Functional impairment in ADHD: What matters more, symptoms or personality?

J. Allison He, MS; K.E. Wagner, BS; K.M. Antshel, PhD; J. Biederman, MD; S.V. Faraone, PhD

Syracuse University, SUNY Upstate Medical University, Massachusetts General Hospital

Introduction

ADHD has an adverse impact on quality of life in terms of impairments in psychosocial functioning[1], reduced sleep quality[2], lower subjective well-being[3], poorer social adaptation[4], and cardiovascular risks[5]. Personality traits are one potential source of functional impairment in adults with ADHD. Existing adult ADHD interventions, both pharmacotherapy and psychotherapy, largely target ADHD symptoms and psychiatric comorbidity, not personality traits or character dimensions[6]. Examining the impact personality traits have on quality of life and social and occupational functioning, independent of ADHD symptoms and psychiatric comorbidities can impact adult ADHD interventions.

Methods

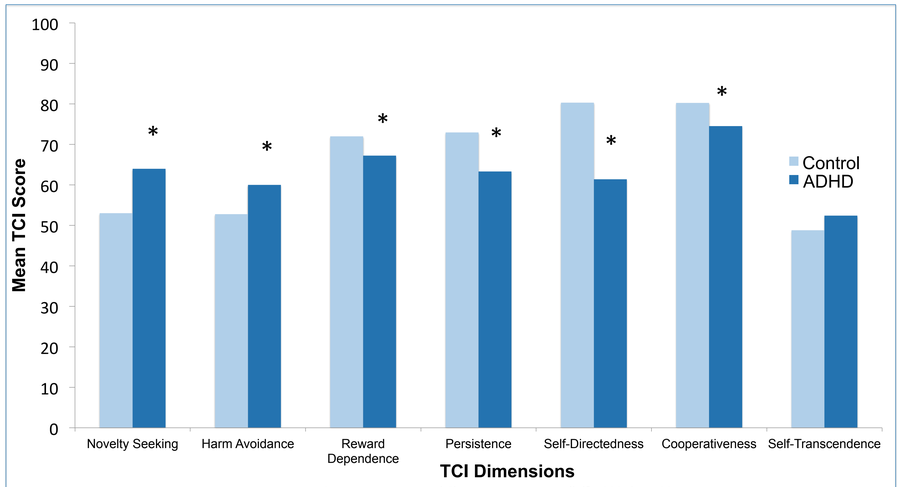
Participants were adults (ages 18-55) with (n=206) and without ADHD (n=123).

- ADHD diagnoses were confirmed using the Structured Clinical Interview for DSM-IV
- Quality of Life was measured by the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q-SF).
- The Temperament and Character Inventory (TCI) was used to assess :
  - 4 Temperament Dimensions: Novelty Seeking, and Harm Avoidance, Reward Dependence and Persistence
  - 3 Character Dimensions: Self-Directedness, Cooperativeness, and Self-Transcendence
- The Social Adjustment Scale Self-Report (SAS-SR) and the Family Environment Scale (FES) were used to measure social and occupational functioning.

	Mean (SD)			
	Control (n=123)	**ADHD** (n=206)	**t**	**df**
1. Age	29.78 (8.72)	36.27 (10.75)	-5.67***	327
1. % Male	46%	51%	-0.95	327
1. GAF	68.19 (4.75)	56.89 (7.13)	15.61***	327
1. Q-LES-Q	4.14 (.63)	3.22 (1.07)	8.28***	296
1. SAS-SR Overall Social Adjustment	51.66 (8.25)	67.98 (14.70)	-10.96***	299
1. FES Family Expressiveness	55.32 (13.85)	46.22 (14.33)	5.16***	270
1. FES Family Conflict	42.58 (9.76)	50.18 (13.01)	-5.11***	270
1. FES Family Cohesion	57.20 (14.18)	46.31 (18.26)	5.19***	271

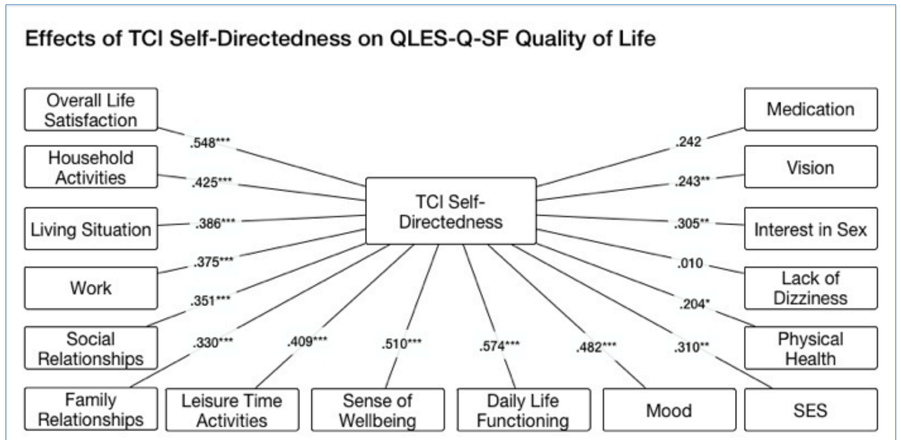
Note. GAF = Clinician's Rating of Global Assessment of Functioning. Q-LES-Q = Quality of Life Enjoyment and Satisfaction Questionnaire. SAS-SR = Social Adjustment Scale Self-Report. FES = Family Environment Scale.
*p < .05. **p < .01. ***p < .001.

TCI Differences in Adults with ADHD vs. Controls



Note. TCI= Temperament and Character Inventory. All df = 300, *p < .001.

Effects of TCI Self-Directedness on Quality of Life



Note. *N*=206. Standardized betas (β) are shown. TCI = Temperament and Character Inventory. QLES-Q-SF = Quality of Life Enjoyment and Satisfaction Questionnaire Short Form. The effects of ADHD symptoms were controlled for, but paths are not shown for simplicity.
* $p < .05$. ** $p < .01$. *** $p < .001$.

COI Disclosures

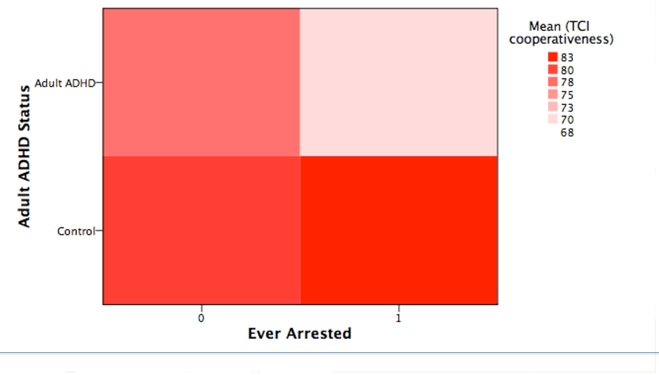
Dr. Joseph Biederman is currently receiving research support from the following sources: The Department of Defense, AACAP, Alcobra, Forest Research Institute, Ironshore, Lundbeck, Magceutics Inc., Merck, PamLab, Pfizer, Shire Pharmaceuticals Inc., SPRITES, Sunovion, Vaya Pharma/Enzymotec, and NIH. *In previous years, Dr. Joseph Biederman* received research support, consultation fees, or speaker's fees for/from the following additional sources: Abbott, Alza, AstraZeneca, Boston University, Bristol Myers Squibb, Celltech, Cephalon, Cipher Pharmaceuticals Inc., Eli Lilly and Co., Esai, Fundacion Areces (Spain), Forest, Fundación Dr.Manuel Camelo A.C., Glaxo, Gliatech, Hastings Center, Janssen, McNeil, Medice Pharmaceuticals (Germany), Merck, MGH Psychiatry Academy, MMC Pediatric, NARSAD, NIDA, New River, NICHD, NIMH, Novartis, Noven, Neurosearch, Organon, Otsuka, Pfizer, Pharmacia, Phase V Communications, Physicians Academy, The Prechter Foundation, Quantia Communications, Reed Exhibitions, Shionogi Pharma Inc, Shire, the Spanish Child Psychiatry Association, The Stanley Foundation, UCB Pharma Inc., Veritas, and Wyeth. In the past year, *Dr. Steve V. Faraone* received income, travel expenses and/or research support from and/or has been on an Advisory Board for Pfizer, Ironshore, Shire, Akili Interactive Labs, CogCubed, Alcobra, VAYA Pharma, Neurovance, Impax, NeuroLifeSciences and research support from the National Institutes of Health (NIH). His institution is seeking a patent for the use of sodium-hydrogen exchange inhibitors in the treatment of ADHD. In previous years, he received consulting fees or was on Advisory Boards or participated in continuing medical education programs sponsored by: Shire, Alcobra, Otsuka, McNeil, Janssen, Novartis, Pfizer and Eli Lilly. Dr. Faraone receives royalties from books published by Guilford Press: *Straight Talk about Your Child's Mental Health* and Oxford University Press: *Schizophrenia: The Facts*. *Dr. Kevin M. Antshel, J. Allison He, MS., & Kayla E. Wagner, BS, declare no conflicts of interests.*

Results

Adults with ADHD significantly differed from controls across nearly all TCI personality domains.

Personality traits and characteristics significantly predicted functional impairments even when controlling for ADHD symptoms, executive function deficits, and psychiatric comorbidities.

Self-directedness emerged as an especially strong predictor of quality of life, significantly predicting 14 out of 16 domains on the QLES scale. Additionally, Harm Avoidance, Novelty Seeking, Cooperativeness, and Reward Dependence also significantly predicted several indices of social and functional impairment, including lifetime history of arrests:



Discussion

In adults with ADHD, personality traits exert unique effects on quality of life and functional impairment across major life domains, beyond the effects expected and associated with ADHD symptoms, executive function impairments and psychiatric comorbidities. Addressing personality traits in adults with ADHD may lead to improvements in quality of life and reductions in functional impairment.

References

1. Nijmeijer, J. S., Minderaa, R. B., Buitelaar, J. K., Mulligan, A., Hartman, C. A., & Hoekstra, P. J. (2008). Attention-deficit/hyperactivity disorder and social dysfunctioning. *Clin Psychol Rev, 28*(4), 692-708. doi: 10.1016/j.cpr.2007.10.003
2. Kooij, J. J., Middelkoop, H. A., van Gils, K., & Buitelaar, J. K. (2001). The effect of stimulants on nocturnal motor activity and sleep quality in adults with ADHD: an open-label case-control study. *J Clin Psychiatry, 62*(12), 952-956.
3. Gudjonsson, G. H., Sigurdsson, J. F., Eyjolfsdottir, G. A., Smari, J., & Young, S. (2009). The relationship between satisfaction with life, ADHD symptoms, and associated problems among university students. *J Atten Disord, 12*(6), 507-515. doi: 10.1177/1087054708323018
4. Sentissi, O., Navarro, J. C., De Oliveira, H., Gourion, D., Bourdel, M. C., Bayle, F. J., . . . Poirier, M. F. (2008). Bipolar disorders and quality of life: the impact of attention deficit/hyperactivity disorder and substance abuse in euthymic patients. *Psychiatry Res, 161*(1), 36-42. doi: 10.1016/j.psychres.2007.06.016
5. Spencer, T. J., Faraone, S. V., Tarko, L., McDermott, K. & Biederman, J. (2014). Attention-deficit/hyperactivity disorder and adverse health outcomes in adults. *J Nerv Ment Dis* 202, 725-31.
6. Rostain, A., Jensen, P. S., Connor, D. F., Miesle, L. M., & Faraone, S. V. (2013). Toward Quality Care in ADHD: Defining the Goals of Treatment. *J Atten Disord*. doi: 10.1177/1087054712473835