LOWER COGNITIVE EMPATHY AND UNEQUAL ACTIVITY IN FRONTAL, TEMPORAL AND PARIETAL CORTICES IN ADOLESCENTS WITH LOWER ACADEMIC ACHIEVEMENT.

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Background: One of the common social scenarios in the adolescents that guide the development of emotional intelligence (EI) is the academic context. In this sense, it has been found that certain variables of EI can predict students' academic success. At the brain level, it is known that empathy, involve the temporoparietal junction and the posterior Superior Temporal Sulcus, as well as specific regions of the frontal cortex (Lamm et al., 2011; Bernhardt & Singer, 2012).

Aims: In this paper, empathy was studied through a comparative analysis of two groups of adolescents with different levels of academic adaptation problems (AAP). Empathy was analyzed from three different levels: social, behavioral and electrophysiological.

Method: For this purpose, the Basic Empathy Scale, assessment of pain in others and facial expression recognition tests and the corresponding electroencephalographic activity were used.

Results: The results show a lower cognitive empathy and accuracy in facial expression recognition in adolescents with school adaptation problems. Groups showed differences in the distribution of oscillatory activity when the stimuli were assessed. Adolescents with better academic achievement generated greater oscillatory activity between theta and high gamma in the right temporoparietal, medial parietal (precuneus) and bilateral dorsolateral prefrontal cortices.

Conclusions: The AAP group presented a lower development of cognitive empathy and closely related skills, as well as a lower oscillatory activity in cortical regions involved in this type of empathy. Moreover, the AAP group would not take advantage during emotional appraisal of facial expressions due to the temporal and frontal activity focused on the left hemisphere.

Keywords: Adolescence, empathy, academical achievement, cerebral cortex, oscillatory activity

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