

## **Driving Transitions and Mental Health in Impaired Elders**

### **Overview**

The transition from driver to ex-driver is a challenging turning-point for older disabled adults that can influence not only mobility, but also social ties, the ability to work, one's sense of independence, and public safety. An increasing number of Americans will face this transition as the population ages. However, little is known about the psychological and social influences on driving transitions.

The purpose of this study is to better understand the ways older adults with vision problems adapt and make decisions about their driving. Specifically, we will identify the personal, social, and contextual factors that contribute to the decision to self-regulate or stop driving, as well as the reciprocal associations between well-being and changes in driving behavior. In addition, we draw on a model of health behavior change (Maes and Gebhardt, 2002) to examine how a person's goal structure can either facilitate or block a change in driving behavior and the impact of changes in driving or driving cessation on well-being.

### **Method**

A total of 381 older adult drivers (age 55+) have been recruited from a community-based vision rehabilitation agency and other community service organizations. Three in-person interviews were conducted (baseline, year 1, year 2), with two brief telephone interviews at 6 and 18 months from baseline. Three telephone interviews also were conducted with a contact (family or friend chosen by the primary participant) at baseline, year 1, and year 2. Cross-sectional and longitudinal associations will be analyzed with Regression-, Individual Growth-, and Structural Equation Modeling techniques.

### **Status**

Recruitment of the baseline sample (N=381) has been completed. Data collection for all follow-up points has been completed except for year 2 follow-ups, which will be completed by August, 2010. Analyses of the baseline and follow-up data are in progress, and manuscripts are being prepared.

### **Preliminary Findings**

The following findings are from presentations at major conferences and are divided by the specific aim that is addressed:

Specific Aim #1: To identify the extent of driving self-regulation and cessation and examine their impact on mental health.

1. The extent of self-regulation was examined at baseline and at the 12-month follow-up.

- At baseline, the vast majority of participants (94%) were engaging in at least one self-regulatory driving behavior, with avoiding driving at night the most frequently reported behavior (80%). For the full baseline sample, the average number of self-regulatory driving behaviors was almost 6 ( $M = 5.8$ ,  $SD = 3.3$ , Range 0-14).
  - At the 12-month follow-up, 208 participants were still driving. Among them, the vast majority (95%) continued to engage in at least one self-regulatory driving behavior. For these participants, the average number of self-regulatory driving behaviors was still almost 6 ( $M = 5.7$ ,  $SD = 3.2$ , Range 0-14).
2. The extent of driving cessation was examined at the 12-month follow-up. Of the 253 participants interviewed at 12 months after baseline, 45 (18%) had stopped driving.
  3. At the 12-month follow-up, ex-drivers had significantly higher levels of depressive symptomatology than continuing drivers, but did not have a greater probability of meeting criteria for clinical depression
  4. Becoming an ex-driver is a significant independent predictor of increased depressive symptomatology following driving cessation even after controlling for common predictors of depression including health and social support variables. This finding highlights the importance of designing interventions that address the mental health consequences of driving cessation and not just transportation needs.

Specific Aim #2: To examine the influence of personal, social and contextual resources on driving regulation and cessation decisions.

1. For self-regulation of driving behaviors, we examined concurrent correlates at baseline. We found that:
  - Poorer vision & greater functional disability are associated with greater self-regulation (SR).
  - Subjective & psychosocial variables are also significant independent correlates of SR:
    - Subjective reports of functional vision problems are more strongly related to SR than clinical measures, and, in fact, completely mediate the effect of measured acuity (but not field) on SR
  - Greater endorsement of the value of Autonomy is associated with less SR
    - This value is encouraged in rehab philosophy but may be a barrier to recognizing need to adjust driving behaviors
  - Receipt of rides from family is related to greater SR

- Giving rides to friends is done in spite of health limitations
  - This responsibility may limit the driver's ability and/or willingness to modify driving behaviors
- 2. For driving cessation, we examined baseline predictors of cessation by 12-month follow-up. Greater odds of driving cessation were predicted by:
  - Poorer subjective visual functioning score
  - Higher perceived goal interference score
  - Not providing rides to family and friends
  - Driving cessation was not predicted by:
    - Demographic, health, and functional disability variables
    - Objective measures of vision (acuity, contrast, field)
    - The amount of self-regulation at baseline
    - Living with a driver or use of alternate transportation

Specific Aim #3: To identify the key personal, social and contextual resources that, concurrently and over time, mediate the impact of driving self-regulation and cessation on mental health outcomes.

1. Preliminary analyses of 12-month follow-up data show that among ex-drivers, higher levels of depressive symptomatology was associated with several common predictors of depression among older adults: a) younger age, b) greater functional disability, c) poorer self-rated health, d) lower levels of perceived availability and adequacy of social support, e) weaker autonomy and mastery beliefs, and f) greater anxiety.
  - Ongoing analyses will address the mediating or moderating effects of such variables on the effects of cessation on depressive symptoms.

### **Findings Conclusion**

Insights gained from this study can be used to inform the growing number of community-based, governmental and private programs that focus on assisting older drivers in making timely decisions that will protect both public safety and the individual's mental health. Rehabilitation and mental health professionals who work with older drivers can also use this information to facilitate the transition from driver to ex-driver in late adulthood.

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### **Publications**

Horowitz, A., Boerner, K., & Reinhardt, J. P. (2002). Psychosocial aspects of driving transitions in elders with low vision. *Gerontechnology, 1*, 262-273.

Reinhardt, J. P., Horowitz, A., Gibson, B. E., & Boerner, K. (March-April 2009). Current study focuses on aging drivers. *Aging Today, 30*(2), 7-8.

### **Presentations**

Reinhardt, J.P., Horowitz, A., Boerner, K., & Mock, S. (February, 2006). *The association of clinical and self-assessed visual status with driving behavior among older adults*. Paper presented at the International Conference on Aging, Disability, and Independence. St. Petersburg, Florida.

Horowitz, A., Reinhardt, J.P., Boerner, K., & Mock, S. (March, 2006). *Conversations about driving with family, friends, and physicians by older adults drivers with vision problems*. Paper presented at the Joint Conference of the American Society on Aging and the National Council on Aging. Anaheim, California.

Reinhardt, J.P., Horowitz, A., Boerner, K., & Gibson, B. E. (March, 2007). *How is driving cessation related to earlier driving behavior, utilization of alternative transportation, and prior planning?* Paper presented at the Joint Conference of the American Society on Aging and the National Council on Aging. Chicago, Illinois.

Reinhardt, J.P., Horowitz, A., Boerner, K., & Gibson, B. E. (November, 2007). *Driving cessation: Preliminary findings on psychological, behavioral, environmental and social factors*. Poster presented at the 60<sup>th</sup> Annual Scientific Meeting of The Gerontological Society of America. San Francisco, California.

Horowitz, A., Reinhardt, J.P., Boerner, K., & Gibson, B. E. (March, 2008). *Is there congruence in the perspectives of older drivers and their family members?* Poster presented at the Joint Conference of the American Society on Aging and the National Council on Aging Washington, DC.

Horowitz, A., Reinhardt, J.P., Boerner, K., & Gibson, B. E. (July, 2008). *Driving behaviors among older adults with impaired vision*. Paper presented at Vision 2008: The International Low Vision Conference. Montreal, Canada.

Gibson, B. E., Horowitz, A., Reinhardt, J.P., & Boerner, K. (November, 2008). *We need to talk: Conversations between family members and friends about driving with vision loss*. Poster presented at the 61<sup>st</sup> Annual Scientific Meeting of The Gerontological Society of America. National Harbor, Maryland.

Horowitz, A., Reinhardt, J.P., Boerner, K., & Gibson, B. E. (November, 2008). *Driving behaviors among older adults with impaired vision*. Poster presented at the 61<sup>st</sup> Annual Scientific Meeting of The Gerontological Society of America. National Harbor, Maryland.

Horowitz, A., Reinhardt, J. P., Boerner, K., & Gibson, B. E. (March 2009). *Driving behaviors of older adults with impaired vision: From research to practice*. Paper presented at the Joint Conference of The National Council on Aging and American Society on Aging in Las Vegas, Nevada.

Reinhardt, J. P., Gibson, B. E., Boerner, K., & Horowitz, A. (November, 2009) Predictors of Driving Cessation in Older Adults with Vision Loss. Poster presented at the 62<sup>nd</sup> Annual Scientific Meeting of the Gerontological Society of America, Atlanta, Georgia.

Horowitz, A., Gibson, B. E., Reinhardt, J. P., & Boerner, K. (January, 2010) Mental Health Consequences of "Giving up the Keys:" Driving Cessation among Older Adults. In N. Choi (Chair). *Depression in Vulnerable Older Adults: Rates, Symptom Severity, and Potential for Intervention* (Symposium). Paper presented at the Annual Conference of the Society of Social Work Research, San Francisco, California.

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