Submission for a poster presentation, section "Environment and Addiction"

Title

Time to tackle the modern food environment: Associations between food addiction and micronutrient status in patients with substance use or eating disorders

Co-authors

S. Berthoz, Univ. Bordeaux, Institute for Cognitive and Integrative Neuroscience Aquitaine (INCIA),
French National Centre for Scientific Research (CNRS), UMR5287, Bordeaux; Department of Psychiatry for Adolescents and Young Adults, Institut Mutualiste Montsouris, 75014 Paris, France
M. Fatseas, Univ. Bordeaux, Institute for Cognitive and Integrative Neuroscience Aquitaine (INCIA),
French National Centre for Scientific Research (CNRS), UMR5287, Pôle Addictologie, Centre Hospitalier Charles Perrens and CHU de Bordeaux, Bordeaux, France
Léa Marinelli, Univ. Bordeaux, Hôpital Haut-Lévêque, Bordeaux, France

Principal author

B.A. Seelarbokus, Univ. Bordeaux, Institute for Cognitive and Integrative Neuroscience Aquitaine (INCIA), French National Centre for Scientific Research (CNRS), UMR5287, Bordeaux, France **E-mail:** <u>bibi-aliya@u-bordeaux.fr</u>

Abstract

Background: Emerging evidence suggests that individuals with substance use disorders (SUDs) and eating disorders (EDs) are more vulnerable to addictive-like eating behaviours amidst modern food environments marked by a ubiquity of hyper-palatable foods. Effects of food items on the micronutrient levels in these populations remain understudied, thereby potentially leading to missed opportunities for precision medicine. Objectives: This study aimed to determine (1) the prevalence and severity of food addiction (FA) in treatment-seeking individuals with either a SUD or an ED and (2) associations between FA and micronutrient levels. Methods: Spearman correlation coefficients were used to explore the associations between micronutrient concentrations, FA symptom counts and the severity of FA in 274 SUDs and EDs participants having completed the modified Yale Food Addiction Scale (mYFAS2.0). **Results:** The prevalence of FA diagnosis was significantly higher among the ED than the SUD group (81.7% versus 18.6%, *p*-value=0.018). In both groups, the consumption of sugary foods was higher in patients with FA than with no FA, with a significant difference noted for the consumption of fatty-sugary foods (p-value<0.001). Among ED patients, there were significant associations between severity of FA and ferritin (p: -0.184, p-value=0.044), CRP (p: 0.229, p-value=0.012) and vitamin B12 (p: -0.204, pvalue=0.027). Significant associations were also noted between the number of FA symptoms and ferritin (ρ: -0.212, *p*-value=0.020), CRP (ρ: 0.241, *p*-value=0.008) and vitamin B12 (ρ: -0.183, *p*-value=0.048). In patients with SUD, there was a significant association between the number of FA symptoms and ferritin only (p: -0.202, p-value=0.004). Conclusion: FA is highly prevalent in ED, is observed in one out of five SUD patients, and may be associated with many micronutrient deficiencies. To reveal novel therapeutic targets and biomarkers in addiction treatment, further research is warranted to elucidate the mechanisms by which disordered-eating behaviours may affect micronutrient metabolism and inflammatory pathways.

Conflicts of interest

The authors declare no conflicts of interest

Funding

B.A. Seelarbokus is a PhD student funded by the Neurocampus International Graduate Program managed by the French National Research Agency under reference ANR-17-EURE-0028