TITLE: Neural correlates of clinical and neuropsychological symptoms in Anorexia Nervosa: a longitudinal study.

ABSTRACT:

Anorexia Nervosa (AN) is a severe psychiatric disorder characterized by high rates of chronicity and high rates of disability and mortality. Despite the increasing research interest, the causes of the disorder are not yet known. It has been shown that an important role is played by early factors in neuronal development, especially related to perinatal factors such as obstetric complications and prematurity. The effects of these factors can be found, for example, in the altered maturation of brain circuits related to stress response and to higher cognitive functions, studied both with neuroimaging and neuropsychological approaches.

Neuroimaging studies were performed using resting-state approaches, DTI analysis, structural and morphological approaches (VBM, surface based analysis), as well as task-related fMRI. Recently, the evaluation of both functional and structural correlational patterns with graph theory tools have been shown to be particularly useful to characterize the neurobiology of the disorder in the different stages of its course.

Literature evidence shows the presence of widespread functional alterations in prefrontal, parietal, and fronto-striatal areas which correlates with cognitive impairments (set-shifting, decision making, central coherence, motor inhibition and social functions) and with specific psychopathologic profiles. Overall, studies that assess cortical morphological and structural alteration in AN show reductions in cortical thickness and in gyrification, but longitudinal data are lacking.

Despite numerous evidence on patients, however, the role of these alterations remains unclear: whether to consider them as endophenotypes, predisposing factors or effects of the disorder.

The aim of this project is to overcome the cross-over nature of the present literature and to allow a longitudinal approach with the aim of investigating the relationship between the disorder, the underweight condition and the morphological and functional aspects of the brain as well as clinical and neuropsychological assesment.

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PARTICIPANTS:

PIs: Angela Favaro

CO-PIs: open to collaborations

EXPERIMENTAL DATA:

To be acquired	X
Already acquired (ready to be used)	

If data need to be acquire, please provide a brief description of the Experimental setup, methods, instruments and scheduling (e.g. # of subjects, images/signals…): max 300 words

Participants
Patients with a lifetime diagnosis of AN (N= 30 underweight and 30 weight recovered) will be included in the study if they 1) fulfill the DSM-5 criteria of lifetime AN; 2) are older than 15 years old; 3) are female; 4) do not have a history of other psychiatric or neurologic disorders. Participants will be recruited through the Eating Disorders Center of the University of Padova.
Age- and sex-matched control participants will be recruited as well (N=60).

Procedure
All patients will undergo a clinical and neuropsychological evaluation at baseline. After that, structural, resting state as well as DTI sequences will be collected from each participant. After 6 months of treatment patients will be evaluated again both for the clinical and neuropsychological profile, as well as for the neuroimaging scans.
Neuropsychological evaluation will be focused on executive functions and they will be tested using: Edinburgh Test for lateralization, Trial Making Test and Wisconsin Card Sorting Task for set-shifting, Rey-Osterrieth Complex Figure Test for the central coherence, Gambling Iowa Test for decision making, Stop-Signal Task for the motor inhibition and the Reading the Mind in the Eyes for the social function.
Neuroimaging scans will include T1 scans for morphological evaluation, T2/FLAIR scans, BOLD-resting state scans and DTI.
Data analysis will focus on longitudinal changes between starting point and follow up, with a specific focus on the impact of therapy, weight recovery or persistence of underweight.
A network/connectome analysis with Graph Theory tools will be performed on both functional and structural data (DTI, Cortical Thickness, Gyrification).

ETHICS COMMITTEE:

Obtained	Submitted
Conditioned submission	
Not required	