

# ADULT ADHD AND COMORBID ANXIETY DISORDERS IN A CLINICAL POPULATION

S. Snow, B.A.<sup>1</sup>, R. Ansari, M.A.<sup>2</sup>, M. Rukavina, B.A.<sup>1</sup>, M. Warren, B.A.<sup>1</sup>, J. Thurley, M.D., F.R.C.P. (C)<sup>3</sup> and L. Murphy, M.D., F.R.C.P. (C)<sup>3</sup>

<sup>1</sup> The University of Toronto – Factor-Inwentash Faculty of Social Work, <sup>2</sup> Staff Clinician -The ADHD Clinic, Toronto, ON, <sup>3</sup> Staff Psychiatrist -The ADHD Clinic, Toronto, ON

## OBJECTIVES

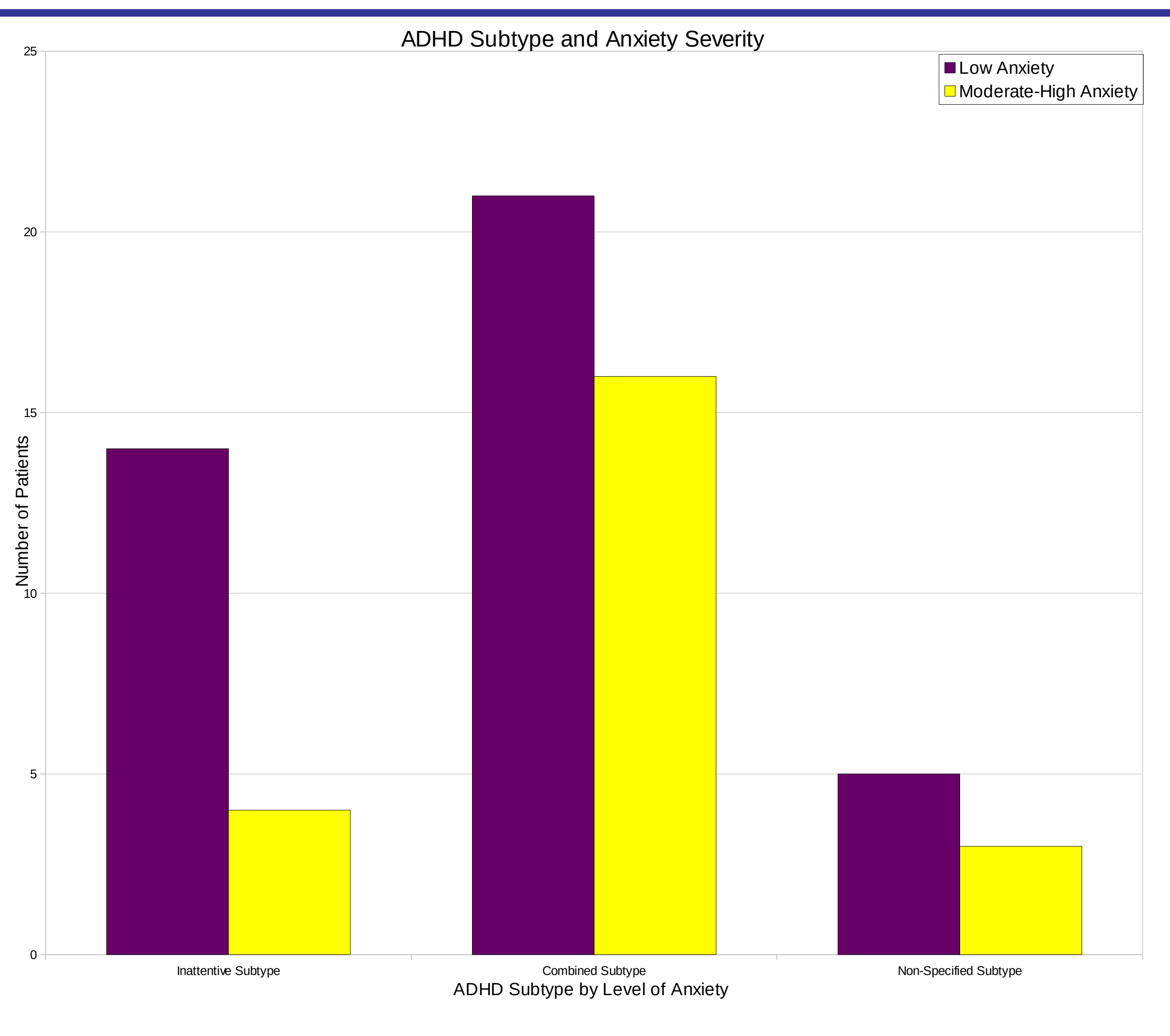
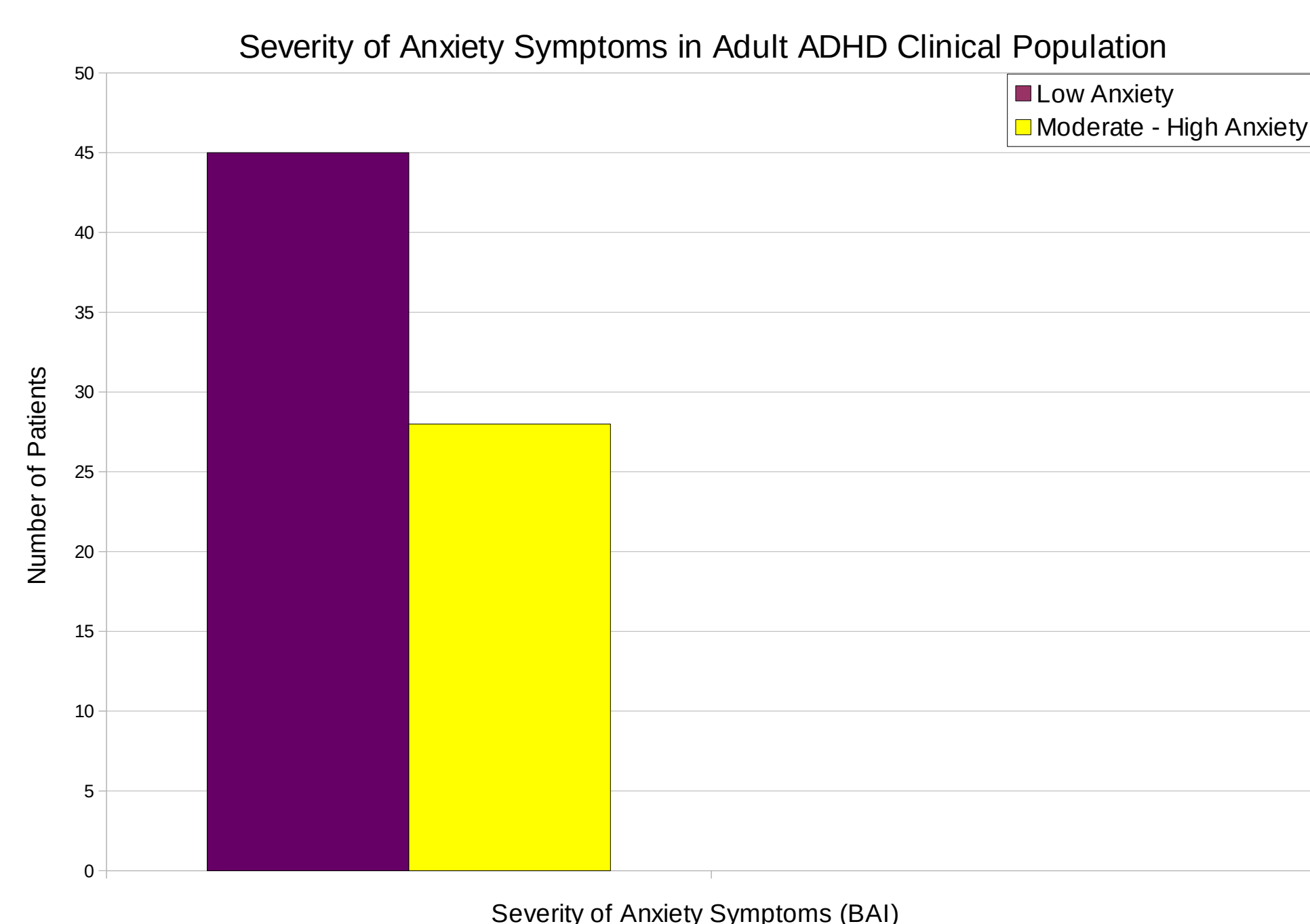
Attention Deficit Hyperactivity Disorder (ADHD) is a common neurobiological disorder that affects a significant proportion of the general population. The goal of this poster is to demonstrate that anxiety symptoms are often comorbid in adult clinical populations of ADHD patients. The dearth of recent and consistent information on adult ADHD necessitates further research for two reasons. Firstly, the clinical picture of adult ADHD is different from that of pediatric ADHD as adults tend to present with fewer symptoms of hyperactivity than children (Fayyad et al., 2007; Ramos-Quiroga, Montoya, Kutzelnigg, Deberdt & Sobanski, 2013; Van Ameringen Mancini, Simpson & Patterson, 2011). ADHD is often comorbid with other disorders (Fayyad et al., 2007; Kessler et al., 2006; Millstein, Wilens, Biederman & Spencer, 1997; Ramos-Quiroga et al., 2013; Retz, Retz-Junginger, Thome, & Rosler, 2011). The current study examined the comorbidity of ADHD and anxiety as described by the Beck Anxiety Inventory (BAI) (Beck, 1993), which measures general anxiety symptoms.

## METHODS

A sample of 92 adults (ages 18-59 years) were clinically referred and diagnosed with ADHD at a large metropolitan ADHD clinic over a 4-month period. They completed the ASRS and underwent an extensive 2-hour DSM-V-based structured diagnostic interview by a staff clinician and a team psychiatrist. Patients were also asked to complete the BAI as part of the routine screening procedure for anxiety. Scores of 22 or higher on the BAI (Beck, 1993) indicate moderate or severe anxiety, and are considered to be clinically significant, comparable to a diagnosis of Generalized Anxiety Disorder (GAD) in the DSM-V. All diagnoses and treatment recommendations were made by a team psychiatrist. The sample is cross-sectional and aside from age (18-59 years) no other parameters (e.g., race, sex) were used to limit the sample.

## RESULTS

In our clinical sample of ADHD patients (N = 92), 28 patients (30%) also reported moderate to high anxiety on the BAI and met the clinical criteria for GAD in addition to the ADHD diagnosis. None of the patients met the full criteria for the Hyperactive-Impulsive presentation of ADHD. Patients with ADHD Combined subtype reported higher levels of anxiety as compared to those with ADHD Inattentive subtype and ADHD subtype non-specified.



## BACKGROUND

The literature on the percentage of individuals with childhood ADHD that experience symptom persistence into adulthood is inconsistent (e.g., 2.6% [Kessler et al., 2006], 2.9% [Faraone & Biederman, 2005], 15% [Ramos-Quiroga et al., 2013], 60% [Retz et al., 2011]) and measurement is often indirect (e.g., longitudinal study) (Faraone & Biederman, 2005). Further, prevalence estimates in both the general and adult population vary due to methodological differences between studies (Polanczyk, Silva de Lima, Lessa Horta, Biederman & Rohde, 2007; Ramos-Quiroga et al., 2013). Comparisons between studies examining ADHD across different geographical contexts and patient populations reflect this discrepancy. For example, international reviews have reported average prevalence rates of 5.3% for age non-specific ADHD (Polanczyk et al., 2007) and 3.4% for adult ADHD (Fayyad et al., 2007), while rates of adult ADHD in Europe have been reported to vary more widely (i.e., between 1% and 8%) (Ramos-Quiroga et al., 2013). Similar to reported international prevalence rates, findings from an American study indicated that 4.4% of the general population sampled (i.e., adults who reported no symptoms, sub-threshold symptoms, or clinically significant childhood symptoms) met the criteria for ADHD (Kessler et al., 2006). In the general population, prevalence estimates of Generalized Anxiety Disorder (GAD) appear to be similar to those reported for ADHD. Lifetime prevalence of GAD also appears to be similar across geographical context (e.g., 5% in a European study [Wittchen & Hoyer, 2001] and 5.7% in an American study [Shulz et al., 2005]). Regarding the 12-month prevalence of GAD, a recent Australian study reported 2.8% for the general population (Goncalves, Pachana, & Byrne, 2011). At the same time, it should be noted that prevalence estimates of GAD tend to be higher in clinical samples drawn from primary care populations (Shulz et al., 2005; Wittchen & Hoyer, 2001). Interestingly, the prevalence of GAD has been found to be low in childhood and tends to increase with age (Lieb, Becker, & Altamura, 2005), while ADHD is typically associated with pediatric rather than adult populations (Fayyad et al., 2007; Kessler et al., 2006; Ramos-Quiroga et al., 2013). The comorbidity of ADHD has been consistently supported in the literature (Fayyad et al., 2007; Kessler et al., 2006; Millstein et al., 1997; Ramos-Quiroga et al., 2013; Retz et al., 2011) and there is some evidence that adults with the Hyperactive-Impulsive subtype are more likely to present with concurrent disorders than adults with the other subtypes (Millstein et al., 1997). As it relates to the current variables of interest, findings from a recent Canadian study indicated that among adult patients at an Anxiety Disorders clinic, 27% of patients met the diagnostic criteria for ADHD (Van Ameringen et al., 2011). Further, amongst the patients that met ADHD criteria, it was found that the GAD symptoms were more severe than amongst patients who did not (Van Ameringen et al., 2011). These findings support the need for further research in the area of comorbid ADHD and GAD in adult populations to ensure appropriate diagnosis and effective treatment for patients. This is consistent with the results of the current study.

## DISCUSSION

The prognosis and treatment plans for adults with comorbid ADHD and GAD are complex. Research indicates that ADHD is linked to deficits in executive functioning, impacting areas such as occupational functioning (Barkley & Murphy, 2010). Symptoms of ADHD change in adulthood; consequently, adults are at risk for being treated for a non-ADHD disorder (Ramos-Quiroga et al., 2013). Debilitating anxiety in adults with ADHD can significantly impact the type of intervention selected to address symptoms, including the type of medication or the combination of medication and psychological intervention (Kooij et al., 2010; van Ameringen et al., 2011). According to a recent meta-analysis, cognitive-behavioral therapy (CBT) and pharmacological treatment have a similar effect size (ES) for treating GAD in adult populations (e.g., CBT [ES = 0.60]; pharmacological treatment [ES = 0.70]) (Stanley & Novy, 2000; Ballenger, 1999). Moreover, a multifaceted treatment program (e.g., psychosocial interventions) designed to address the primary symptoms of GAD is advantageous for treating anxiety (Stanley & Novy, 2000). While pharmacological interventions can be efficacious for treating anxiety symptoms, research supports the importance and effectiveness of including a psychosocial approach, more specifically CBT (Stanley & Novy, 2000). In the case of ADHD, pharmacological treatment options are the most frequently used interventions for the treatment of adult ADHD (Bitter et al., 2012). Regarding efficacy, research indicates that pharmacological treatment leads to the improvement of symptoms in areas of executive and social functioning (Bitter et al., 2012). However, among adult ADHD populations, pharmacotherapy alone may not address the complex issues presented (Kooij et al., 2010). In this way, non-pharmacological treatments such as psychotherapy (Ramos-Quiroga et al., 2013), psychoeducation, and cognitive behavioural therapy are also thought to be effective for adults with ADHD (Kooij et al., 2010). However, when delivered in the absence of adjunct treatment, psychotherapeutic interventions alone do not seem to relieve core ADHD symptoms and lack efficacy (Kooij et al., 2010). Non-pharmacological approaches are recommended in treatment plans for those adults with ADHD "where residual symptoms or comorbidities remain" (Kooij et al., 2010, p.14). There are limitations of the current study which should be considered. The sample of this study is relatively small and from a clinical population; therefore, the results may not be generalizable to the general population. Additionally, the anxiety variable is based on self-reported BAI scores rather than an actual diagnosis of GAD. However, the clinically significant scores on the BAI should be comparable in validity to a diagnosis of GAD, as the items on the BAI loosely correspond to the diagnostic criteria of GAD in the DSM-V. The likelihood that a person has clinically significant GAD symptoms is higher when a diagnosis of ADHD has already been made.

## CONCLUSIONS

It is the opinion of the authors of this paper that it is important for clinicians to routinely screen for the presence of anxiety disorders when a patient presents with a diagnosis of ADHD, otherwise a significant proportion of patients may be under-diagnosed and under-treated. In order for treatment strategies to be effective, it is crucial that interventions address both the executive functioning deficits and anxiety-related issues for patients.

## REFERENCES

- American Psychiatric Association.: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. Arlington, VA, American Psychiatric Association, 2013.
- Ballenger, J. C. (1999). Current treatments of the anxiety disorders in adults. *Society of Biological Psychiatry*, 46, 1579 – 1594.
- Barkley, A. R., & Murphy, R. K. (2010). Impairment in occupational functioning and adult ADHD: The predictive utility of executive function (EF) ratings versus EF tests. *Archives of Clinical Neuropsychology*, 25(3), 157-173. doi: 10.1093/arclin/acq014
- Beck, A. The Beck Anxiety Inventory (BAI) (1993).
- Bitter, I., Angyalosi, A., & Czobor, P. (2012). Pharmacological treatment of adult ADHD. *Current Opinion in Psychiatry*, 25(6), 529-534.
- Faraone, S. V., & Biederman, J. (2005). What is the prevalence of adult ADHD?: Results of a population screen of 966 adults. *Journal of Attention Disorders*, 9(2), 384-391.
- Fayyad, J., De Graaf, R., Kessler, R., Alonso, J., Angermeyer, M., Demyttenaere, K.,... Jin, R. (2007). Cross-national prevalence and correlates of adult attention-deficit hyperactivity disorder. *British Journal of Psychiatry*, 190, 402-409. doi:10.1192/bjp.bp.106.034389
- Goncalves, D. C., Pachana, N. A., & Byrne, G. J. (2011). Prevalence and correlates of generalized anxiety disorder among older adults in the Australian National Survey of Mental Health and Well-Being. *Journal of Affective Disorders*, 132, 223-230.
- Kessler, R. C., Adler, L., Barkley, R., Biederman, J., Conners, C. K., Demler, O.,...Zaslavsky, A. M. (2006). The prevalence and correlates of adult ADHD in the United States: Results from the National Comorbidity Survey Replication. *American Journal of Psychiatry*, 163(4), 716-723. doi:10.1176/appi.ajp.163.4.716
- Kooij, S. J. J., Bejerot, S., Blackwell, A., Caci, H., Casas-Brugué, M., Carpentier, P. J.,...Asherson, P. (2010). European consensus statement on diagnosis and treatment of adult ADHD: The European Network Adult ADHD. *BMC Psychiatry*.
- Lieb, R., Becker, E., & Altamura, C. (2005). The epidemiology of generalized anxiety disorder in Europe. *European Neuropsychopharmacology*, 15, 445-452. doi: 10.1016/j.euroneuro.2005.04.010
- Millstein, R. B., Wilens, T. E., Biederman, J., Spencer, T. J. (1997). Presenting ADHD symptoms and subtypes in clinically referred adults with ADHD. *Journal of Attention Disorders*, 2(3), 159-166.
- Polanczyk, G., Silva de Lima, M., Lessa Horta, B., Biederman, J., & Rohde, L. A. (2007). The worldwide prevalence of ADHD: A systematic review and meta-regression analysis. *The American Journal of Psychiatry*, 164(6), 942-948.
- Ramos-Quiroga, J. A., Montoya, A., Kutzelnigg, A., Deberdt, W., & Sobanski, E. (2013). Attention deficit hyperactivity disorder in the European adult population: prevalence, disease awareness, and treatment guidelines. *Current Medical Research & Opinion*, 29(9), 1093-1104. doi:10.1185/03007995.2013.812961
- Retz, W., Retz-Junginger, P., Thome, J., & Rosler, M. (2011). Pharmacological treatment of adult ADHD in Europe. *The World Journal of Biological Psychiatry*, 12(S1), 89-94.
- Shulz, J., Gotto, J. G., & Rapaport, M. H. (2005). The diagnosis and treatment of generalized anxiety disorder. *Primary Psychiatry*, 12(11), 58-67.
- Stanley, M. A., Novy, D. M. (2000). Cognitive-behaviour therapy for generalized anxiety in late life: An evaluative overview. *Journal of Anxiety Disorders*, 14(2), 191 – 207.
- Van Ameringen, M., Mancini, C., Simpson, W., & Patterson, B. (2011). Adult attention deficit hyperactivity disorder in an anxiety disorders population. *CNA Neuroscience & Therapeutics*, 17, 221 – 226. doi: 10.1111/j.1755-5949.2010.00148.x
- Wittchen, H.-U., & Hoyer, J. (2001). Generalized anxiety disorder: Nature and Course. *Journal of Clinical Psychiatry*, 62, 15-21.