

Sluggish Cognitive Tempo: Current Knowledge and Future Directions

by Lisa Jacobson, PhD, NCSP

Do you find yourself saying, “Come on! Hurry up!” multiple times each day? Maybe she is your daughter or he is a student in your classroom. She is the last one to complete her work, turn in that test, or even get her things together to go home. Even when he is paying attention, he just seems to need longer than anyone else to get the job done. Neither child is particularly hyperactive. Could this be ADHD? Something else?

The something else might be sluggish cognitive tempo (SCT). A growing body of evidence suggests that SCT is a distinct behavioral pattern, or phenotype, that is both overlapping and yet distinct from ADHD and other childhood disorders. Identified during field trials for the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV), SCT is characterized by a combination of symptoms, such as being slow to complete tasks or generally slow-moving, lacking initiative, appearing drowsy or sleepy, appearing lethargic, being easily confused or mentally “foggy,” and appearing frequently lost in thought or “daydreamy.” As the inattentive symptoms of ADHD include being easily distracted, difficulty sustaining attention, failure to pay close attention to details, avoidance of tasks requiring sustained effort, etc., it is easy to see that these two groups of symptoms might overlap.

SCT symptoms do sometimes co-occur with the inattentive symptoms of ADHD, but are also seen in children that do not meet formal diagnostic criteria for ADHD. Perhaps in response to the National Institutes of Mental Health’s recent call for more dimensional approaches to mental health research, there has been a recent increase

in interest in better characterizing the behavioral characteristics of sluggish cognitive tempo and determining whether and to what degree symptoms are distinct from ADHD and other childhood disorders.

Measuring SCT symptoms

SCT symptoms are usually measured with behavior rating scales, typically completed by parents or teachers. Across studies, SCT-related symptoms generally fall into sluggish/sleepy items (appears drowsy, appears lethargic, slow-moving or sluggish), daydreamy items (seems to be in his/her own world, “in a fog,” daydreams), and initiative or persistence items (effort fades quickly, lacks initiative, appears unmotivated). Research suggests that the sluggish/sleepy items are most distinct from both the hyperactive-impulsive and inattentive symptoms of ADHD. In fact, data consistently show that the three dimensions of SCT have a stronger relationship with each other than with ADHD symptoms with weaker relationships to hyperactive-impulsive symptoms versus inattentive symptoms. These patterns tend to be true for both parent and teacher ratings of behavior in children, as well as in ratings of adults.

Recent research found that within a sample of typically developing children,

almost sixty percent of those with SCT also met criteria for diagnosis of ADHD and close to forty percent of those meeting the diagnostic symptom threshold for ADHD also had SCT. Other studies have similarly found that approximately thirty to sixty percent of youth with ADHD inattentive type show high levels of SCT. These numbers suggest that a large proportion of children with SCT would not meet full diagnostic criteria for ADHD, and therefore, may be at risk of being overlooked or underdiagnosed in spite of having true difficulty. It also suggests that conclusions regarding the impact of SCT on children’s functioning as well as co-occurring symptoms or disorders may differ depending on whether SCT symptoms are surveyed in children referred for evaluation due to ADHD-related symptomatology or previously diagnosed with ADHD versus mixed clinical or community samples.

SCT symptoms also seem to have a real, functional impact on children’s behavior and psychosocial competence. Across studies, children with more symptoms of SCT appear to have a greater tendency to have internalizing disorders such as anxiety or depression, a greater tendency to show social withdrawal, and decreased social competence. In contrast to ADHD symp-



A growing body of evidence suggests that SCT is a distinct behavioral pattern, or phenotype, that is both overlapping and yet distinct from ADHD and other childhood disorders.

behavior. Even after considering (statistically controlling for) severity of inattention symptoms, children with more SCT symptoms tend to show reduced academic skills, grades/GPA, and overall academic progress, including performance in both math and reading.

In one of our studies, we found that the low initiation/persistence SCT symptoms in particular appear to show a strong association with reports of impairment in academic progress, even after considering teacher reports of inattention. Furthermore, these SCT symptoms seem to

contribute to both organizational and homework problems. Using parent ratings, Russell A. Barkley compared children with ADHD to those with SCT, ADHD and SCT, and those who did not meet criteria for either disorder (controls). Interestingly, findings from this study suggest a fairly consistent pattern of functional impact, with the amount of difficulty dependent upon severity of children's symptomatology. Specifically, children rated as showing more SCT symptoms were consistently more affected in terms of executive functioning and day-to-day impairment than typically

toms, SCT symptoms seem to be associated with less externalizing behavior, such as aggression and oppositional defiant

ASK THE EXPERT SERIES

Discover fresh ideas and innovative solutions for managing ADHD. Visit chadd.org/AsktheExpert to register today.



August 20, 2014, 3:00 PM EST

The ADHD Coach That Is Best for Me
Elaine Taylor-Klaus and Diane Dempster



August 27, 2014, 3:00 PM EST

The Role of Developmental Pediatricians in Diagnosing and Treating ADHD
Tanya Froehlich, MD, MS



September 10, 2014, 3:00 PM EST

On Their Own: Helping College Students with ADHD
Theresa Maitland, PhD

Hosted by the National Resource Center on ADHD: A Program of CHADD.

The Glenholme School

Devereux Connecticut

Providing young people with the foundation needed to lead successful and meaningful lives.



Glenholme is a therapeutic boarding school for students, ages 10 to 21, with high functioning Autism Spectrum Disorders, ADHD, compulsive disorders, depression, anxiety and various learning differences.

With an education based on individual strategies for success, graduates of Glenholme matriculate to colleges and universities and go on to meaningful careers.

Washington, CT | Phone (860) 868-7377 | Fax (860) 868-7413
admissions@theglenholmeschool.org | www.theglenholmeschool.org

developing children, but were less affected than children with either ADHD alone or ADHD plus SCT. The children with both ADHD and SCT were consistently more impaired across almost all outcomes than children with either disorder alone.

Speed of processing

SCT may also be associated with performance speed on psychological tests. *Speed of processing* is a broad term that refers to how quickly the individual responds to simple targets (i.e., reaction time), completes basic fine motor tasks (i.e., timed completion of pencil and paper tasks), or accurately performs more complex cognitive tasks (i.e., reading fluency). In examining simple reaction time, research consistently shows that children with ADHD are substantially more variable in their responding over time than typically developing children—but there are few data to date examining patterns of reaction time in children with SCT.

We suspect that children with SCT may be more consistently slow and less variable across time, relative to children with ADHD

alone. Children who show more variable/inconsistent responding on reaction time or rapid naming tasks seem to perform more poorly on reading fluency tasks, whereas a pattern of consistently slower response speed on both computer-based reaction time tasks or naming tasks may in fact be associated with better oral reading fluency. This pattern seems particularly true of those children with ADHD, relative to typically developing children. Furthermore, in a small sample of children selected for below average motor speed, SCT symptoms (particularly the sluggish/sleepy symptoms) predicted their reading fluency on standardized tests of speeded oral reading skills, even after their decoding skills and the severity of ADHD inattention symptoms were taken into account. Interestingly, in this small sample, children with more SCT symptoms seemed to show better performance on the reading fluency tests; this may in part reflect a reduction in impulsivity or improved concentration on the task, but needs to be examined further in a larger sample.

The relation between SCT and performance speed on psychological tests may also vary by age. Examining a sample of clinically referred children, we found that there was a stronger association between SCT symptoms and motor speed on a pencil and paper task for elementary-aged children relative to adolescents. These data show that younger children with higher levels of SCT were slower to complete the motor tasks than their peers. The association was in the same direction, but much weaker, for the older children.

Recent press vs. clinical experience and research

Finally, although some recent press may argue otherwise, both clinical experience and the growing research literature suggest that SCT exists. The data to date clearly support an association with ADHD primarily inattentive type, but further suggest SCT is distinct from ADHD.

Furthermore, although the sleepy/sluggish and low initiation/persistence SCT symptoms show some overlap with mood or

depressive symptoms, SCT is also separable from mood. Core processing speed may be consistently slowed—and perhaps less variable—in SCT relative to ADHD, although more research is needed in this area. Data regarding genetic heritability for SCT are just beginning to emerge; a recent behavioral genetic study from Italy suggested less heritability for SCT than ADHD, but noted that SCT symptoms do seem to be inherited. Although the name of the syndrome is admittedly less than ideal, and some have advocated changing the name, it is not yet clear how best to characterize these symptoms and their most direct functional outcomes in a manner that helps support further research, identification/differential diagnosis, and intervention. Additional work may help to better describe the course of SCT symptoms during development, clarify the role of sleep and/or sleep disturbance in SCT, and identify genetic and neurophysiological markers for the disorder.

However, the available research suggests the importance of monitoring children with SCT for emergence of mood symptoms as they enter adolescence, carefully screening for co-occurrence of ADHD and learning difficulties, and potentially providing support for building social skills and peer competence. In addition, if the preliminary data regarding reading fluency are further supported, provision of extended time may facilitate the ability of children with SCT to show what they know on assignments and tests. With additional research, more targeted interventions will hopefully emerge. 🗨️

For a list of studies discussed in this article, please go to chadd.org/SCTReferences.

Lisa Jacobson, PhD, NCSP, is a licensed psychologist and pediatric neuropsychologist in the department of neuropsychology at the Kennedy Krieger Institute in Baltimore. She is also an instructor in psychiatry and behavioral sciences at the Johns Hopkins University School of Medicine. Her broad research interests include examining cognitive and behavioral aspects of neurodevelopmental disorders, specifically related to brain-behavior relationships involving attention and executive functions.

