Popular science summary of a research project entitled "Emotion dynamics and emotion regulation in borderline personality disorder and anorexia nervosa: An experience sampling method (ESM) and functional magnetic resonance imaging (fMRI) study"

Patients suffering from borderline personality disorder (BPD) and anorexia nervosa (AN) present with a high-risk profile of self-injury vs. starvation, but also of suicide attempts (up to 20% individuals), with AN having the highest mortality rate of any mental disorder due to somatic complications and suicidal toll. Various forms of emotional disturbances (such as abnormal patterns of emotion dynamics and maladaptive aspects of regulating emotions) constitute some of the most serious difficulties in BPD and in AN. Interestingly, in these disorders, maladaptive regulation of emotions can take the form of contrasting ways of coping, ranging from self-injury (assumed to be more specific to BPD) to emotion suppression (thought to be more specific to AN). However, despite a growing body of research on daily-life emotion dynamics in BPD, there is still a paucity of such research concerning AN. In addition, there are almost no studies on ER strategies related to emotion dynamics and to their situational underpinnings in BPD and there is no such a study concerning AN, although research results from the general population point to the importance of taking context into account when examining these phenomena. Apart from that, findings on brain activity during emotion regulation in BPD and AN are rather inconsistent. Finally, the state of knowledge on the specificity of emotional difficulties in these disorders remains insufficient. The aim of the proposed project is therefore to fill the above-mentioned gaps thanks to a combined experience sampling method (ESM) and functional magnetic resonance (fMRI) study that will: 1) investigate daily-life emotion dynamics and ER in specific context in BPD and AN; 2) examine brain activity during ER in BPD and AN; 3) determine relationships between fMRI data and: a) sociodemographic, b) self-report, and b) ESM data in BPD and AN; 4) determine which aspects of the investigated phenomena are more specific to each of the disorders.

The project will contribute to gaining a more accurate picture of the investigated phenomena and interdependencies between them thanks to the innovative combination of ESM and fMRI. Our study may thus constitute a basis for improving therapeutic interventions and self-harm/suicide prevention programs for BPD and AN.

Three groups of women: (1) with BPD, (2) with AN-restrictive type, and (3) healthy controls (HCs) will partake in the study. First, subjects will be asked to complete self-report scales measuring clinical symptoms and will go through detailed assessment of mental disorders. In Part I, the qualified participants will be asked to fill in self-report scales on various aspects of emotional difficulties. In Part II, a smartphone app will be used to make daily measurements of: (1) situational context, (2) subjective intensity of emotions and (3) emotion regulation strategies. Prompts will occur for 14 consecutive days at 6 fixed time points during 12-h periods that will be adjusted to each individual's daily routines. In Part III, subjects will undergo a brain scanning procedure and will be randomly assigned to one of the two conditions of an experimental emotion regulation task: (1) to passively view and hear a set of negative, positive, and neutral stimuli or (2) to actively downregulate emotions (arising in response to those stimuli) by using an emotion regulation strategy consisting in taking the position of a distanced observer.