Screening for ADHD: Can screeners for insomnia, emotional regulation, or mind-wandering predict ADHD?

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INTRODUCTION

Attention-Deficit/Hyperactivity Disorder (ADHD)

Neurological disorder starting in childhood
- Developmentally inappropriate and impairing levels of inattentiveness and/or hyperactivity-impulsivity
- Research linked ADHD to other concerns
  - Executive dysfunction [1]
  - Large portion of research focuses on childhood and its impact on that period of life

Theories proposed to explain adult onset
- Higher intelligence quotients or better-developed executive function work in tandem with structured home and school environments serve to compensate for impairment caused by ADHD [2]
- Expression of ADHD symptoms is dependent on the development of executive control and processes [3]

Poor maturation in adolescence and early adulthood leads to ADHD symptoms emerging
- Diagnosis of adult ADHD is consistent, but there are differences in the explanation of its onset
- Adult ADHD is linked to reduced academic and work outcomes, mental health concerns, impairment in interpersonal relationships, etc. [4]

Notable adult ADHD diagnosis issues
- Screening and diagnosis of disorder
- Primary care providers (PCP) first point of contact for patients raising concern of inattentiveness or distractibility
- Fear of stimulant seeking and overreporting reduces confidence in typical ADHD screeners

Important to evaluate alternative screeners to help predict and guide the diagnostic process

OBJECTIVE

Aimed to investigate if scores on questionnaires can differentiate ADHD from other mental health diagnosis:
- Athens Insomnia Scale (AIS)
- Difficulties in Emotion Regulation Scale (DERS)
- Mind-Wandering Questionnaire (MWQ)

Hypotheses
1. Scores on questionnaires can predict ADHD on top of anxiety, depression, and OCD

METHODS

Online Survey Distribution from August 10, 2022 – October 31, 2022
- Institutional Review Board Approved
- Survey Monkey Software
- Population
  - Survey Response Indicated
  - Living in the United States and between the ages of 18-29

Completed Screenings and Demographic questions
- Athens Insomnia Scale (AIS)
- Difficulties in Emotion Regulation Scale (DERS)
- Mind-Wandering Questionnaire (MWQ)

Statistical Analysis:
- Descriptive statistics are reported as frequency counts
- Likelihood ratio Chi-Square and Fisher's Exact test of association were used to test for relationships between categorical variables.
- In all instances a p-value<0.05 was considered significant

RESULTS

DEMOGRAPHICS
Total Participants N=461; Complete Surveys n=406

Marital Status	Single	79%
Race/Ethnicity	Caucasian	73%
	Biracial/Multi-Racial	8%
Sex	Female	70%
Education	High school diploma	43%
	Bachelors	36%
Location	Midwest	27%
	North-E	23%
	South-E	20%
	South-W; South-C; North-W; North-E	<10%
	Alaska	0.50%

Exclusions
- Participants not completing at least one questionnaire (AIS, DERS, or MWQ) excluded from analysis
- Participants with a bipolar diagnosis excluded due to complexity of disorder

Mental Health Diagnoses n=406	
ADHD	47%
Anxiety	68%
Depressive	57%
OCD	13%
SUD	4%
BPD	2%
PTSD-TRAUMA	6%
Autism	4%
Substance Use n=406	
Alcohol	16%
Nicotine	15%
Cannabis	23%

* note some respondents indicated more than one MHD or substance use type

MHD & ADHD diagnosis n=406	
Anxiety	True vs False – (p=0.1436)
Depressive	True vs False – (p=0.509)
OCD	True vs False – (p=0.9882)

Questionnaires	
AIS n=406	
Mild	60%
Moderate	17%
No Insomnia	21%
Severe	1%
AIS & ADHD diagnosis n=406	
Mild	27%
Moderate	11%
No Insomnia	9%
Severe	1%
DERS (n)	
Awareness (362)	89%
Clarity (361)	89%
Goals (364)	90%
Impulse (364)	90%
Acceptance (364)	90%
Strategies (360)	89%
MWQ (n)	
Status (362)	89%

Hypothesis 1: The ODDS of a patient having ADHD based on the contribution of these covariates
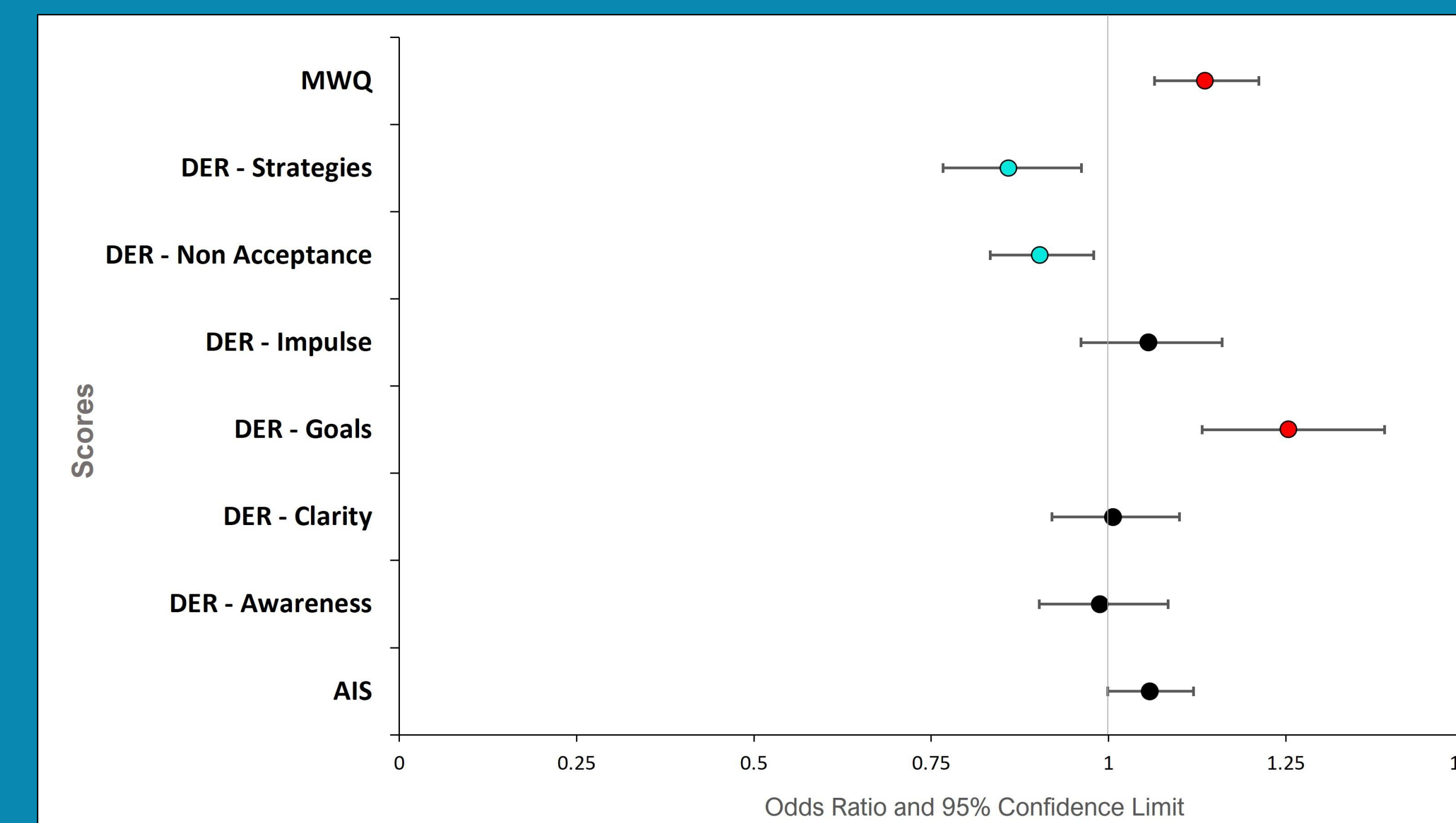
Hypothesis 2: The ODDS of a patient having ADHD based on the contribution of these covariates.
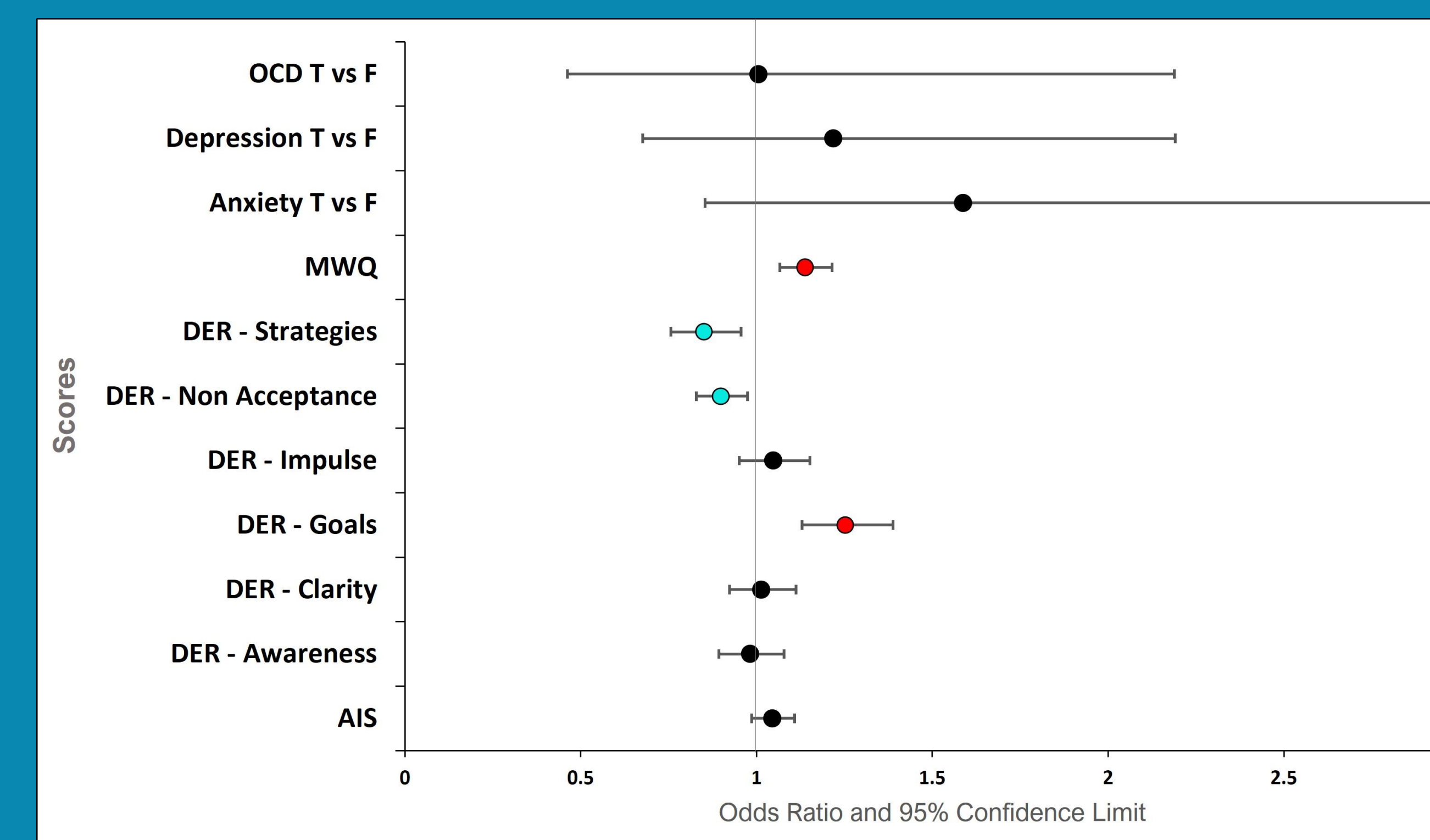
- *an increase in scores has a protective effect*
- *an increase in scores has a detrimental effect*

More Information & Questionnaires
https://www.surveymonkey.com/r/ADHDScreen23

Email: jtin@gundersenhealth.org

DISCUSSION

Studies suggest individuals with ADHD have a high rate of comorbidities
- At least one comorbidity (87%) [5]
- Having three or more comorbid conditions (20%) [5]

A Screening process is needed to identify the diagnosis of ADHD on top of other diagnoses [1]

AIS
- Results indicate the AIS did not provide a predictive value of an ADHD diagnosis
- Research continues to indicate a high correlation between sleep difficulties and ADHD
  - Current results indicate this option to be unsuitable to differentiate ADHD from other diagnoses
  - Other diagnoses also impact sleep
  - Future research focused specifically on sleep onset, noting some studies indicating sleep onset as a main concern area for individuals with ADHD

DERS
Increased scores on three subscales were predictive of ADHD even in the presence of an anxiety, depression, or OCD diagnosis
- Non-acceptance of emotional responses
- Limited access to emotional regulation strategies
  - Likelihood of predicting an ADHD diagnosis reduced
- Difficulty engaging in goal-directed behavior
  - Likelihood of predicting an ADHD diagnosis increased
- Consistent with the impairment of ADHD [6]
  - Adults with ADHD often have the skills needed to cope with emotional regulation
    - Struggle to apply skills due to inhibition
    - Failure to maintain focus on goal-oriented tasks and excessive task-irrelevance is a major characteristics of ADHD

MWQ
Some studies linked spontaneous mind wandering to ADHD and functional impairments of the disorder [7]
- Results show increase in scores on MWQ
  - Predicts ADHD diagnosis even in the presence of an anxiety, depression, or OCD diagnosis
  - Note, MWQ does not differentiate between spontaneous and deliberate mind wandering
    - Indicates a possible utility for MWQ or other screeners of mind wandering assisting with adult ADHD screening

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