

EEG reactions in Yakuts and labor migrants under execution of Stop-signal paradigm

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Motivation and Aim: Executive control is a person's ability to voluntarily control their goal-directed actions. Executive control includes two mechanisms - 1) activation control, i.e. the ability to implement the action and 2) inhibitory control or the ability to suppress inadequate actions. Executive control can be violated in a number of diseases, including anxiety and stress disorders. In this study, we identified EEG correlates of inclination to anxiety disorder in labor migrants in comparison with permanent residents of Yakutia in the conditions of completing the Stop-signal paradigm.

Participants and Methods: The study involved 50 healthy young medical students of North-Eastern Federal University in Yakutsk (35 men, 15 women, mean age 22 years) and 50 healthy students of the same University (all men, mean age 24 years) who moved to Yakutia from the southern regions (Asia, Africa, South America). Migrants were examined twice – immediately after moving to Yakutia and six months after moving. The examination included EEG registration (64 channels, Amplificatory NeoRec, Russia) and filling out questionnaires for susceptibility to depression and anxiety disorder.

Results: During the first examination, migrants showed an increased level of predisposition to anxiety disorder in comparison with the Yakuts, which significantly decreased after six months of adaptation. Susceptibility to anxiety disorder correlated with the amplitude of desynchronization in the alpha frequency band when performing the SSP activation tasks and the amplitude of delta synchronization when performing the SSP inhibitory tasks.

Conclusion: EEG correlates under execution of SSP can be used as markers of inclination to anxiety disorder. Besides, SSP can be used as a method for diagnostic of success of adaptation to climatic changing among migrants.

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