

Food Addiction, An Addiction for Modern Times

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Disclosure Information (Required)

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- ☀ COI Disclosure:
 - ☀ Stock in DynamiCare Health, Inc. (not discussed here)



Food Addiction and related conditions

- ✱ Bulimia Nervosa
- ✱ Binge-eating disorder
- ✱ Anorexia Nervosa
- ✱ Obesity
- ✱ Food Addiction
- ✱ Drug and Alcohol Use Disorder(?)¹

¹ Brisman, J. and M. Siegel (1984). "Bulimia and alcoholism: Two sides of the same coin?" *J Subst Abuse Treat* 1(2): 113-118.

Food Addiction and related conditions

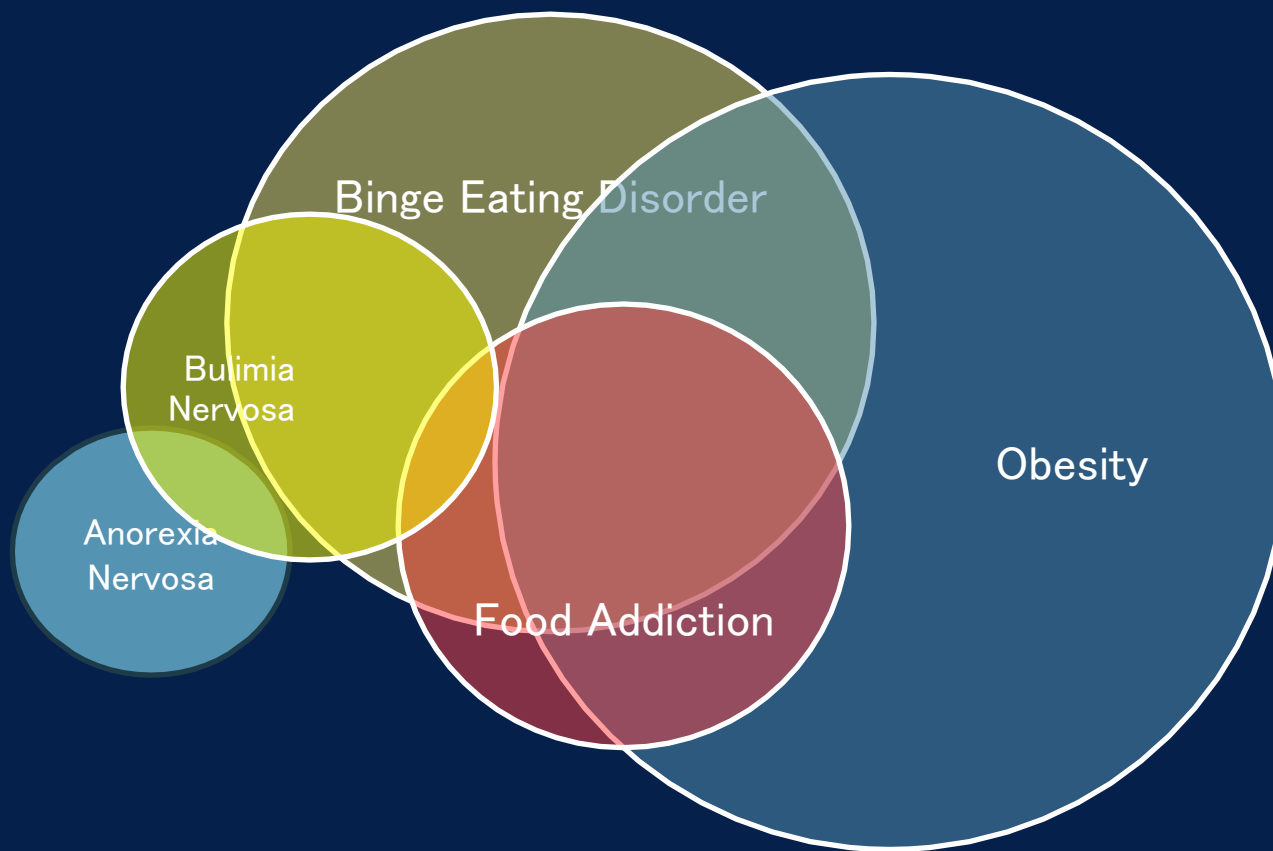
Condition	Diagnosis
Bulimia Nervosa	DSM/ICD
Anorexia Nervosa	DSM/ICD
Binge-Eating disorder	DSM/ICD
Obesity	Medical Dx
Food Addiction ¹	No Code
Alcohol Use Disorder ²	DSM/ICD
Drug Use Disorder	DSM/ICD

1 Meule, A. and A. N. Gearhardt (2014). "Food addiction in the light of DSM-5." *Nutrients* 6(9): 3653-3671.

2 Brisman, J. and M. Siegel (1984). "Bulimia and alcoholism: Two sides of the same coin?" *J Subst Abuse Treat* 1(2): 113-118.

Disordered Food Relationships

Overlapping Terms and Conditions



Fletcher, Paul C., and Paul J. Kenny. "Food addiction: a valid concept?," *Neuropsychopharmacology* 43.13 (2018): 2506-2513.
Gearhardt AN, White MA, Masheb RM, Morgan PT, Crosby RD, Grilo CM. An examination of the food addiction construct in obese patients with binge eating disorder. *Int J Eat Disord*. 2012;45:657–63

Ethnobiology of Food Addiction

- ☀ *Homo sapiens* lived with a scarcity of calorie dense foods for the vast majority of our evolution.
- ☀ Postulate: Natural selection reinforced the development of reward and motivation systems of the brain that optimized accretion of sufficient calories for survival.¹
- ☀ This was aided by the natural selection of calorie-dense foods triggering reward circuitry (prioritization).
- ☀ In current society the high availability of ultra processed, calorie dense foods continues to trigger reward and motivational circuitry.
- ☀ This drives **food addiction**.

The Modern Diet

- ☀ High-sodium foods, artificially flavored-foods, rich carbohydrate- and saturated fat-containing foods are triggers for the reward activation.
- ☀ Current theory suggests that such ultra-processed foods activate the mesolimbic dopamine circuit, creating the downwind issues in susceptible individuals under progenerative conditions.¹
- ☀ This may explain why those with addiction tend to have more than one expression of the (supposedly) same disease.

¹ Vasiliu, O. (2021). "Current Status of Evidence for a New Diagnosis: Food Addiction-A Literature Review." *Front Psychiatry* **12**: 824936

Is Food Addiction a "thing?"

- ☀ One argument that validates Food Addiction, is the existence of specific nutrients that “ultimately hijack reward-related behaviors”¹
- ☀ Reward from eating is controlled by the mesolimbic dopamine (DA) pathway of the VTA and its projections to circuits implicated in reward, such as the insula, thalamus, striatum, amygdala, ventromedial prefrontal cortex, and orbitofrontal cortex.^{2,3}
- ☀ Importantly, certain behavioral addictions exhibit the clearest signs of addiction without a confirmed neurophysiological substrate or MOA, the archetype being gambling dependence.

1 Fletcher, P. C. and P. J. Kenny (2018). "Food addiction: a valid concept?" *Neuropsychopharmacology* 43(13): 2506-2513.

2 Carter, A., et al. (2016). "The Neurobiology of “Food Addiction” and Its Implications for Obesity Treatment and Policy." *Annual Review of Nutrition* 36(1): 105-128.

3 Gearhardt, A. N. and E. M. Schulte (2021). "Is food addictive? A review of the science." *Annual Review of Nutrition* 41: 387-410.

Yale Food Addiction Scale

- ✱ Developed by Ashley Gearhardt, Ph.D. and colleagues in 2009.
- ✱ Revised upon the publication of the DSM-5.
- ✱ Research shows high internal reliability and a unidimensional structure which supports construct validity.
- ✱ Contains 25 items with different response categories for capturing seven food addiction symptoms

Penzenstadler, L., et al. (2019). "Systematic review of food addiction as measured with the Yale Food Addiction Scale: implications for the food addiction construct." *Curr Neuropharmacol* 17(6): 526-538.

Yale Food Addiction Scale

Yale Food Addiction Scale

Gearhardt, Corbin, Brownell, 2009

Contact: agearhar@umich.edu for scoring instructions

This survey asks about your eating habits in the past year. People sometimes have difficulty controlling their intake of certain foods such as:

- Sweets like ice cream, chocolate, doughnuts, cookies, cake, candy, ice cream
- Starches like white bread, rolls, pasta, and rice
- Salty snacks like chips, pretzels, and crackers
- Fatty foods like steak, bacon, hamburgers, cheeseburgers, pizza, and French fries
- Sugary drinks like soda pop

When the following questions ask about "CERTAIN FOODS" please think of ANY food similar to those listed in the food group or ANY OTHER foods you have had a problem with in the past year

IN THE PAST 12 MONTHS:		Never	Once a month	2-4 times a month	2-3 times a week	4 or more times or daily
1.	I find that when I start eating certain foods, I end up eating much more than planned	0	1	2	3	4
2.	I find myself continuing to consume certain foods even though I am no longer hungry	0	1	2	3	4
3.	I eat to the point where I feel physically ill	0	1	2	3	4
4.	Not eating certain types of food or cutting down on certain types of food is something I worry about	0	1	2	3	4
5.	I spend a lot of time feeling sluggish or fatigued from overeating	0	1	2	3	4
6.	I find myself constantly eating certain foods throughout the day	0	1	2	3	4
7.	I find that when certain foods are not available, I will go out of my way to obtain them. For example, I will drive to the store to purchase certain foods even though I have other options available to me at home.	0	1	2	3	4
8.	There have been times when I consumed certain foods so often or in such large quantities that I started to eat food instead of working, spending time with my family or friends, or engaging in other important activities or recreational activities I enjoy.	0	1	2	3	4
9.	There have been times when I consumed certain foods so often or in such large quantities that I spent time dealing with negative feelings from overeating instead of working, spending time with my family or friends, or engaging in other important activities or recreational activities I enjoy.	0	1	2	3	4
10.	There have been times when I avoided professional or social situations where certain foods were available, because I was afraid I would overeat.	0	1	2	3	4

Validated 25-item scale that explores multiple domains of addictive eating.

Schulte, E. M. and A. N. Gearhardt (2017). "Development of the modified Yale food addiction scale version 2.0." European Eating Disorders Review 25(4): 302-308.

Prevalence

- ☀ One meta-analysis of > 262,000 individuals in 272 studies, showed ~20% of such individuals were diagnosed with Food Addiction by the YFAS.¹
- ☀ The meta-analysis may have had an overall selection bias but may be higher than WHO-reported incidence of tobacco² (19.2%) and AUD³ (18.2%).
- ☀ “Everyone has issues with food.”

1 Praxedes, D. R. S., et al. (2022). "Prevalence of food addiction determined by the Yale Food Addiction Scale and associated factors: A systematic review with meta-analysis." *European Eating Disorders Review* **30(2)**: 85-95.

2 World Health Organization. (2019). WHO report on the global tobacco epidemic, 2019: Offer help to quit tobacco use. World Health Organization.

3 World Health Organization. (2019). Global status report on alcohol and health 2018. World Health Organization.

Treatment

- ☀ The most common treatment is behavioral and psychotherapeutic.
- ☀ Some providers believe recovery can be modeled after SUDs, eliminating, as much as possible, the agent of compulsion from the diet.¹
- ☀ Recent patient experiences with semaglutide suggest additional pharmacological agents may help and may alter brain circuitry associated with food addiction.

¹ <https://www.knowaddictionacademy.com/>

Semaglutide Treatment

- ☀ Semaglutide consistently decreases the intake of alcohol, cocaine and food in animal studies.
- ☀ GLP-1R receptor agonists (like semaglutide) increase dopamine activity and alter reward-related behaviors.¹
- ☀ Semaglutide in limited studies is the most effective off-label medication for binge-eating disorder.²
- ☀ In the context of obesity treatment, semaglutide and Tirzepatide decrease alcohol consumption.³

1 Kooij, K. L., et al. (2023). "GLP-1 receptor agonist semaglutide reduces appetite while increasing dopamine reward signaling." *Neuroscience Applied*: 103925.

2 Richards, J., et al. (2023). "Successful treatment of binge eating disorder with the GLP-1 agonist semaglutide: A retrospective cohort study." *Obesity Pillars* **7**: **100080**.

3 Quddos, F., et al. (2023). "Semaglutide and Tirzepatide reduce alcohol consumption in individuals with obesity." *Scientific Reports* **13**(1): 20998.