factors in PS and academic fluencies in this population.
Participants and Methods: Sixty-eight participants (39 M, 29 F; mean age 10.6 years) diagnosed with ALL and who were previously treated with chemotherapy were included. Thirty-seven participants (23 M, 14 F) were <5 years of age at the time of diagnosis and onset of chemotherapy, while 31 participants (16M, 15 F) were ≥5 years of age at diagnosis and treatment. Participants ranged in age from 6 to 17 years at the time of their neuropsychological evaluation. Participants were given the WISC-V (PS subtests) and WJ-IV academic fluencies (math and reading). To evaluate research questions and hypotheses, correlational tests, independent samples t-tests, and analyses of variance (ANOVA) were used. Results at the p< .05 level are reported.
Results: There were significant correlations between PS and WJ math fluency (r=.510) and reading fluency (r=.392). Independent samples t-test analyses revealed that children who scored below 85 (standard score) on PS composite score demonstrated poorer performance on WJ math fluency (t(60)=-3.971, p=.000, d=1.065) and reading fluency (t(56)=-3.041, p=.004, d=0.896) compared to children whose PS scores were ≥ 85. For children whose PS scores were <85, mean scores were in the low average range for WJ-IV math fluency (M=81.05) and reading fluency (M=84.50). No significant differences were found for age or gender in relation to PS and academic fluencies.
Conclusions: Findings are important in highlighting the need for school accommodations in pediatric survivors of ALL. Processing speed is one of the most vulnerable functions impacted by cancer therapies and was positively correlated with reading and math fluencies in this study. Mean scores for math and reading fluencies were low average for age. In terms of academic accommodations, due to the slow processing speed of these boys and girls, regardless of their age at diagnosis and onset of chemotherapy, the provision for extra time for ALL survivors is recommended to ensure they are given the opportunity to maximize their learning potential and demonstrate their true academic abilities. Parents are encouraged to practice basic fluencies at home as early as possible. In-hospital and home-bound schooling supports are recommended to maintain educational progress. For children at higher risk for late effects and neurocognitive decline, rehabilitation similar to that which TBI survivors receive can be effective, as well. Future prospective research, including longitudinal tracking, with more homogeneous samples of pediatric survivors of ALL is expected to extend and refine findings of the present study.

Categories: Cancer
Keyword 1: leukemia
Keyword 2: academic achievement
Keyword 3: pediatric neuropsychology
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20 The Relationship Between Quality of Life, Cognitive Functioning, and Tumor Grade Level in Brain Tumor Patients

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Objective: The goal of the current study is to compare QoL between tumor grade levels (i.e., low vs high) as well as the relationship between QoL, cognition, and tumor grade.
Participants and Methods: Participants were 156 individuals diagnosed with a brain tumor who completed neuropsychological evaluation within an interdisciplinary brain tumor clinic (mean age=51.67; SD=15.0; mean education=13.98; SD=2.6; 59% male). Independent samples T-Test was utilized to review participants' reported overall quality of life (QoL) on the FACT-Br in relation to tumor grade level (i.e., high vs low). Linear regression analysis was utilized to determine which cognitive variable may be most predictive of QoL.
Results: Results of the Independent T-test demonstrated that low and high tumor grade level groups did not significantly differ in total or individual sub-domain QoL. With regard to the regression analysis, cognitive variables as measured by TMT B, HVLT delayed recall, and FAS accounted for significant variance in quality of life in both low grade and high grade tumor groups (low tumor grade level effect size R2 =0.21; high tumor grade level effect size R2 = 0.19). However, TMT B emerged as a significant predictor of QoL in only the low grade group, while cognitive performance within these same

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tasks did not significantly predict QoL for the high tumor grade level group.
Conclusions: Our findings did not significantly differ in the overall impact tumor grade level (i.e., low vs., high) has on QoL. Notably, cognitive performance on TMT B significantly predicts QoL for the low but not high tumor grade level group.

Categories: Cancer
Keyword 1: brain tumor
Keyword 2: cognitive functioning
Keyword 3: emotional processes
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21 Comparison of the NIH Toolbox Cognition Battery to Established Performance-Based Assessments in a Pediatric Cancer Setting

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Objective: This study examines the clinical validity of the NIH Toolbox Cognition Battery measures in patients with oncological diagnoses and tumor predisposition syndromes, including Neurofibromatosis, Type 1 (NF1).
Participants and Methods: Participants included 158 patients (61% male, 67% White) ages 3 to 25 years (M = 8.38, SD = 4.32) who underwent neuropsychological evaluation between 2019 and 2022. Patients with brain tumors (n = 50) and leukemias (n = 49) accounted for 2/3 of the sample. The remainder had solid tumors, lymphomas, or cancer predisposition syndrome. Forty-eight had a diagnosis of NF1.
Performance-based measures of attention, executive functioning, and processing speed were administered as part of neuropsychological evaluations. Patients were administered between 1 to 4 NIH Toolbox Cognition measures, including Flanker Inhibitory Control and Attention Test (Flanker), Dimensional Change Card Sort Test (DCCS), Pattern Comparison Processing Speed Test (PCCS), and List Sorting Test. Parent-reported measures of attention and EF were also obtained. Z-scores were used to compare performance across measures that assessed equivalent constructs. The rates of weak performance (≥1 SD below the mean) using Toolbox measures were compared to rates of weak performance on traditional neuropsychological measures (e.g., Digit Span), and rates of functional impairment (e.g., parent-reported concerns, ADHD diagnosis).
Results: FSIQ, Coding, and NEPSY Inhibition correlated with all 4 Toolbox measures, while Digit Span correlated with List Sorting, DCCS, and Flanker. DCCS and PCCS correlated with verbal fluency measures. NF1 patients scored lower than non-NF1 patients on Flanker, $F(1,126) = 13.01$, $p<.001$ and DCCS, $F(1,150) = 6.85$, $p = .01$. Toolbox performance did not differ significantly by age group.
Rates of identified weakness were relatively similar on Toolbox measures, some traditional measures, and parent-reported attention problems. In identifying those with and without weakness, the agreement between Flanker and other measures ranged from 52% (Auditory Attention) to 66% (Coding). Agreement between DCCS and traditional measures ranged from 47% (Letter Fluency) to 80% (Switching). For PCCS, concordance ranged from 45% (Semantic Fluency) to 69% (Switching). List Sorting had 80% agreement with Digit Span and Coding.
List Sorting had the highest agreement with parent-reported attention problems (76%), EF problems (72%), and ADHD diagnosis (79%). There was relatively high concurrence between DCCS and ADHD diagnosis (69%) and parent-reported attention problems (60%) and EF problems (65%) and between Flanker and ADHD diagnosis (67%). PCCS had less agreement with functional outcomes, ranging from 49% for EF problems to 58% for attention problems and ADHD diagnosis. In comparison, Digit Span had 64% agreement for EF problems, 70% for attention problems, and 73% for ADHD diagnosis.
Conclusions: The NIH Toolbox Cognition Battery can be used to identify neurocognitive weaknesses in pediatric oncology patients and provide clinically meaningful data. Evaluation of the Toolbox measures' sensitivity to change over time is warranted, as monitoring the progression of cognitive late effects is particularly salient in cancer survivorship.

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