Executive Functions in Children and Adolescents with Turner Syndrome: A Systematic Review and Meta-Analysis.

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Mots-clés	Adolescent [7], Child [8], executive function [9], Humans [10], Turner Syndrome [11]
Résumé en anglais	Turner syndrome (TS) is a genetic disorder, affecting 1/2500 to 1/3000 live female births, induced by partial or total deletion of one X chromosome. The neurocognitive profile of girls with TS is characterized by a normal Verbal IQ and weaknesses in visual-spatial, mathematics, and social cognitive domains. Executive functions (EFs) impairments have also been reported in these young patients. However, methodological differences across studies do not allow determination of which EFs are impaired and what is the magnitude of these impairments. The aim of this review was to clarify the EF profile of children and adolescents with TS. Sixteen samples, from thirteen studies, were included in the current meta-analysis. EFs measures used in these studies were classified into working memory, inhibitory control, cognitive flexibility, or higher-order EFs tasks in accordance with Diamond's model, Annual Review of Psychology, 64, 135-168 (2013). Results confirmed that girls with TS had significant executive impairments with effect sizes varying from small (inhibitory control) to medium (cognitive flexibility) and large (working memory, higher-order EFs). Analyses by task revealed that cognitive inhibition may be more impaired than the other inhibitory control abilities. Heterogeneity across cognitive flexibility measures was also highlighted. Between-sample heterogeneity was observed for three tasks and the impact of participants' characteristics on EFs was discussed. This meta-analysis confirms the necessity to assess, in patients living with TS, each EF by combining both visual and verbal tasks. Results also underline that, when studying girls with TS' executive profile, it is important to explore the impact of moderator variables, such as IQ, parental socio-economic status, TS karyotype, psychiatric comorbidities, and hormonal treatment status.
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