Presenter Bio
Please include your full name, credentials, degrees and information about your position and place of employment.

Daniel Lo, University of Pittsburgh Student (Psychology BS), Volunteer RA for Dr. Joseph Beeney
Walter Schneider, Kristofer J. Pomiecko

Name and Narrative Description of your Presentation

Title: White Matter Endpoint Metric of Diffusion Tensor Imaging in Borderline Personality Disorder (Introductory)

OBJECTIVE Diffusion Tensor Imaging (DTI) is used to understand and diagnose brain complications. DTI metrics are typically found for whole tracts. However, few DTI papers study the crossing of white and grey matter, when this region may be abnormal in disorders like Borderline Personality Disorder (BPD). This study will have two parts: (1) create a MatLab function to study metrics at endpoints of white matter tracts, and (2) test the function on the MoodY study’s adolescent Inferior Longitudinal Fasciculus (ILF) Left tracts, which are expected to have lower mean FA and more variation at their endpoints in higher severity BPD participants.

METHOD Participants: The dataset is from Dr. Joseph Beeney’s MoodY study. The participants selected were aged 11-15 (15 females and 15 males). A CI-BPD interview was conducted with each participant, and the guardian also reported scores that they believe fit the participant to find a severity rating. Researchers used a SIEMENS Prisma_Fit scanner to collect DTI data. Processing of the diffusion data followed Dr. Walt Schneider’s High-Definition Fiber Tracking pipeline for tracking, segmenting, and trimming. (1) Using Dr. Schneider’s in-house MatLab code, researchers produced a function that finds a tract’s endpoint voxel mapped values and various statistics. (2) Test for significance in endpoints of ILF Left FAs from the MoodY study.

RESULTS: (1) The function was created and runs without errors. (2) A Spearman correlation test between severity and ILF Left FA showed no correlation for any statistic, meaning no evidence to support the hypothesis.

CONCLUSION While the correlations for the first trial run did not find significant results, there is potential in this endpoints function in further studies to find additional validity for the function and applications in studying other personality disorders to understand and possibly aid in diagnosis (further directions will be discussed in detail).

Three (3) learning objectives
By the completion of this session, participants should be able to:
1. Discuss the theory that led to the synthesis of an endpoints function.
2. Recognize the importance of using various DTI metrics to aid in understanding anatomy and physiology of the brain and brain complications in all people, including adolescents.
3. Identify the possible directions to refinement and future use of the endpoints function.

Three (3) current (within the past 10 years) peer-reviewed publications that support the evidence base for the content of your presentation

