

Sex Differences in Resting-State Cerebral Activity Alterations in Internet Gaming Disorder

Wednesday 11:40-11:50 AM | SSK16-08 | Room: E351

PURPOSE

Although evidence has shown that the prevalence rates of Internet gaming disorder (IGD) differ between males and females, no study has examined whether such sex differences extend to brain function. This study aimed to explore the sex differences in resting-state cerebral activity alterations in IGD.

METHOD AND MATERIALS

Thirty male participants with IGD (IGDm), 23 female participants with IGD (IGDf), and 30 male and 22 female age-matched healthy controls (HC) underwent resting-state functional MRI. Maps of the amplitude of low-frequency fluctuation (ALFF) and functional connectivity (FC) were constructed. A two-factor ANCOVA model was constructed using SPM8, with sex (Male, Female) and diagnosis (IGD, HC) as the between-subject factors. When interaction effects occurred, post hoc pair-wise comparisons were performed using two-sample t-tests within the interaction masks. We used the Barratt Impulsiveness Scale-11 (BIS-11) to assess the behavioural inhibition function of the IGD participants. The correlations of the psychological scores with the ALFF and FC values were assessed using partial correlation analyses.

RESULTS

The ALFF values in the orbital part of left superior frontal gyrus (SFG) significantly decreased specifically in IGDm, which were negatively correlated with BIS-11 scores. IGDm also demonstrated lower connectivity between the orbital part of the left SFG and the posterior cingulate cortex, the right angular gyrus, and the right dorsolateral prefrontal cortex than HCDm. Furthermore, IGDm had lower seed connectivity between the orbital part of the left SFG and the PCC than ICDf.

CONCLUSION

Our findings suggest that sex-specific regional- and network-level alterations exist in IGD, and the altered ALFF values in the SFG represent a clinically relevant biomarker for the behavioural inhibition function of IGDm.

CLINICAL RELEVANCE/APPLICATION

These neuroimaging findings can provide a comprehensive understanding of the neural basis of the sex-specific alterations in IGD.