Self-Regulation of Driving by Older Adults: What Do We Know

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Background

- Driving is a complex task requiring visual/cognitive/motor abilities.
- Most people experience some loss in these abilities with aging due to medical conditions/medications.
- There is considerable variation in this process.
- Self-regulation shows promise for extending safe driving.
  - Often defined as avoiding driving situations considered challenging.
  - Generally seen as a response to declining health/functional abilities.
Background

- At least some older drivers are aware of functional declines and self-regulate – however:
  - There is considerable variation across studies
  - Most focus on relatively narrow set of self-regulatory practices
  - Measures generally do not delve deeper into motivations for avoidance behavior

- Large knowledge gaps about self-regulation and related individual, social, environmental factors
Research Overview

- Overall purpose: to better understand process of driving self-regulation among older adults
- Research questions:
  - What is the nature and extent of self-regulation
  - What are the individual, social, and environmental factors that affect self-regulation
  - How do self reports of self-regulation compare with objective driving data
Unique Contributions

- Explored motivations for avoidance behavior to disentangling self-regulation from simple avoidance of various driving situations
- Examined self-regulation at multiple levels of driver performance and decision making
  - Strategic self-regulation: pre-trip decisions about when to drive and under what conditions (e.g., at night, on the freeway)
  - Tactical self-regulation: decisions while driving in response to conditions in the environment (e.g., gap acceptance, secondary tasks)
- Compared self-reports with objective driving data of relatively large sample of older drivers
Data Collection Methods

- Early work: survey of 1,000 Michigan drivers age 65+; in-person interviews with 100 drivers referred for comprehensive driving assessment
- Pilot testing of questionnaire with 135 older drivers recruited from specialty clinics at U-M/general population
- Pilot testing of protocols for naturalistic driving data collection among older drivers in SE MI
- Collection and analysis of questionnaire, naturalistic driving, and clinical assessment data from Australian sample of 257 drivers age 75+
Sample Characteristics

- Mean age: 79.7 (sd=3.5, range 75-94)
- 71.5% male
- 61.7% married, 25% widowed
- 77.1% live in own home, condo, or apartment
- 96.2% retired; 65.3% volunteer in community
- 65.9% had household income <$50,000
- 53.4% high school/technical school grad or less, 26.1% University degree, 20.6% post grad
Key Findings to Date

- Motivations for driving avoidance are varied and differ across driving situations
- Reasons often more closely linked to lifestyle/preferences
- Not all avoidance behavior constitutes self-regulation
- To better understand self-regulation among older adults, it is important to understand the reasons people have for avoiding driving situations or modifying their driving

Molnar, Eby, Charlton, Langford, Koppel, Marshall, Man-Son-Hing. (2013). Driving Avoidance by Older Adults: Is It AlwaysSelf-Regulation? Accident Analysis and Prevention, 57, 96-104.
Key Findings to Date

- Self-regulation is a multi-dimensional concept, with self-regulation tied closely to specific driving situations, as well as level of decision making
  - Avoidance at strategic level: driving alone (2%); on freeway (4%); on busy roads (5%); making unprotected right turns (7%); in rush hour (13%); at night (17%); in bad weather (20%); at night in bad weather (29%)
  - Avoidance at tactical level: changing radio station (10%); chatting with passengers (14%); personal grooming (24%); eating (34%); leaving more room between the car ahead (34%); talking on mobile phone (37%); reading a road map (41%)


Key Findings to Date

- Strategic and tactical self-regulation influenced by different sets of individual and social factors
  - Strategic self-regulation associated with self-perceived abilities, feelings of driving comfort and confidence, gender
  - Tactical associated with age, contrast sensitivity, and self-perceived abilities


Key Findings to Date

- Self-report found to be poor measure of driving exposure – with participants underreporting driving
- However, self-report may have role in providing context for understanding and helping interpret naturalistic driving data w/ regard to specific self-regulatory driving practices
  - Modest correspondence between some objective driving measures and their comparable self-reported measures - driving at night, driving in unfamiliar areas, and on high speed roads
  - For each driving situation, participants’ actual driving predicted the likelihood of reporting trying to avoid that situation

Conclusions and Further Research

- It is not enough to ask people if they avoid various driving situations - it is important to understand their motivations.
- Further work is needed to tease out differences between older adults who do not avoid, avoid for self-regulatory reasons, and avoid for other reasons.
- Strategic and tactical self-regulation appear to represent separate constructs – this should be taken into account.
- Self-perceptions of abilities are important and may be better predictors than actual functioning.
- Exploratory work on comparisons of self-report and objective driving needs to be followed up.
- Continuing efforts to understand self-regulation will provide insights into improving older adult safety and mobility.
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