

79 Processing Speed is Related to the General Psychopathology Factor in Youth

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Objective: There is increasing interest in examining a general psychopathology factor (p factor) in children and adolescents. In previous work, the relationship between the p factor and cognition in youth has largely focused on general intelligence (IQ) and executive functions (EF). Another cognitive construct, processing speed (PS), is dissociable from these cognitive constructs, but has received less research attention despite being related to many different mental health symptoms. This study aimed to examine the association between a latent processing speed factor and the p factor in youth.

Participants and Methods: The present sample included 795 youth, ages 11-16 from the Colorado Learning Disability Research Center (CLDRC) sample. Confirmatory factor analyses tested multiple p factor models, with the primary model being a novel second-order, multi-reporter p factor where caregivers reported on externalizing symptoms (oppositional defiant disorder and conduct disorder modules from the Diagnostic Interview for Children and Adolescents [DICA]; aggression, delinquency, and attention problems subscales from the Child Behavior Checklist; and inattentive and hyperactive/impulsive subscales from the Disruptive Behavior Rating Scale) and youth self-reported on internalizing symptoms (Child Depression Inventory, generalized anxiety module from the DICA, and withdrawn, anxious/depression, and somatic subscales from the Youth Self Report). We then tested the correlation between the p factor and a latent PS factor. The latent PS factor was composed of WISC Symbol Search, WISC Coding, Colorado Perceptual Speed Test, and Identical Pictures Test. Three secondary p factor models were examined for comparison to previous literature, including (1) a bifactor, multi-reporter model, (2) a second-order model with just caregiver-report, and (3) a bifactor model with just caregiver-report.

Results: There was a significant, negative correlation between the p factor and PS ($r = -0.42$, $p < .001$), indicating that slower processing speed is associated with higher general mental health symptoms. This finding was robust across models that used different raters (youth and caregiver-report vs. caregiver-report only) and modeling approaches (second-order vs. bifactor). This association is stronger than previously reported associations with IQ or EF in the p factor literature. Further, in this sample, we found that the association between PS and the p factor was robust to covariation for general cognition, whereas the correlation between general cognition and the p factor was fully accounted for by PS.

Conclusions: Our findings indicate that PS is related to general psychopathology symptoms, expanding the existing literature relating PS to specific, distinct disorders by showing that PS is related to what is shared across psychopathology. As cognition and psychopathology both undergo significant development across childhood and adolescence, elucidating neurodevelopmental mechanisms that relate to risk for a broad range of symptoms may be critical to informing early intervention and prevention approaches. This research points to processing speed as an important transdiagnostic construct that warrants further attention and exploration across development.

Categories: Executive Functions/Frontal Lobes

Keyword 1: information processing speed

Keyword 2: executive functions

Keyword 3: psychometrics

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80 Longitudinal Development of Response Inhibition in Adolescence and Young Adulthood and Associations with Gray Matter Architecture

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Objective: The present study explored how individual differences and development of gray matter architecture in inferior frontal gyri (IFG), anterior cingulate (ACC), and inferior parietal