

score group had higher performance scores in anxiety, depression and executive function compared to non-gaming group, 1-9 score group and 10-19 score group ($P < 0.05$). Correlation and regression analysis showed that the IGAS score was positive correlated with the GAD-7, PHQ-9 and BRIEF-A scores ($P < 0.05$).

Conclusions: The data from this study suggest that although IGA is regarded as a mental disease, online game behavior requires different treatment. Online game activities should not be entirely stopped, but mental disorders caused by excessive gaming activities require attention. In particular, the emotional state and executive function of students with excessive online game behaviors should be monitored and interventions made to avoid game behaviors progressing to indulgent behaviors or addictions.

doi: [10.1016/j.jpsycho.2021.07.381](https://doi.org/10.1016/j.jpsycho.2021.07.381)

Predictors of the Emotional and Cognitive Disturbances in Prematurely Born Children

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Background: In the report, the influence of gestational age, intrauterine growth retardation, infection, brain damage, pain, and stress during hospitalization on the emotional and cognitive development of prematurely born children will be shown. The relevance of the scientific search for predictors of emotional and cognitive impairments in premature babies is dictated by a sufficient number of studies of the difficulties in different periods of childhood. S. Saigal and L.W. Doyle (2008) identified medical (gestational age, intrauterine growth retardation (malnutrition), brain damage, etc.) and additional social (low socioeconomic level, maternal depression, and impaired parent-child communication) factors of impaired cognitive development in vulnerable newborns.

Methods: Neurosonography and radiography of the spine in prematurely born children, analysis of medical records, and biographical data of parents of prematurely born children.

Results: At 1 - 2 months in children, the consequences of these disorders were found out in the form of cysts, liquorodynamic disturbances, or persistence of edema. Radiography at birth in most children was diagnosed with cervical abnormalities at the level of segments C1 - C2. The parents' age in 50.0% of the examined children, was 36 - 40 years old, and the mother had a high level of education.

Conclusions: Thus, we can draw the conclusion that the level of mother education and the parents' age influence the quality of care for the child. Mature parents ensure a higher material and socio-economic status of the family, and mothers with higher education are looking for the best practices for maintaining the child's health.

doi: [10.1016/j.jpsycho.2021.07.382](https://doi.org/10.1016/j.jpsycho.2021.07.382)

Resting-State 'Hubness' Distinguishes High Engagement from Internet Gaming Disorder

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Background: Previous studies investigating the mechanism of internet gaming disorder (IGD) mainly focus on the differences between IGD and normal control (NC) group. However, there are some high engagement users (HEU) who spend as much time as IGD on internet games but do not get addicted to it. Graph analysis is an efficient tool in studying brain networks and has been used in many addictive disorders. Here, we used graph analysis to investigate the hubness difference among IGD, HEU and NC groups. We hypothesized that there may be some alterations in nodal hubness that specific to IGD and lead to their addiction. We also hypothesized that there may be a protective mechanism for HEU from being addicted to internet games.

Methods: Seventy-one participants, comprised of IGD, HEU and NC, were included in the present study. Young's questionnaire and diagnostic criteria for IGD in DSM-V were used for participants grouping. The IGD group met both of the two criteria, and the HEU met the Young's questionnaire but not the criteria in DSM-V. Participants who did not meet both of the two criteria were included in the NC group. Resting state fMRI data were collected from all of the participants. Two graph measures, nodal efficiency (NE) and degree centrality (DC), were calculated to investigate the difference in hubness of brain networks among the three groups.

Results: Significant differences were found among the three groups in the DC of right amygdala, bilateral putamen, medial orbital part of right superior frontal gyrus (ORBsupmed) and right middle temporal pole (TPOmid) (all p s < 0.05 , FDR corrected). Both of HEU and IGD showed significantly higher DC in the amygdala and putamen compare with NC. IGD also showed significantly lower DC in the right ORBsupmed and TPOmid compared with NC and no significant difference was found between HEU and NC in these areas. Besides, DC of the right ORBsupmed positively correlated with degree of internet gaming in HEU. Analysis of NE reproduce the findings of the analysis of DC.

Conclusions: The decreased hubness of the right ORBsupmed that specific to IGD indicate that deficit in value evaluation might be the core reason that IGD get addicted. And the finding that hubness of the right ORBsupmed positively correlated with degree of internet gaming in HEU might be a protective mechanism for them from being addicted. These results also indicate a potential target for treating IGD.

doi: [10.1016/j.jpsycho.2021.07.383](https://doi.org/10.1016/j.jpsycho.2021.07.383)

Language Decoding From Visual Neural Activity Evoked by Natural Images

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Background: Transforming neural activities into language is revolutionary for human-computer interaction as well as functional restoration of aphasia. Present rapid development of artificial intelligence makes it feasible to decode the neural signals of human visual activities.

Methods: A novel model was proposed to decode visual fMRI signals into phrases or sentences when natural images were being watched.

Results: Similarity analyses showed that texts were successfully derived from visual activities. Moreover, we found that higher visual areas usually had better performance than lower visual areas and the contribution curve of visual response patterns in language decoding varied at successively different time points.