# Foraging and sub-optimal choices in a sample of subjects diagnosed with major depressive episode and substance use disorder

Paolo Ossola*[1], Neil Dundon[2], and Neil Garrett[3]

[1]Università degli studi di Parma = University of Parma – Italie
[2]University of California [Santa Barbara] – États-Unis
[3]University of East Anglia [Norwich] – Royaume-Uni

**Résumé**

Deciding which options to engage, and which to forego, requires developing accurate beliefs about the overall distribution of prospects. Here we employ a novel prey selection task to examine how individuals keep track of an environment's reward rate and adjust choices in response to its fluctuations. One hundred and forty-one subjects navigated two environments characterised by different rates of rewarding stimuli (good, intermediate, and bad preys). Healthy subjects tend to discard less valuable options when the environment improved, thereby updating adequately their beliefs about the distribution of payoffs. This belief updating was absent in both clinical populations so that their acceptance rate was not modulated by the environmental improvement, suggesting a pervasively pessimistic expectations. Furthermore, patients diagnosed with a major depressive episode, but not with a substance use disorder, were more likely to accept all the prey presented, even when the reward/effort balance was unfavourable. This over-exploitation tendency was positively associated with depressive symptoms across the whole sample. These results suggest how pessimistic beliefs may lead to behavioural symptoms such as resignation in a prey-selection foraging task.

*Intervenant