deficit in self-regulation and predilection for immediate pleasure, which may lead to disordered eating. Brunault et al. (2019) conducted a study on patients with severe obesity. They suggested individuals with adult ADHD were at higher risk of FA than patients without adult ADHD. FA severity was correlated with a more severe adult ADHD symptomatology. The QOL of individuals with ADHD is lower, especially when they have comorbidities. Psychosocial life is especially impacted (Quintero et al., 2019). Thus, both FA and ADHD symptomatology may have a significant impact on QOL. The main objective of this study was to investigate the association between FA, adult ADHD symptoms, and the QOL in the specific population of bariatric surgery candidates.

2. Methods

2.1. Population and procedure

All the participants were adult bariatric surgery candidates. They were included during the systematic preoperative psychiatric assessment of the Nutrition Department of the University Hospital of Tours. Three hundred and twenty-two participants were included in the study. 76.1% of the participants were women. The mean age was 46.8 (SD=11.3) years. The mean body mass index (BMI) was 45.3 (SD=7.5) kg/m².

2.2. Materials

The participants completed self-reported questionnaires assessing the BMI, QOL, FA, and adult ADHD symptoms. The 36 items of the QOL-Obesity and Dietetics rating scale (QOLOD) assess 5 dimensions of QOL: physical impact, psychosocial impact, impact in sex life, comfort with food, and diet experience. Each dimension was rated from 0 (poor QOL) to 100 (high QOL). The Yale Food Addiction Scale 2.0 (YFAS 2.0) assesses FA over the previous 12 months. The 35 items of the scale investigate the 11 criteria of addiction. The total score is the number of positive criteria (from 0 to 11). FA diagnosis is based on the presence of at least 2 positive criteria and clinically significant impairment or distress associated with food behavior. The 6-items Adult ADHD Self-Report Scale (ASRS-v1.1) assesses adult ADHD symptoms (inattention and hyperactivity/impulsivity). The presence of at least 4 positive criteria indicates significant adult ADHD symptomatology.

2.3. Data analysis

Spearman correlations analyses were conducted between the five dimensions of the QOLOD scale, and age, BMI, YFAS 2.0, and ASRS-v1.1. Multiple regression analysis was conducted to assess the prediction of QOLOD score through these continuous variables. We used Mann-Whitney tests to compare these variables according to the FA and adult ADHD symptoms status.

3. Results

The prevalence of FA and adult ADHD symptoms was 26.7% and 9.0% respectively. The prevalence of comorbid FA and adult ADHD symptoms was 4.7%.

The QOLOD total score was negatively correlated with the YFAS 2.0 (ρ=-.46, p<.001) and the ASRS-V1.1 (ρ=-.45, p<.001). The correlation between YFAS 2.0 and the QOLOD was higher for the dimension “comfort with food” (ρ=-.39, p<.001), whereas the correlation between ASRS-V1.1 and the QOLOD was higher for the dimension “psycho-social impact” (ρ=-.36, p<.001) (see *Table 1*). The QOLOD total score was independently predicted by age (β=-.15, p=.002), ASRS-V1-1 (β=-.28, p<.001) and YFAS 2.0 (β=-.38, p<.001), and not by BMI (β=-.09, p=.06; $R^2adjusted$= .32; F(4,317)=38.849, p<.001).

The participants with FA (n=86) had significantly higher ADHD symptomatology and lower QOL. The five dimensions of the QOL questionnaire were lower for individuals with FA than those without. The participants with adult ADHD symptoms (n=29) had significantly higher FA severity and lower QOL. Only the physical and psycho-social QOL dimensions were lower for individuals with adult ADHD symptoms than those without. (see *Table 2*).

Table 1. Spearman correlations.

Table 1. Spearman correlations

	1	2	3	4	5	6	7	8	9	10
1 Age	-									
2 BMI	-0.078	-								
3 YFAS 2.0	-0.026	0.036	-							
4 ASRS-V1-1	-0.087	-0.055	0.371 ***	-						
5 QOL - Total	-0.108	-0.087	-0.463 ***	-0.452 ***	-					
6 QOL - Physical impact	-0.153 **	-0.531 ***	-0.278 ***	-0.285 ***	0.701 ***	-				
7 QOL - Psycho-social impact	0.065	-0.406 ***	-0.358 ***	-0.362 ***	0.806 ***	0.661 ***	-			
8 QOL - Impact on sex life	-0.099	-0.327 ***	-0.278 ***	-0.198 ***	0.64 ***	0.526 ***	0.577 ***	-		
9 QOL - Comfort with food	-0.045	-0.359 ***	-0.394 ***	-0.189 **	0.434 ***	0.337 ***	0.318 ***	0.233 ***	-	
10 QOL - Diet experience	0.007	-0.342 ***	-0.348 ***	-0.253 ***	0.599 ***	0.409 ***	0.537 ***	0.348 ***	0.484 ***	-

Note: **p<.01; ***p<.001; BMI: Body Mass Index; YFAS: Yale Food Addiction Scale; ASRS: Adult ADHD Self-Report Scale; QOL: Quality Of Life

Table 2. Quantitative variables in participants with versus without FA or adult ADHD symptoms.

Table 2. Quantitative variables in participants with versus without FA or adult ADHD symptoms

	Participants…		Statistics		Participants…		Statistics	
	without FA	with FA	*U*	*p*	without adult ADHD symptoms	with adult ADHD symptoms	*U*	*p*
Age	46.9 (11.4)	46.5 (11.1)	9938.0	.76	47.1 (11.1)	43.5 (12.9)	3561.0	.15
BMI	44.9 (6.5)	46.3 (9.6)	9784.0	.62	45.4 (7.4)	44.7 (8.1)	4101.0	.76
YFAS 2.0	1.4 (1.7)	6.1 (2.7)	1531.0	<.001	2.5 (2.7)	4.8 (3.7)	2734.5	.001
ASRS-V1-1	1.1 (1.3)	2.0 (1.5)	6280.5	<.001	1.0 (1.0)	4.3 (.5)	.000	<.001
QOL - Total	65.6 (12.9)	52.7 (10.5)	4550.5	<.001	63.0 (13.2)	54.4 (14.5)	2645.5	<.001
QOL - Physical impact	1.4 (0.4)	1.2 (.4)	6634.0	<.001	1.4 (.5)	1.2 (.4)	3103.0	.016
QOL - Psycho-social impact	1.5 (0.4)	1.1 (.4)	5005.5	<.001	1.4 (.5)	1.2 (.5)	3135.5	.020
QOL - Impact on sex life	1.6 (0.6)	1.2 (.6)	6642.5	<.001	1.5 (.6)	1.4 (.6)	3525.0	.130
QOL - Comfort with food	1.4 (0.5)	1.1 (.5)	6758.0	<.001	1.3 (.5)	1.2 (.6)	3819.0	.368
QOL - Diet experience	1.5 (0.4)	1.3 (.4)	6858.0	<.001	1.5 (.4)	1.3 (.5)	3345.0	.058

Note: mean (standard deviation); FA: food addiction; ADHD: Attention deficit hyperactivity disorder; BMI: Body Mass Index; YFAS: Yale Food Addiction Scale; ASRS: Adult ADHD Self-Report Scale; QOL: Quality Of Life; U: Mann Whitney coeficient

4. Discussion

This study supports the hypothesis that FA and ADHD symptoms are associated with poorer QOL among bariatric surgery candidates. The psycho-social life was especially affected in individuals with FA or significant adult ADHD symptoms. These results support further investigations on the psychological and social factors associated with FA and ADHD symptoms in patients with severe obesity and bariatric surgery candidates, especially as these comorbidities are associated with poorer QOL and postoperative outcomes. Consequently, these results highlight the need for a systematic assessment of severe obesity comorbidities such as FA, adult ADHD symptoms, and other psychopathological disorders. Additionally, pre- or post-surgical psychological interventions targeting FA and ADHD symptoms may be interesting approaches to improve postoperative outcomes and prevent disordered eating relapse after surgical intervention.

The results should be seen in light of some limitations. The procedure included only self-administered questionnaire that are less reliable than semi-structured interview. Moreover, ADHD was assessed with the ASRS-V1.1. This scale does not investigate the childhood symptoms as suggested by the DSM-5 criteria of ADHD. Because of the small incidence of ADHD symptoms, it was not possible to investigate the impact of the FA-ADHD symptoms comorbidity on the QOL. Despite these limitations, the current study provides significant information about the factors associated with QOL among bariatric surgery candidates and pave the way for possible therapeutic interventions that may improve postoperative outcome.

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