Participants and Methods: The association between cognitive functioning and academic performance was examined for school age children with NF1 (n = 40; ages 9-13). Intellectual functioning was assessed using the Differential Abilities Scales, Second Edition School-Age Version (DAS-II) General Conceptual Ability (GCA) score. Attention was examined using the DAS-II Recall of Digits-Forward (DF) subtest and Flanker Inhibitory Control and Attention Test (Flanker). Working memory was assessed using the DAS-II Recall of Digits-Backward (DB) subtest. Academic performance was measured using the Wechsler Individual Achievement Test, Third Edition (WIAT-III) Word Reading (WR), Pseudoword Decoding (PD), Reading Comprehension (RC), Numerical Operations (NO), and Math Problem Solving (MPS) subtests.

Results: WR was significantly associated with DAS-II GCA ($r_{(38)} = .689, p < .001$) and DF ($r_{(38)} = .470, p = .002$) in addition to Flanker ($r_{(34)} = .364, p = .029$), but not DAS-II DB ($r_{(38)} = .292, p = .072$). PD was significantly correlated with DAS-II GCA ($r_{(38)} = .695, p < .001$), DF ($r_{(38)} = .394, p = .012$), and DB ($r_{(38)} = .474, p = .002$), but not Flanker ($r_{(34)} = .306, p = .070$). RC was significantly associated with DAS-II GCA ($r_{(38)} = .483, p = .002$) and DF ($r_{(38)} = .346, p = .029$), but not DAS-II DB ($r_{(38)} = .306, p = .055$) and Flanker ($r_{(34)} = .269, p = .112$). NO was significantly correlated with DAS-II GCA ($r_{(38)} = .777, p < .001$), DF ($r_{(38)} = .555, p < .001$), and DB ($r_{(38)} = .576, p < .001$) as well as Flanker ($r_{(34)} = .386, p = .020$). MPS was significantly associated with DAS-II GCA ($r_{(38)} = .685, p < .001$), DF ($r_{(38)} = .586, p < .001$), and DB ($r_{(38)} = .543, p < .001$), in addition to Flanker ($r_{(34)} = .420, p = .011$). Significant associations had medium to large effect sizes, while non-significant correlations had small to medium effect sizes. Notably, most of the non-significant correlations had trend-level statistical significance.

Conclusions: Concurrent cognitive functioning (intellectual functioning, attention, working memory) was associated with reading-related and mathematics functioning in school age children with NF1. Notably, intellectual functioning had the strongest association with academic performance across all reading-related and mathematics tasks. Future studies should examine the association between academic performance and additional cognitive domains (e.g., language, visuospatial abilities) in children with NF1 across a wider age range to allow for examination of developmental patterns.
(WAIS-IV DSB, DSS), visuospatial functioning (JLO), language (VNT), memory (RAVLT Delayed Recall, WMS-IV Logical Memory II), and executive function (TMTB, Stroop Color-Word). Separate moderation analyses were conducted with depression as the predictor and APOE4 or BDNFMet status as the moderator using the SPSS PROCESS macro v4.0. Age was a covariate for models with processing speed, memory, language, and executive function as outcome variables.

**Results:** Participants were largely male (93%) and White (75%). Ten percent met criteria for depression, 26% were APOE4 carriers, and 32% were BDNFMet carriers. The overall model examining depression, APOE4, and memory was significant ($p < .01$, $R^2 = .14$). Depression was associated with lower memory performance ($p < .05$), however, APOE4 was not a significant moderator ($p > .05$). Similarly, the overall model examining depression, APOE4, and language was also significant ($p < .05$, $R^2 = .10$). While the direct effects of depression and APOE4 on language were nonsignificant ($p > .05$), there was a significant two-way interaction between APOE4 and depression ($p = .03$). The overall model with depression, BDNF Met, and memory was significant ($p < .001$, $R^2 = .18$). While neither depression nor BDNF Met had significant direct effects on memory ($p > .05$), a two-way interaction emerged between depression and BDNF Met ($p = .05$). Simple slopes analyses were used to further investigate significant interactions. Depression, APOE4, and BDNF Met did not significantly impact attention, processing speed, working memory, visuospatial functioning, or executive function, and no significant interactions were noted among variables. BDNF Met had no direct impact on language.

**Conclusions:** APOE4 and BDNF Met were found to differentially moderate the relationship between depression and cognition. Specifically, APOE4 carriers with depression had worse language performance compared to those who were healthy, depressed, or APOE4 carriers. BDNF Met carriers with depression performed worse on measures of memory compared to those who were healthy, depressed, or BDNF Met carriers. The treatment of depression in APOE4 and BDNF Met carriers may reduce associated cognitive impairments. Limitations and future implications are also discussed.

**Categories:** Genetics/Genetic Disorders

**Keyword 1:** depression

**Keyword 2:** cognitive functioning

**Keyword 3:** genetics

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55 The Neurocognitive Profile of a Child with Rubinstein-Taybi Syndrome (RSTS-Type 2)

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**Objective:** Rubinstein-Taybi Syndrome (RSTS) is a rare multiple congenital autosomal dominant disorder, with an incidence of roughly 1/125,000 live births (Milani et al., 2015). RSTS is characterized by several typical somatic characteristics and developmental disabilities. Common neurological findings in patients with RSTS include mild or moderate intellectual impairment and delays in gross motor development (Taupiac et al., 2021; Hamilton et al., 2016). Additional characteristics observed among individuals with RSTS include hyperactivity, abnormalities in expressive language, inattention, motor difficulties, noise intolerance, maladaptive behaviors, and fewer modes of communication (Waite et al., 2015). Due to the condition's rarity, very few studies have investigated the cognitive profiles of RSTS patients with clinical features of EP300 (Type 2; Morel et al., 2018) in affected youth. This case study represents the first reported comprehensive neuropsychological description to our knowledge of an individual with this condition.

**Participants and Methods:** Participant: The participant is an 8-year, 4-month-old young girl referred for neuropsychological evaluation. LX was diagnosed with failure to thrive due to her small size, although she met all developmental milestones on time. LX was diagnosed with RSTS, Type 2 through genetic testing and blood work following concerns about small stature, feeding difficulties. A 4kb deletion of 22q13.2 which contains exon 2 of EP300 was identified.

Method: Medical and school records review, a clinical interview with LX and her family, neuropsychological assessment, and parent- and teacher-report questionnaires were used to