**Digital monitoring to investigate sex differences in relapse vulnerability: an EMA study**

Auteurs:
M. Fatseas
Pôle d'addictologie, CHU de Bordeaux et CH Charles Perrens
Equipe ECOPSY, INCIA UMR 5287 CNRS-Université de Bordeaux
Bordeaux, France
melina.fatseas@u-bordeaux.fr

E. Baillet-Gaborieau
Chercheuse post-doctorale, Université de Californie, Berkeley
Berkeley, Californie, USA

V. Chirokoff
Chercheuse post-doctorale, Université de Deakin
Melbourne, Victoria, Australie

Absence de lien avec l'industrie pharmaceutique, du tabac, de l'alcool, de la cigarette électronique et avec les compagnies de jeux pour cette étude.
Financement Agence Nationale de la Recherche 2012 (Protocole MobiCog)

**Introduction:** Craving is a key predictor of substance use, yet its dynamic properties, such as day-to-day instability, may provide additional explanatory value beyond mean levels. This study examined whether craving instability (measured via mean square successive differences; MSSD) predicts subsequent substance use in daily life, and whether this association differs by sex.
**Methods:** 64 participants with substance use disorders (SUDs) (Alcohol, tobacco or cannabis) completed ecological momentary assessment (EMA) over seven days. Multilevel models were conducted to test whether the association between daily craving instability (MSSD) and subsequent treated substance use (t+1) was moderated by sex.
**Results:** Higher mean craving significantly predicted increased likelihood of subsequent substance use (β=0.217, p<.001). MSSD also predicted greater likelihood of use (β=0.145, p=.039), above and beyond mean craving levels. This effect was moderated by sex (interaction: β=-0.078, p=.037), indicating a weaker association between craving instability and subsequent use in women compared to men.
**Discussion:** These findings suggest that both average craving levels and temporal fluctuations in craving contribute to substance use in daily life. Importantly, craving instability appears to be a sex-specific risk factor, being more strongly associated with subsequent use in men than in women. EMA methods provide evidence based on real-time collection data that men and women

with SUDs exhibit different pattern of craving-related relapse vulnerability. These findings support sex-based tailoring of treatment and highlight the importance of considering dynamic emotional processes and sex differences in SUDs population.