

Eating Disorders, Food Addiction and associated factors in obese patients

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Introduction

➤ Obesity and associated factors

- Body Mass Index ≥ 30 (*WHO, 2015*)
- Limited success of therapeutic interventions (*Jeffery et al., 2000*)
- Associated with overconsumption of palatable foods (*Stice et al., 2009*)

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2 \text{ (m}^2\text{)}}$$

➤ Addictive dimension of obesity

- Similarities between palatable foods and addictive substances
 - activate similar reward and motivation pathways (*Avena et al., 2008, Lenoir et al., 2007, Volkow et al., 2008*)
- Similarities between obesity and Addiction
 - loss of control, compulsive consumption of food and craving episodes (*Abiles et al., 2010, Gearhardt et al., 2009, Wang et al., 2001*)

➤ Food Addiction hypothesis

- High prevalence rate of food addiction diagnosis in overweight and obese samples (*Pursey et al. 2014*)
- Food craving associated with unsuccessful attempts to reduce calories and early drop out from obesity treatment programs (*Batra et al., 2013*)

Objectives

- To describe Food Addiction (FA) and eating patterns in a sample of obese individuals (BMI \geq 30) seeking treatment for obesity
- To examine clinical characteristics associated with food addiction

Methods

➤ Sample

- Participants enrolled during hospitalization for obesity
- BMI \geq 30

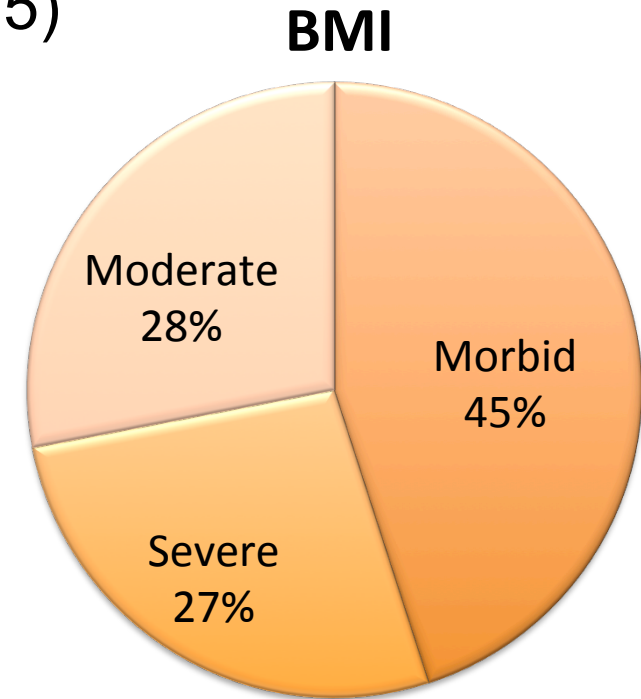
➤ Assessment

- **Yale Food Addiction Scale (YFAS)** (*Brunault et al., 2014; Gearhardt et al., 2009b*)
 - Diagnosis of Food Addiction over the last 12 months according DSM-IV criteria of substance dependence
- **Preferred food categories**
 - Sweet, sweet-fat, salt, salt-fat...
- **Modified Addiction Severity Index (mASI)** (*Denis et al., 2016*)
 - History and severity of problematic eating behavior
- **Craving Visual Analogue Scale**
 - Frequency and intensity (0 to 10) craving for sweets and fatty foods
- **Mini International Neuropsychiatric interview (MINI)** (*Sheehan et al., 1998*)
 - Substance use and gambling disorder, mood and anxiety disorder, eating disorder

Results – Sample characteristics

Table 1- General characteristic sample (n=75)

Characteristics	N	%
Female	51	68
Mean age	51 years	SD=13
Live in family	62	83
Médical		
Chronic physical illness	60	80
Type 2 diabetes	24	33
Treatment physical illness	52	69
Psychiatric comorbidities		
At least one mood disorder	30	40
At least one anxiety disorder	28	37
Addiction	24	32



Morbid: BMI ≥ 40
 Severe: $35 \leq \text{BMI} < 40$
 Moderate: $30 \leq \text{BMI} < 35$

Results – Sample characteristics

Table 2 – food related data

Characteristics	N	%
Food addiction	13	17
BED	10	13
Problem eating behavior (ASI)		
Past 30 days	36	48
lifetime	47	63
High severity	41	55
Seeking treatment	29	39
Food craving		
Craving for sweet foods	24	32
Craving for fatty foods	16	22
	mean	SD
Intensity for sweet foods	6.4	1.7
Intensity for fatty foods	5.6	1.5

Results – Factors associated with food addiction – Univariate analysis

Table 3 – Food Addiction associated factors

	Without Food Addiction n = 62	With Food Addiction n = 13	
	%	%	<i>p-value</i>
<i>Sociodemographic data</i>			
Female	66	77	.531
Mean Age (SD)	52 (12.9)	46 (10.8)	.078
Live in family	87	62	.042
<i>Physical data</i>			
Mean BMI (SD)	41 (7.7)	40 (7.1)	.600
Chronic physical illness	82	69	.279
Type 2 diabetes	34	25	.734
Treatment for physical illness	76	39	.017*

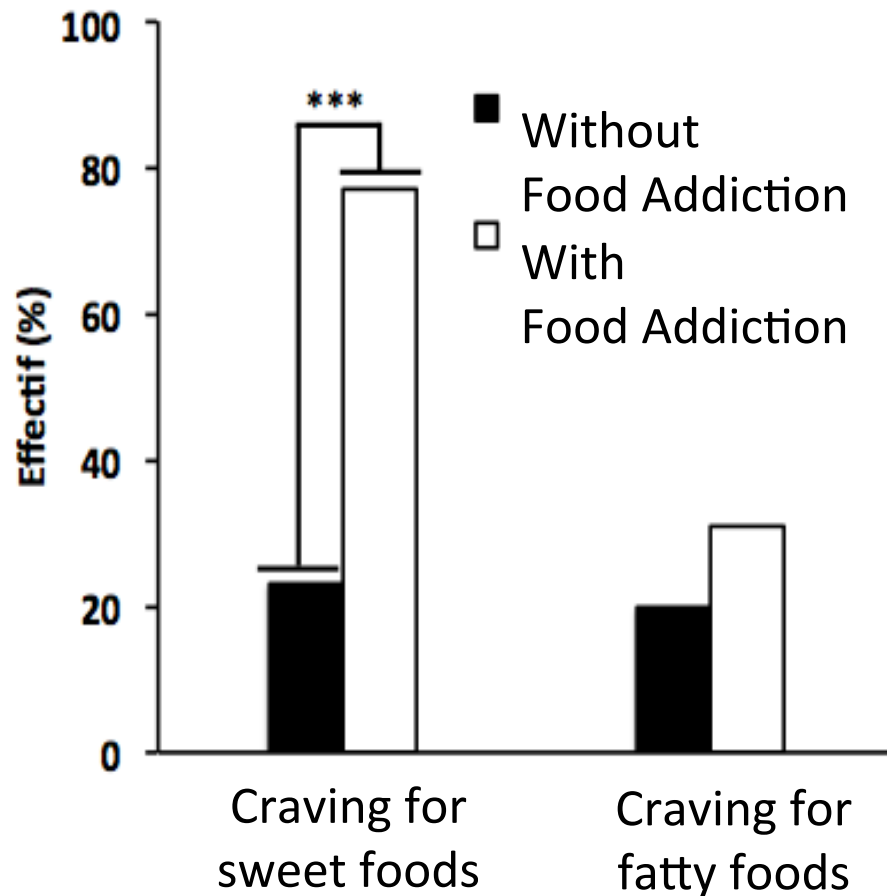
*p < 0.05

Results – Factors associated with food addiction – Univariate analysis

- Food addiction is associated with several factors
 - Preferring Fat - Sweet food category ($p = 0.134$)
 - Having problem eating behavior in past 30 days ($p = 0.051$)
 - and in lifetime ($p = 0.013$)
 - Compulsion eating behavior ($p < 0.0001$)
 - Seeking treatment for problem eating behavior ($p = 0.0004$)
 - More severe to their problem eating behavior ($p = 0.029$)
 - More frequently BED ($p < 0.0001$)
 - More frequently Mood disorder ($p = 0.028$)
 - More severe psychological state ($p = 0.002$)

Results – Factors associated with food addiction – Univariate analysis

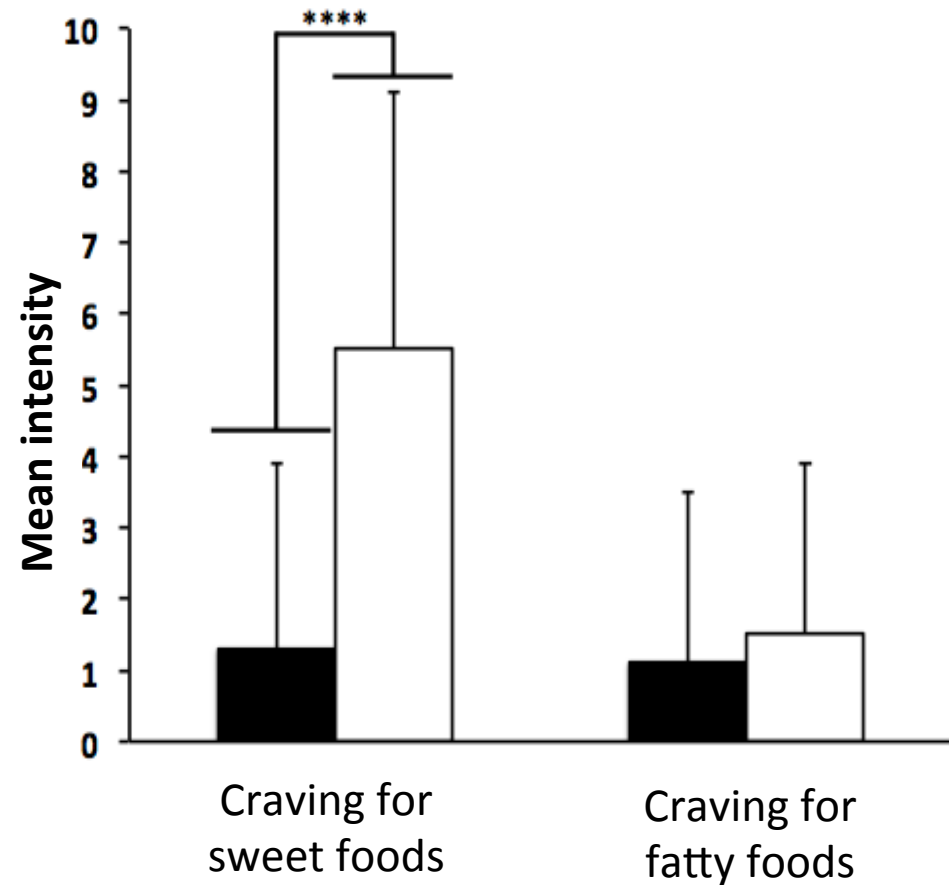
Figure 1 -Craving in past 30 days



*** $p < 0.001$

**** $p < 0.0001$

Figure 2 –Intensity of craving



Results – Factors associated with food addiction – Multivariate analysis

- Individuals with FA were more likely to
 - Have high CRAVING intensity for sweet
(Estimation $\beta=1.07$; 95%CI 0.24 - 2.94; $p=0.003$)
Mean intensity of craving for sweet:
 - With food addiction : 5.5 (SD=3.6)
 - Without food addiction: 1.3 (SD=2.6)
 - Meet BED (aOR=289996; 95%CI 131.5 - $1.57e^{+13}$, $p<0.0001$)
 - Be younger (Estimation $\beta=0.18$; 95%CI 0.02 - 2.04; $p=0.02$)

- Individuals with FA were less likely to
 - Receive treatment for physical illness
(aOR=0.01; 95%CI $2.02e^{-5}$ - 0.78; $p=0.035$)

Discussion

- Food Addiction prevalence: consistent with literature in individuals with obesity
 - 17% in our sample vs 15 to 25 % in literature
- Food Addiction was associated with specific addiction pattern
 - High intensity of craving for sweet
 - May explain overconsumption of palatable food and fat accumulation
- Association between FA and psychiatric eating disorders
 - Association with BED

FA obese have more psychopathologies than other obese

Discussion

➤ Limits

- Low number of subjects with food addiction
- Assessment of craving only for sweet and fatty foods

➤ Prospect

- To examine the role of craving in food intake in subjects with food addiction
- Adapt the treatment in obese with a food addiction considering craving and other psychopathologies

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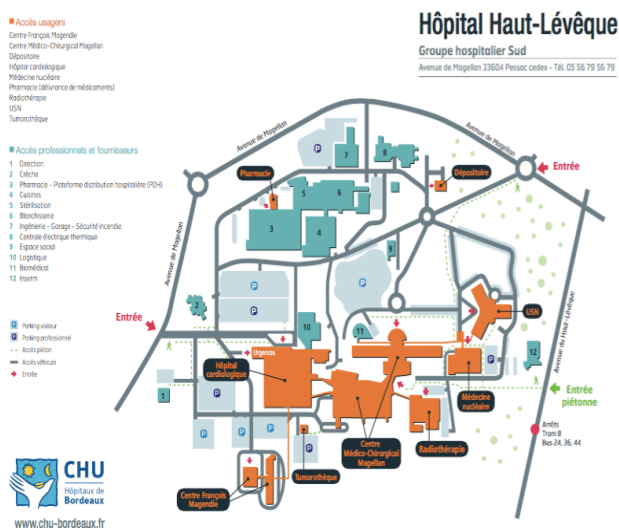
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Results – univariate analysis

	Without Food Addiction n = 62	With Food Addiction n = 13	
	%	%	<i>p-value</i>
<i>Food related data</i>			
Sugar category	14	46	.0953
Sweet – fat category	28	85	.0134*
Salt – fat category	34	39	.3650
Others category	14	8	.4448
Problem eating behavior in last 30 days	25	85	.0051*
Problem eating behavior in lifetime	34	100	.0013*
Compulsion eating behavior modality	15	92	<.0001*
Grazing	17	8	.1694
Restriction	9	46	.0181*
Demand for treatment	18	85	.0004*
Boulimia	2	15	.1365
BED	2	62	<.0001*

*p < 0.05

ASI question:

a loss of control relation to certain categories of food / eating behavior in general, and / or failed attempts at mastery weight / eating behaviour

Regarding food, "Were you concerned about your weight / diet / eating behavior and have you had the feeling of losing control and / or made unsuccessful attempts to control your weight, diet, behavior food? ";Allows to highlight the presence of both concerns and loss of control, two markers of food addiction. The subject answers this question with yes or no. If so, the number of days in the last 30 days and the number of years during the whole life where he presented these two markers are requested. These two variables are defined in this report as days or years of problematic eating behavior. He wondered about specify by what (s) method (s) manifests / showed that problematic eating behavior: compulsive intake, snacking, filling, restriction / starvation diets, physical hyperactivity, vomiting, laxatives / diuretics / other substances and other means