

Prospective Evaluation of Adverse Driving Outcomes in ADHD and Depression



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Introduction

- Motor vehicle driving is a complex activity of daily living that involves negotiating traffic, passenger, and technology demands simultaneously
- Adults with ADHD are between 1.5 to four times more likely to endorse involvement in a motor vehicle accident (Chang et al., 2014; Barkley et al., 1993)
- Compared to drivers with depression, ADHD was uniquely associated with increased risk for multiple collisions (Aduen et al., 2015)
- Shortcoming of most studies in the driving and ADHD literature is reliance on retrospective recall of self-report, self-selected samples, and lack of psychiatric comparison group (Cox et al., 2011; Chang et al., 2014)

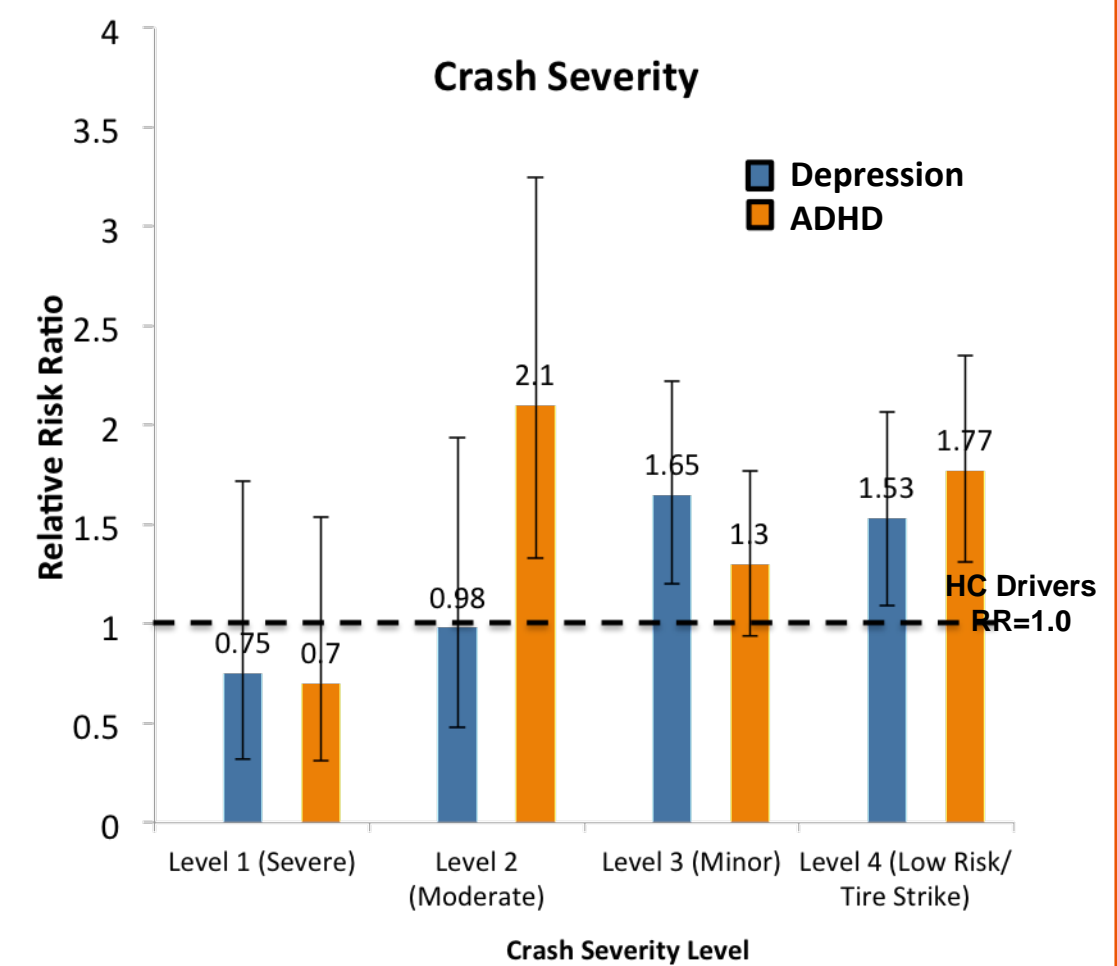
Primary Outcome Variables

Safety Critical Events (SCE) (Prospective over 1-2 Years)

- Crash/Near-Crash Frequency**
 - 0, 1, 2 or More
- Crash Severity (Yes/No)**
 - Level 1-4 (Severe to Low Risk/Tire Strike)
- Crash/Near-Crash Fault* (Yes/No)**

Analyses

- Multinomial logistic regression predicted relative risk for prospective, objective adverse driving outcomes for ADHD and Depression relative to Healthy Control and relative risk for ADHD relative to Depression



Present Study

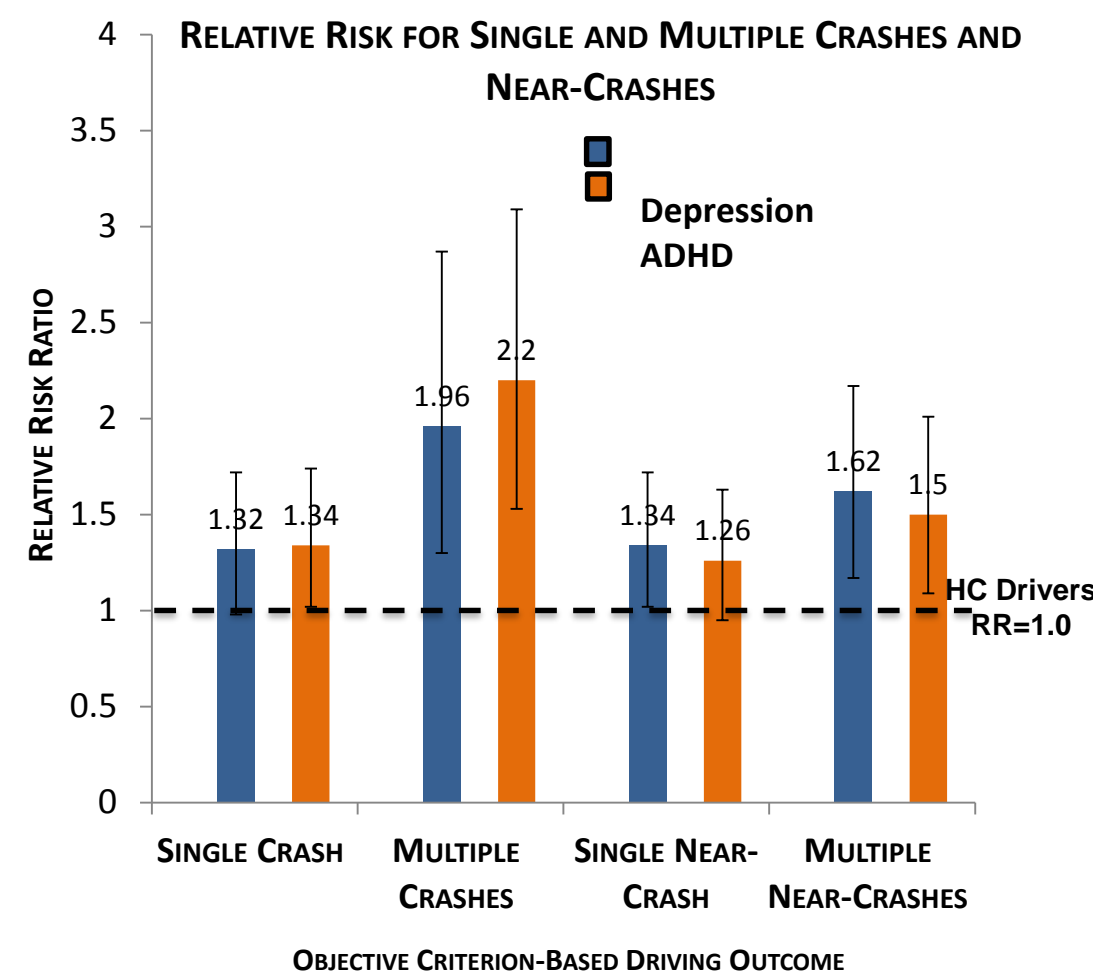
- As part of **SHRP-2**, participants consented to have Data Acquisition Systems (DAS) installed in their vehicles to capture routine driving and Safety Critical Events (SCE) continuously for 1-2 years
- Aim #1:** To examine **prospective, objective** adverse driving outcomes from **on-road assessment** of driving in a large, nationally representative sample of U.S. drivers with (a) **ADHD**, (b) **Depression**, and (c) **no known psychopathology** participating in SHRP-2 NDS

Method: Participants

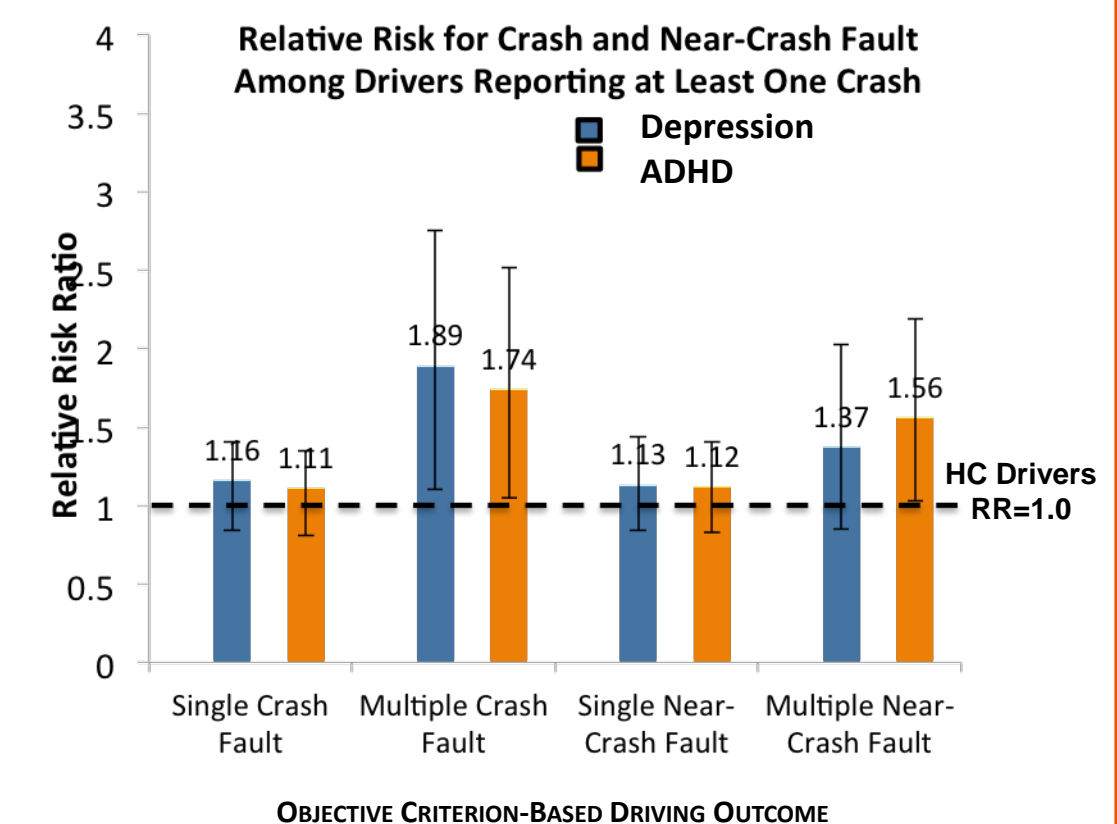
	Diagnostic Status		
	ADHD	Depression	HC
Gender		n	
Female	50.9%	69.3%	52.4%
Age Group			
16-25	68.4%	42.2%	36.2%
26-65	22.5%	40.2%	34.5%
66+	8.7%	17.5%	29.0%

N= 2,354

Results



*All analyses corrected for demographic variables (Groups differed significantly all $p < .002$, income $p = .03$)



Discussion

- Both drivers with ADHD and Depression were at increased risk for experiencing multiple crashes compared to Healthy Control drivers
- Drivers with Depression were more likely to experience a single near-crash compared to Healthy Control drivers, while both ADHD and Depression predicted multiple near-crash risk
- Among drivers involved in at least one crash, both drivers with ADHD and Depression portended future risk for multiple at-fault crashes, while only ADHD predicted increased risk for causing multiple near-crashes
- Drivers with ADHD were more at risk for experiencing moderately severe crashes, compared to both drivers with Depression and no known psychopathology, while drivers with Depression were more likely to experience minor crashes
- Both drivers with ADHD and Depression were at increased risk for low risk/tire strike crashes
- Findings suggest both disorder-specific and transdiagnostic risk factors, such as attention and other cognitive vulnerabilities, may be involved in adverse driving outcomes