

27<sup>th</sup> International Conference on

# PSYCHIATRY & PSYCHOLOGY HEALTH

June 18-19, 2018 Paris, France

## Applied neuroscience using neurofeedback in the treatment of mental health conditions

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Applied neuroscience is an emerging field that aim to use the latest findings from brain science into clinical interventions to improve human functioning. Neurofeedback is one of the techniques from the neuroscience field that has been proven to be effective when applied in the clinical field in many conditions such as ADHD, ASD, depression, anxiety and autism among others. Neurofeedback is a non-invasive technique based on electroencephalography (EEG) that registers brain activity in order to provide the patient with a feedback that will help patients to regulate their brain activity and consequently improving brain functioning. Therefore, in recent years, research has shown that neurofeedback is a powerful therapeutic technique to improve health conditions and cognitive functions through neuroplasticity, recovering connections between neurons or creating new neural pathways. At the end of the talk, a clinical case of autism will be used to explain the effectiveness of the technique by facilitating improvement in areas of abnormal connectivity and stabilizing brain activity which triggers a reduction of symptoms and positive behavioral changes, increasing the quality of the patient diagnosed with ASD and the relatives. Some of the improvements that can be achieved using neurofeedback in patients diagnosed with autism are related to more distinctiveness in speech, more stable mood, increase in tolerating changes in the environment and physical contact, decreased loud outbursts, social communication as well as a significant improvement in terms of cognitive functions.

### Biography

Andrea Pousada is a Professor at Saint Louis University (Madrid Campus). She has obtained her BS and MS Degree's in Clinical Psychology and PhD in Neuroscience. Her Post-doctoral research at Harvard University focused on fMRI, biomarkers and cognitive endophenotypes in patients in high-risk for psychosis and bipolar disorder as well as the use of transcranial magnetic stimulation (TMS) as a therapeutic alternative for negative symptoms in schizophrenia. Nowadays, she combines her work in the academic field with private practice as a clinical psychologist/neuropsychologist and applying neuroscience techniques to improve different health conditions as well a neuroscience consultant in other fields.

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