

# Changes in Executive Function over time in Pediatric Cancer Survivors

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## Abstract

**Objective.** Pediatric oncology survivors are at risk for executive function (EF) and working memory (WM) deficits, which can be measured via performance-based measures or rating scales. Previous studies have shown these measurement methods to be weakly correlated. This study aimed to describe parent rated EF and performance-based working memory (PBWM) in pediatric cancer survivors; examine change in EF and PBWM across time; and investigate the relationship between parent rated WM and PBWM. **Method.** The sample included 59 patients (50 brain tumor, 9 Leukemia) diagnosed in childhood (Mage=6.92 years; SD=4.12) seen twice for clinical neuropsychological evaluation. PBWM was examined via the auditory working memory scale from a Wechsler intelligence measure or Differential Ability Scales-II. Parents completed the BRIEF/2 as a measure of global EF (GEC), metacognitive skills (MI/CRI), and behavioral regulation (BRI). **Results.** MI/CRI and GEC at Time 1 were significantly above the mean ( $p<.01$ ), while PBWM did not differ from the normative mean. GEC, MI/CRI, and BRI were significantly higher than the normative mean at Time 2 ( $p<.05$ ). PBWM was both clinically and statistically elevated ( $p<.001$ ). There was a significant change across time in GEC, MI/CRI, and PBWM ( $p<.05$ ), but not BRI. PBWM was only weakly correlated with the BRIEF WM subscale at Time 1 and Time 2 (all  $p>.05$ ). **Conclusions.** Multiple measures of EF should be considered when providing diagnoses and recommendations for pediatric cancer survivors. Furthermore, given declines across time, findings document need for continued monitoring and re-assessment of pediatric survivors as they get further out from treatment.

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Table 1 Sample Characteristics.doc available at <https://authorea.com/users/435821/articles/538580-changes-in-executive-function-over-time-in-pediatric-cancer-survivors>

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TABLE 2 Executive function from initial to follow.doc available at <https://authorea.com/users/435821/articles/538580-changes-in-executive-function-over-time-in-pediatric-cancer-survivors>