Objective

We explored potential differences in driving patterns under conditions with and without driver distraction in a community sample including healthy and mildly neurologically impaired adults.

Method

Participants

• 100 community-dwelling participants, currently drivers (65 men).
• Approximately half were diagnosed with a neurological disease [healthy \( n = 52 \), mild cognitive impairment (MCI) \( n = 22 \), Alzheimer’s disease (AD) \( n = 8 \), Parkinson’s disease (PD) \( n = 11 \), other \( n = 7 \) (not included in present analyses)]

Procedure

• Participants drove in a simulator under four rural driving conditions:

  • Driving variables:
    • lateral position of vehicle from the right road border (m)
    • average speed (km/h)
    • average time to collision with vehicle ahead (s)

Results

Repeated measures ANCOVAs (covariate: age) showed:

• group X distraction interactions in the high traffic condition on
  • average speed \( [F(3,74)=4.251, p=.008, \eta^2=.147] \)
  • projected time to collision \( [F(3,74)=4.280, p=.008, \eta^2=.148] \)
• group X distraction interaction in the low traffic condition on
  • projected time to collision \( [F(3,70)=3.656, p=.016, \eta^2=.135] \)
• group main effect on average speed in the moderate speed condition \( [F(3,70)=5.962, p=.017, \eta^2=.078] \)

Conclusions

Healthy and MCI groups drove consistently despite distraction factors, while those with AD compensated by driving more slowly and further away from the preceding vehicle. Individuals with PD reacted in counterintuitive ways. Larger samples are necessary to confirm the present findings.