

Keyword 1: cognitive functioning

Keyword 2: infectious disease

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Poster Session 10: Late Breaking Science

10:45am - 12:00pm
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Town & Country Foyer

1 The Influence of Depression and Anxiety on Working Memory in Children with ADHD

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Objective: Previous research has explored the performance of working memory in children with ADHD and individual co-occurring disorders, finding that internalizing disorders such as depression and anxiety, both independently negatively impact working memory performance (Saarinen, Fontell, Vuontela, Carlson, & Aronen, 2015; Kofler, Rapport, Bolden, Sarver, Raiker, & Alderson, 2011; Skogan, Zeiner, Egeland, Rohrer-Baumgartner, Urnes, Reichborn-Kjennerud & Aase, 2013). However, there is limited research on the impact of co-occurring depression and anxiety on working memory, which are common in children with ADHD. When depression is present, parts of the prefrontal cortex regions are hypoactive and therefore lead to impairment in executive functioning abilities (Snyder, 2013). In regard to anxiety, previous literature (Moran, 2016) has found that anxious arousal competes with processes located in the prefrontal cortex leaving limited neural resources for executive functioning skills (Moran, 2016). The current study will evaluate the influences of depression and anxiety on working memory in children with ADHD.

Participants and Methods: Participants were from an archived data set, which included 849 individual children ages 7-15 years old and their biological parents, recruited between 2009 and

2015. The 849 children included 76 sibling pairs. Families were part of an ongoing longitudinal study.

The children completed a computerized version of a spatial working memory task identical to the spatial span task from CANTAB (De Luca et al., 2003). In regard to verbal working memory, children completed Digit Span from the WISC-IV, including both forward and backward conditions. Depression was measured by the Children's Depression Inventory, 2nd edition (Kovacs, 2004) and anxiety was measured by the Multidimensional Anxiety Scale for Children, 2nd edition (MASC-2) (March, 2012). ADHD was measured by having the parents and teachers complete two questionnaires: the ADHD rating scale (ADHD-RS; DuPaul et al. 1998), the Connor's Rating Scale, 3rd edition (CRS-R, Connors 2003), and an in person semi-structured diagnostic interview (Kiddie Schedule for Affective Disorders and Schizophrenia – KSADS, Kaufman et al. 1997).

A best estimate DSM-IV ADHD (American Psychiatric Association [APA], 1994) diagnosis was established by a multidisciplinary diagnostic team (ADHD diagnosis agreement kappa = .88). On cases where consensus was not achieved, they were excluded from the participant pool, and this became the clinical referred control group for the study.

Results: The results indicated that children with ADHD and a co-occurring diagnosis of depression experience more difficulties with working memory abilities than those who do not have a co-occurring diagnosis of depression. Additionally, depression has a greater impact on verbal working memory in children with ADHD than anxiety does alone. This study also found that there were no significant gender differences between children with ADHD who identify as males and females on verbal or visual working memory tasks.

Conclusions: The findings of this study indicate the importance of addressing depressive symptoms in children with ADHD. With a holistic understanding of working memory deficits in children with ADHD as well as potential gender differences, caretakers and providers can integrate more effective intervention plans to help mitigate significant working memory deficits.

Categories: ADHD/Attentional Functions

Keyword 1: depression

Keyword 2: anxiety

Keyword 3: working memory

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2 Perimenopause, Menopause and ADHD

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Objective: We previously reported the impact of hormonal changes during menopause on ADHD and associated symptoms. Here we provide findings from an expanded sample limited to those 46 and older.

Participants and Methods: Information was obtained from a reader survey sponsored by ADDitude Magazine. Responses were received from 3117 women of whom 2653 were 46 or older. Analyses were limited to this older group, since mean age of perimenopause is around 47 in the general population. The final sample ranged in age from 46 to 94 (mean=53) and 85% had been diagnosed with diagnosed with ADHD. Respondents were asked to indicate their age at diagnosis and the impact of 11 different symptoms or associated problems of ADHD at each of 5-time intervals: 0-9 years, 10-19 years, 20-39 years, 40-59 years and 60+years. Co-morbidities were also considered.

Results: Changes in ADHD Symptoms: Sixty-one percent reported that ADHD had the greatest impact on their daily lives between 40 and 59 years of age. The largest group of respondents (43%) were first diagnosed between ages 41 and 50. The reported prevalence of inattention, disorganization, poor time-management, emotional dysregulation, procrastination, impulsivity and poor memory/brain fog increased over the life span. More than half indicated that a sense of overwhelm, brain fog & memory issues, procrastination, poor time-management, inattention/distractibility and disorganization had a 'life altering impact' during the critical menopausal/perimenopausal window. By contrast, complaints about significant hyperactivity, impulsivity, social struggles and perfectionism remained fairly constant over the

lifespan, and were not among the most common complaints (i.e., only endorsed by 25% to 35% of the sample). Interestingly, while 61% reported that ADHD had its greatest impact on daily life between 40-59, only 3% reported the same thing for age 60 and above.

Thus, in this expanded sample the first diagnosis of ADHD was most common in adulthood and peaked in the perimenopausal years. ADHD was also again most disruptive during the perimenopausal/menopausal window of time. This shift was most pronounced for symptoms of poor memory/brain fog and 'feeling overwhelmed.' Symptoms either diminished or they adjusted as they moved out of the transition years.

Comorbid Symptoms: Anxiety and depression were most common (73% and 63%, respectively) consistent with the literature. Also elevated, but much less frequent here, were learning, eating and sensory processing disorders (i.e., 10%-13% each). Thus, depression and anxiety may be the most frequent correlates of an ADHD diagnosis, irrespective of age of onset.

Conclusions: Hormonal change during the climacteric often is associated with worsening of cognitive complaints. Such increased complaints can lead to a first diagnosis of ADHD during this period, as well as a worsening of symptoms in those previously diagnosed. Moreover, this hormonal shift may underlie this diagnosis in a subset of the individuals currently characterized as having adult-onset ADHD. Lessening of complaints in those ages 60 and above raises questions regarding the underlying mechanisms for this change (e.g., physiologic adaptation, compensation or decreased life demands).

Categories: ADHD/Attentional Functions

Keyword 1: aging (normal)

Keyword 2: attention deficit hyperactivity disorder

Keyword 3: attention

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3 Quick-Reference Criteria for Identifying Clinically Significant Multivariate Change in Older Adult Cognition: A NACC Study