# Are DSM-5 criteria for SUD transferable to Food Addiction? IRT analysis for alcohol, tobacco, cannabis, opiates and food disorders in a clinical sample

Cecile Denis

M. Rosa, F. Serre, C. Kervran, M. Henry, B. Cherifi, M. Auriacombe, M. Fatseas

Addiction Psychiatry, University of Bordeaux/ CNRS USR 3413 SANPsy, Bordeaux, France; Center for Studies of Addiction, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA; Obesity clinic, CHU de Bordeaux, Bordeaux, France; University of Rio Grande, Porto Allegre, Brazil

# Disclosures

- Funding: PHRC 2006, CSF, CNPq, CAPES

- The sponsors had no role in the study design, collection, analysis or interpretation of the data

# Background

- Existence of Food Addiction (FA)
  - Discussed for decades
  - Findings that supported the existence of FA
    - Neuroimaging data (Wang 2001, Shienle 2009, Volkow 2013)
    - Animal model (Ahmed 2013)
- Standardized measure for the assessment of FA
  - Yale Food Addiction Scale (Gearhard 2009)
  - Applicability of DSM-IV substance dependence criteria to FA (Meule 2014)
- Applicable with DSM-5 criteria?

# Objective

- To examine severity and discrimination of DSM-5 criteria for Food Addiction adapted from SUD criteria

- To compare with SUD criteria
  - Alcohol, tobacco, cannabis, opiates

# Methods – Sample

- Ongoing follow-up study (Aquitaine Addiction Cohort Study)
  - Participants seeking Tx for substance use disorder
    - Outpatient addiction clinic
  - Participants seeking Tx for eating disorder
    - Outpatient addiction clinic and Obesity clinic

- Assessment at treatment entry
  - mASI: sociodemographic, history of substance use, eating behavior, severity of addiction (Denis, 2016)
  - DSM-5 SUD criteria
  - DSM-5 criteria for Food Addiction adapted from DSM-5 SUD
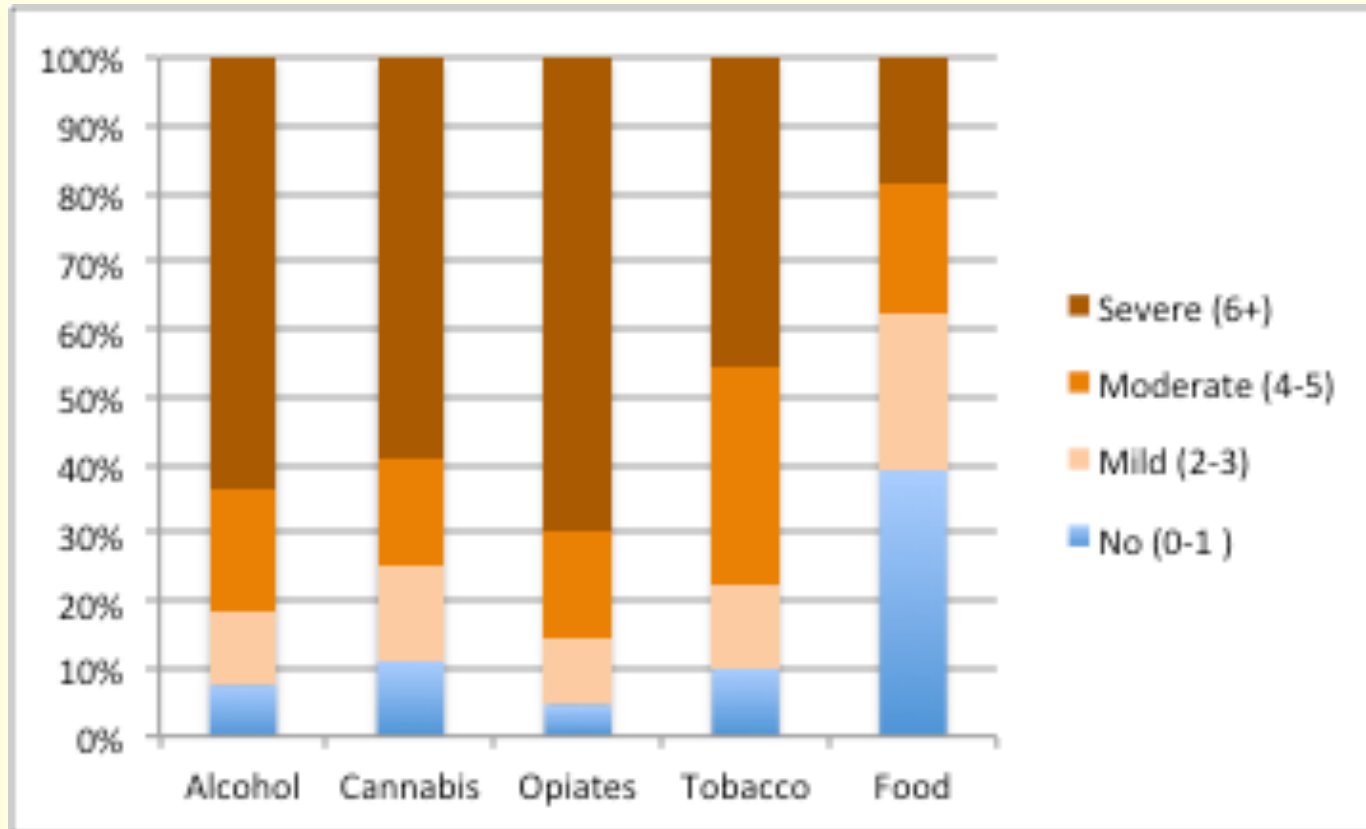
# Methods - Analyses

- 2-parameter logistic item response theory (IRT) model
  - Factor analyses for dimensionality
  - Ranked criteria by their estimated severity
- Spearman correlations: to quantify the similarity in severity ranking of the criteria across substance and food
  - Alcohol, cannabis, opiates, tobacco

# Results - Sample characteristics

- n= 875
- Demographic
  - Males (65%)
  - 39.7 y.o. (SD= 12.1, range: 18-76)
  - Living with family ± children  56%
  - Currently working 51%
- Current use of
  - Alcohol              n= 495
  - Cannabis            n= 425
  - Opiates              n=130
  - Tobacco             n=536
  - Food-related disorders     n=250

# Results – DSM-5 Diagnosis



- Mostly severe use disorder
  - >90% of the sample for SUD
- More variability for food addiction

CPDD 2016, Palm Springs, CA, June 11-16

# Results – Criteria endorsement

| | Alcohol | Food | Opiates | Cannabis | Tobacco |
|---|---|---|---|---|---|
| Tolerance | 61.7 | 28.8 | 80.9 | 61.6 | 43.8 |
| Withdrawal | 44.8 | 33.8 | 86.6 | 55.4 | 70.3 |
| Large amount | 80.5 | 71.6 | 70.7 | 55.0 | 72.1 |
| Unsuccessful cut down | 60.5 | 49.6 | 73.2 | 48.0 | 68.7 |
| Time spent | 49.0 | 14.0 | 68.1 | 51.4 | 38.2 |
| Given up activities | 51.4 | 11.8 | 64.5 | 47.7 | 17.2 |
| Psy or phy. pbl | 54.6 | 48.2 | 60.5 | 50.3 | 60.4 |
| Failure fulfill roles | 50.7 | 17.4 | 33.3 | 38.7 | 9.3 |
| Hazardous Use | 72.5 | 16.1 | 58.7 | 67.5 | 21.6 |
| Social pbl | 59.2 | 15.7 | 51.4 | 51.0 | 29.1 |
| Craving | 65.2 | 69.8 | 79.5 | 68.0 | 78.8 |

- Similar pattern of criteria endorsement across substances and FA criteria

# Results – Common Factor Analyses

|          | Eigenvalue | %    | F1 Variance | p-value    |
|----------|------------|------|-------------|------------|
| Alcohol  | 3.96       | 36.0 | 2.27        | < 0.0001   |
| Opiates  | 3.89       | 35.4 | 2.62        | < 0.0001   |
| Cannabis | 3.84       | 34.9 | 1.94        | < 0.0001   |
| Tobacco  | 2.81       | 25.5 | 1.33        | < 0.0001   |
| Food     | 4.34       | 39.5 | 2.19        | < 0.0001   |

Maximum likelihood, Rotation method: Varimax

- Dimensionality
  - Substance Use disorder criteria
  - Food Addiction criteria

# Results – IRT analyses

- Discrimination estimates across groups ranged from 0.88 to 5.12
- FA criteria exhibited the highest discrimination estimates

|  | Alcohol | Opiates | Cannabis | Tobacco | Food |
|---|---|---|---|---|---|
| Tolerance | 1.52 | 1.70 | 1.94 | 1.31 | 3.09 |
| Withdrawal | 1.42 | 1.71 | 2.04 | 1.97 | 4.04 |
| Large amount | 1.48 | 1.71 | 1.75 | 1.59 | 3.99 |
| Unsuccessful cut down | 1.52 | 1.69 | 1.76 | 1.49 | 5.12 |
| Time spent | 1.22 | 1.72 | 1.79 | 1.17 | 3.84 |
| Given up activities | 2.00 | 1.74 | 1.92 | 1.17 | 3.15 |
| Psychological or physical pbl | 1.41 | 1.65 | 1.64 | 1.09 | 4.13 |
| Failure fulfill roles | 1.31 | 1.48 | 1.41 | 1.35 | 2.96 |
| Hazardous Use | 1.17 | 1.53 | 1.45 | 0.88 | 2.33 |
| Social pbl | 2.24 | 1.67 | 1.97 | 0.97 | 3.86 |
| Craving | 2.26 | 1.70 | 2.84 | 2.56 | 4.20 |

CPDD 2016, Palm Springs, CA, June 11-16

# Results – Severity ranking

|  | Alcohol | Opiates | Cannabis | Tobacco | Food |
|---|---|---|---|---|---|
| Tolerance | 3 | 2 | 3 | 6 | 5 |
| Withdrawal | 11 | 1 | 4 | 4 | 4 |
| Large amount | 1 | 5 | 5 | 1 | 1 |
| Unsuccessful cut down | 5 | 4 | 10 | 3 | 10 |
| Time spent | 9 | 6 | 6 | 7 | 7 |
| Given up activities | 8 | 7 | 9 | 9 | 11 |
| Psy or phy pbl | 7 | 8 | 8 | 5 | 3 |
| Failure fulfill roles | 10 | 11 | 11 | 11 | 8 |
| Hazardous Use | 2 | 9 | 2 | 10 | 9 |
| Social pbl | 6 | 10 | 7 | 8 | 6 |
| Craving | 4 | 3 | 1 | 2 | 2 |

- Severity rankings were not identical across substances and food addiction
- Correlations were the highest between
  - Food and tobacco ($\rho = 0.67$)
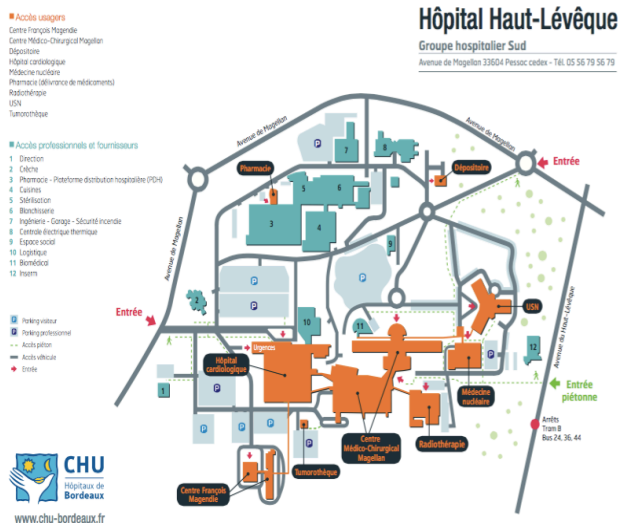  - Food and opiates ($\rho = 0.72$)

# Conclusion

- One-dimensional structure of DSM-5 criteria
  - SUD: consistent with previous studies
  - Findings showed that SUD criteria could be applicable to FA
- Criteria have similar patterns of severity
  - Correlations between food and other substances
- Further studies are needed
  - To confirm the findings
  - In other settings i.e. non-seeking treatment samples
  - More variability in the severity of disease
    - Mainly severe in this sample
  - In other type of eating disorders
    - Almost all had binge eating disorder and were obese
  - To evaluate if SUD threshold is suitable for FA
    - External validators
- Potential change in therapy for certain Food Disorder?

**Addiction Research Team**
Marc Auriacombe
Mélina Fatséas
Fuschia Serre
Jean-Marc Alexandre
Charlotte Kervran
Manon Chevalier
Sarah Moriceau
Cécile Denis
Jean-Pierre Daulouède
Brigitte Vialard

Centre Hospitalier Charles Perrens BORDEAUX

université de BORDEAUX

SANPSY
SLEEP-ADDICTION-NEUROPSYCHIATRY

cnrs

**Aquitaine Addiction Cohort**

**Obesity Clinic**
Blandine Cherifi
Maud Henry

CHU Hôpitaux de Bordeaux

Hôpital Haut-Lévêque
Groupe hospitalier Sud
Avenue de Magellan 33604 Pessac cedex - Tél 05 56 79 56 79

CHU Hôpitaux de Bordeaux
www.chu-bordeaux.fr

TALISMENT

14