

Introduction

Drivers with ADHD are at greater risk for road accidents (e.g., Brunkhorst-Kanaan, et al., 2021; Noordhuis, et al., 2024). This well-established phenomenon raises many questions. The one here would be: Is it inattention or impulsivity that accounts more for the driving events of drivers with ADHD?

Methods

We conducted a Natural Driving Study to investigate the effects of inattention and impulsivity on driving events like strong accelerations and collision warnings.

27 students participated in the study (average age ~ 25). Those with ADHD had this diagnosis on their medical records and were also diagnosed based on the Adult ADHD Self-Report Scale (ASRS). The experimental groups were:

- 1. Control (10 participants without ADHD)
- 2. ADHD-I (7 participants with mainly inattention according to the ASRS)
- 3. ADHD-C (10 participants with combined inattention and impulsivity according to the ASRS).

Driving events were recorded by a Mobileye system (Mobileye, Jerusalem, Israel) for 2 months.

Results

Impulsivity accounted for strong accelerations (ADHD-C in Figure 1 is stronger than both ADHD-I and control, while ADHD-I is not stronger than control).

Inattention and impulsivity accounted for interurban collision warnings (ADHD-C in Figure 1 is not stronger than ADHD-I, but stronger than control).

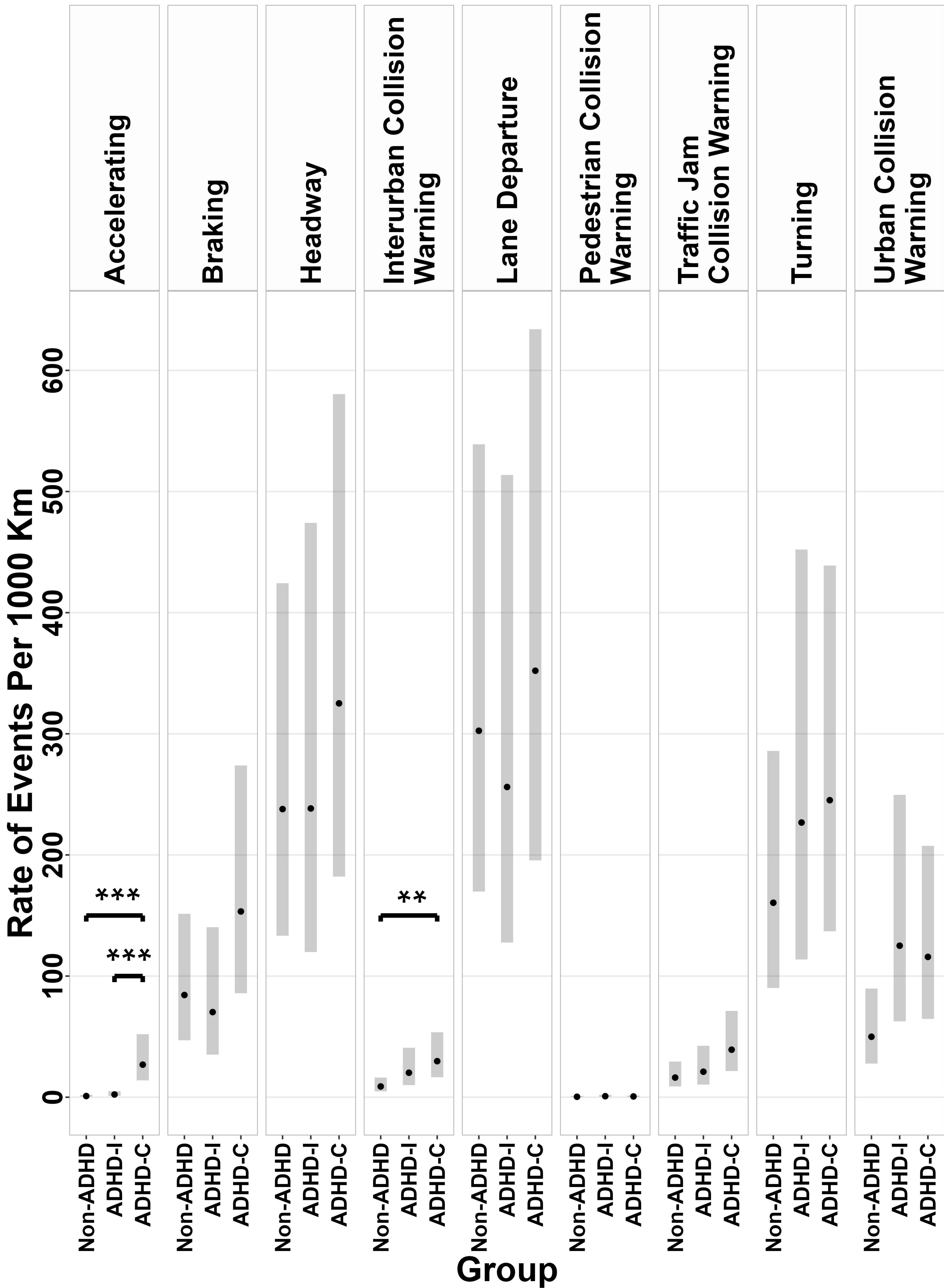


Figure 1: Rate of events (y-axis) as a function of Group (x-axis) and type of event (top labels).

Discussion

It appears that the relationship between ADHD and driving events depends on the type of event. Accelerating was associated with impulsivity while interurban collision warnings were associated with both impulsivity and inattention.

We believe that mapping road behaviors into their associative ADHD components can help in offering more effective interventions to drivers with ADHD.

References:
Brunkhorst-Kanaan, N., Libutzki, B., Reif, A., Larsson, H., McNeill, R. V., & Kittel-Schneider, S. (2021). ADHD and accidents over the life span—A systematic review. *Neuroscience & Biobehavioral Reviews*.
Noordhuis, R., Fuermaier, A. B., & de Waard, D. (2024). The effectiveness and efficacy of driving interventions with ADHD: a Dutch perspective. *Traffic Safety Research*, 6, e000049.