

Sex Differences in QEEG in psychopath offenders

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Introduction: Functional brain differences related to sex in psychopathic behaviour represent an important field of neuroscience research; there are few studies on this area, mainly in offender samples.

Objective: The aim of this study was to investigate the presence of electrophysiological differences between male and female psychopath offenders, specifically we wanted to assess whether the results in QEEG, LORETA and changes in synchronous brain activity could be related to sex influence.

Sample and Methods: The study included 31 male and 12 female psychopath offenders, according to the PCL-R criteria from two prisons located in Havana City. The EEG visual inspection characteristics and the use of frequency domain quantitative analysis techniques are described.

Results: The resting EEG visual analyses revealed a high percentage of EEG abnormalities in both studied groups. Significant statistical differences between the mean parameters of cross spectral measures between psychopathic offender groups were found in the beta band at bilateral frontal derivation and centro-parietal areas. LORETA showed differences especially in the paralimbic and parieto-occipital areas Synchronization likelihood revealed a significant group effect in the beta band (26-30 Hz).

Conclusions: These results indicate that combining QEEG, LORETA analysis and Synchronization likelihood , may improve the neuro-functional differentiation between psychopath offenders of both sexes.

Key words: psychopathic behaviour, neuro-functional differentiation, neuroscience research