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CORRELATION BETWEEN FAMILY FACTORS, TECHNOLOGY USE, AND CHILD COGNITIVE DEVELOPMENT: A CROSS-SECTIONAL STUDY

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Background: Child cognitive development is influenced by family and environmental factors, including technology use and screen time. With the increasing presence of digital devices in households, it is essential to understand how these factors interact with children's cognitive development to support more effective interventions and educational practices.

Objective: The study aimed to investigate family factors that impact child cognitive development, measured by the balanced Bayley Cognitive score, with an emphasis on technology use and screen time.

Methods: The research adopted a quantitative and correlational approach, with a cross-sectional and observational design. Participants included children aged 24 to 42 months, enrolled in municipal early childhood education centers, and their respective parents. Data were collected through a structured questionnaire, which addressed technology use, screen time for both parents and children, and device ownership. The quality of the home environment for stimulation was assessed using the Affordances in the Home Environment for Motor Development (AHMED) instrument, and vocabulary acquisition was measured using the TvAud Vocabulary Test. After confirming data normality, correlations between variables were analyzed using Pearson's test.

Results: The analysis revealed positive correlations between mothers' ownership of computers and televisions and children's cognitive scores (computer: $r = 0.288$; $p = 0.026$; television: $r = 0.360$; $p = 0.005$). Mothers' screen time on computers and televisions during the week also positively correlated with children's cognitive performance (computer: $r = 0.336$; $p = 0.016$; television: $r = 0.328$; $p = 0.020$). Total screen time for both mothers and children also showed a positive association with cognitive scores (mother: $r = 0.322$; $p = 0.024$; child: $r = 0.300$; $p = 0.026$). Additionally, the consumption of digital content, such as YouTube and TikTok, showed a significant correlation ($r = 0.314$; $p = 0.019$). Regarding vocabulary, a negative correlation was observed between the number of errors on the tests and cognitive scores ($r = -0.634$; $p < 0.0001$). Fine motor toys also demonstrated significant positive correlations ($r = 0.369$; $p = 0.003$).

Conclusion: The results highlight that family factors, such as technology ownership, screen time, and home stimulation factors, significantly impact cognitive development. A family environment that balances technology use with playful activities can promote healthier development.

Implications: The findings underscore the importance of considering parents' technological habits and the quality of home stimulation when designing interventions for child cognitive development. It is recommended to create educational programs to raise awareness about the impact of screen time and encourage practices that enhance cognitive and motor skills. Future studies should investigate the long-term effects of these factors.

Keywords: Cognitive Development, Screen Time, Home Stimulation

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RELATIONSHIP BETWEEN MOBILITY CAPACITY AND PERFORMANCE IN BRAZILIAN CHILDREN WITH CEREBRAL PALSY

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BACKGROUND: Cerebral Palsy (CP) causes posture and movement disorders, limiting mobility. The International Classification of Functioning, Disability, and Health (ICF) considers two important aspects of mobility: capacity and performance. Capacity is assessed in controlled clinical settings, while performance reflects the real-life context in which the child is inserted (e.g., the community).

OBJECTIVES: To investigate the relationship between mobility capacity and mobility performance.

METHODS: This is a multicenter cross-sectional study. Brazilian children with CP, aged 2 to 11 years, were included. Capacity was assessed using the Gross Motor Function Measure (GMFM-66), and performance was evaluated with the Gross Motor Function Family Report (GM-FR). The classification level was determined by the Gross Motor Function Classification System (GMFCS), with participants grouped as ambulant (I-III) or non-ambulant (IV-V). To analyze the relationship between capacity and performance, a simple linear regression was performed for each group, considering capacity as the independent variable and performance as the dependent variable.

RESULTS: Forty children participated, with a mean age of 6.73 years (± 2.74). Mobility capacity explained 73% of the variation in performance ($R^2 = 0.73$; $p < 0.001$) among ambulant children ($n = 24$) and 63% among non-ambulant children ($n = 16$) ($R^2 = 0.63$; $p < 0.001$). For each additional point in the GMFM, the GM-FR increased by an average of 0.858 points ($\beta = 0.858$; $p < 0.001$) for ambulant children and by an average of 0.798 points ($\beta = 0.798$; $p < 0.001$) for non-ambulant children.

CONCLUSION: Mobility capacity is an important predictor of mobility performance, especially in ambulant children. Environmental and personal factors should be considered when discussing the mobility of Brazilian children with CP, as they may have a greater influence on non-ambulant children.

IMPLICATIONS: The implications of this study highlight the importance of considering not only motor capacity assessed in a clinical setting but also functional performance in the daily lives of children with cerebral palsy. The findings suggest that therapeutic interventions should extend beyond improving motor capacity to incorporate environmental and personal factors that influence mobility, particularly in children at GMFCS levels IV and V. Furthermore, the results reinforce the need for individualized rehabilitation strategies and public policies that promote accessibility and the participation of these children in various social contexts.

Keywords: Cerebral palsy, Mobility, Capacity, Performance