

Perceived Social Support Differences between Male and Female Older Adults Who Have Reduced Driving: AAA LongROAD Study

February 2020

Many older adults have reduced their driving behaviors (e.g., restrict driving to daytime, short trips, or familiar locations) because of health issues, such as chronic illness, medication-related side effects, poor vision, and declines in physical and cognitive abilities. Reducing driving is often the first step in the process of stopping driving (i.e., driving cessation), and it can lead to declines in life satisfaction. Older adults who stop driving experience higher levels of depression, are less likely to participate in social activities, and are less able to manage their chronic health problems. Interventions that improve social support through strengthening networks and building support have been found to increase older adults' overall life satisfaction. The research in this brief examines perceived social support among older drivers who have recently reduced their driving. Findings suggest that older men and women, who have reduced driving, report similar levels of instrumental and emotional support, however, men report lower levels of informational support than women do.

METHODS

Data came from the AAA Longitudinal Research on Aging Drivers (LongROAD) study, a prospective cohort study of 2,990 drivers aged 65-79 years in five sites in the United States (US), including: Ann Arbor, MI; Baltimore, MD; Cooperstown, NY; Denver, CO; and San Diego, CA. The study design and research protocol are described in detail in Li *et al.* (2017). The purpose of the multi-site study was to identify factors associated with safe driving among older adults and to investigate mechanisms through which older adults self-regulate their driving behaviors.

The sample for this brief includes baseline data of AAA LongROAD study participants who reported that they had reduced driving (yes/no) in any way in the past year (Li, Eby, Santos, et al., 2017; Marshall, Man-Son-Hing, Charlton, 2013). Chi-square test was used to detect a relationship between demographic factors and sex, among those who reduced their driving. A two-sample *t*-test was used to determine if there were sex differences between social support measures among who reduced their driving in the past year.

Social support in this study is defined as "aid and assistance exchanged through social relationships and interpersonal transactions," and it may moderate

decreases in life satisfaction that occur because of driving cessation (House, 1981). This study used the Patient-Reported Outcomes Measurement Information System (PROMIS) measures to examine emotional, instrumental, and information social support (Northwestern University, 2017). PROMIS measures were developed and validated by an NIH working group (Ader, 2007; Hays, Spritzer, Schalet, & Cella, 2018). Items assessing emotional support inquired about whether respondents had a confidante or someone to talk about problems, or someone who made them feel appreciated (Hahn, DeWalt, Bode, et al., 2014; Ader, 2007; Hays, Spritzer, Schalet, 2018). Instrumental support items asked whether respondents had someone to help them take care of daily living tasks as needed, such as helping with chores, running errands, helping out when sick, or helping with transportation for medical care (Hahn, DeWalt, Bode, et al., 2014; Ader, 2007; Hays, Spritzer, Schalet, 2018). Items on informational support asked about whether respondents had someone who could give advice, provide suggestions, or give helpful information about life decisions (Hahn, DeWalt, Bode, et al., 2014; Ader, 2007; Hays, Spritzer, Schalet, 2018). Higher *t* scores indicated higher perceived emotional, instrumental, and informational social support.

RESULTS

There were 544 LongROAD participants who reported reducing driving in the past year, less than one-fifth (18.2%) of the total sample. Fifty-seven percent of those who reduced driving were women, 45% were aged 65-69 years, 32% were 70-74 years old and 23% were 75-79 years old. Most were white (82%), not working (74%), married or partnered (61%), and reported use of one or more sources of alternate transportation (89%). Forty-two percent had an annual income greater than or equal to \$80,000. More men than women were currently married (79% vs. 47%) and had annual incomes at or above \$80,000 (51% vs. 34%). More women than men reported having used at least one additional source

of transportation (60% vs. 48%) and reported to not working (73% vs. 69%), see Table 1.

Mean PROMIS *t* scores for emotional, instrumental, and informational support were 53.51, 55.88, and 54.93, respectively, for the number of participants (Table 2). There were no statistically significant sex differences in emotional and instrumental support. By contrast, mean PROMIS *t* scores indicated that informational support was lower for men (53.19) than women (56.24) when adjusted ($t=-2.74$; $p=0.006$).

Table 1. Demographic characteristics of older drivers in the LongROAD cohort who reduced driving by sex in the past year (n=544)

	Total Reduced n (%)	Sex n (%)		X ²	P Value
		Male 233 (100)%	Female 311 (100%)		
Currently Employed					
Yes	141 (26)	72 (31)	69 (22)	Ref	—
No	401 (74)	160 (69)	241 (73)	5.31	0.02
Unreported	2 (.004)	1 (.004)	1 (.003)	—	—
Married/Partnered					
Yes	330 (61)	185 (79)	145 (47)	Ref	—
No	208 (38)	46 (20)	162 (52)	60.00	<0.001
Unreported	6 (1)	2 (1)	4 (1)	—	—
High Income (>80k/yr)					
No	303 (56)	110 (47)	193 (62)	Ref	—
Yes	226 (42)	119 (51)	107 (34)	14.10	<0.001
Unreported	15 (30)	4 (2)	11 (4)	—	—
Sources of Alternative Transportation Used (n)					
None	62 (11)	41 (18)	21 (7)	Ref	—
One	299 (55)	112 (48)	187 (60)	7.8	<0.001
Two or more	183 (34)	80 (34)	103 (33)	0.08	0.76*
Race					
White	445 (82)	196 (84)	249 (80)	Ref	—
Non-White	71 (13)	23 (10)	48 (15)	3.40	0.07
Unreported	28 (5)	14 (6)	14 (5)	—	—
Age Category					
65-69	246 (45)	94 (40)	152 (48)	Ref	—
70-74	172 (32)	80 (34)	92 (30)	1.39	0.24
75-79	126 (23)	59 (26)	67 (22)	1.07	0.30

Note. * $p < 0.05$

Table 2. Adjusted reduced driving and associations with social support PROMIS scores males compared to females (n=544)

	Total Sample, <i>m</i> (SD) ^a	Reduced Driving, <i>m</i> (SD)		<i>t</i> ^b
		Male <i>n</i> =233	Female <i>n</i> =311	
Types of Social Support				
Emotional	53.51 (7.93)	52.87 (8.20)	53.98 (7.70)	-.57
Instrumental	55.88 (7.81)	56.38 (8.24)	55.01 (7.54)	-.31
Informational	54.93 (8.80)	53.19 (9.19)	56.24 (8.27)	-2.74***

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. PROMIS, Patient Reported Outcome Instrumentation System, scores are t-scores.

^a *m* = mean; SD = standard deviation

^bStatistic is based on a two-sample t test for significant difference in means.

^cAll models are adjusted for site and significant covariates (i.e. marital status, use of alternative sources of transportation, and income).

DISCUSSION

The research herein examined how three types of perceived social support – emotional, instrumental, and informational – differed between male and female among older adult drivers who reduced their driving in the past year. Respondents reported high levels of social support overall. Findings suggest that men and women report similar levels of emotional and instrumental support, but that men report lower levels of informational support than women. Thus, there may be a need to prioritize providing older adult men with informational social support (i.e., advice, suggestions, or helpful information about life decisions) in interventions that aim to enhance life satisfaction among those who have reduced their driving. Not being able to drive threatens adults' sense of independence and emotional well-being, and also limits their ability to maintain social ties, remain active and engaged, and manage healthcare (Mezuk & Rebok, 2008; Stanford, Mielenz, DiMaggio, et al., 2015; Curl, 2014). Programs to improve social support often focus on building a closer network among members, increasing the frequency and duration of spending time with peers and family, and increasing emotional support could reduce the threats that arise from not driving (Roth *et al.*, 2005).

This study highlights that there are demographic differences between women and men who reduced their driving. Women were less likely to be currently employed, not married, have an annual income lower than \$80,000, and have used one alternate source of transportation when compared to men. Previous studies suggest that women tend to reduce or stop driving earlier than men (Mezuk & Rebok, 2008; Freeman,

Gange, Munoz, et al., 2006; Rosenbloom & Herbel, 2000; Unsworth, Wells, Browning, et al., 2007). While there is limited understanding of the reasons for differences in driving cessation between these groups, findings suggest differences by sex, race, and income may be an important consideration in how programs can help older adults build support within their families and communities. For example, working with agencies or community organizations with experiences providing programs and services to diverse populations.

More than 74% of respondents in this group of older drivers who reduced driving in the past year did not work for pay in the month prior to the study. Therefore, reductions in driving may not only be due to declines in health; in some instances, older adults may not need to drive as frequently due to life changes, such as retirement (Blanchard & Myers, 2010). Older adults who recently reduced their driving may have done so because of health problems, because of changes in work, or because of both. For example, an older driver who has a progressive chronic condition, such as severe cognitive impairment due to Alzheimer's disease, can lead them to gradually limit their driving behavior until they have to stop altogether. On the other hand, another older adult may change their driving patterns, distance, or behaviors because they no longer work and they do not need to drive as much. Thus, motivations for reducing driving should be explored to further determine how social support can mitigate the impact that reduction or cessation of driving has on health and life satisfaction.

Methodological limitations should be noted when interpreting study results. As a cross-sectional study, these results can suggest associations, they cannot determine causality. In addition, the LongROAD study is a sample of older drivers who have sought health care at a medical system and as with many study volunteers, they have higher education and income than the general population, and do not reflect the racial and ethnic demographics of the older driver population in the US. Although this study contributes to the understanding of social support and driving, additional studies with representative samples are needed.

These data were analyzed to determine the association between gender of older drivers, and three types of social support (emotional, instrumental, and informational), and reduction in driving. Men and women vary in their levels of emotional and instrumental support and interventions should consider their unique differences. Existing efforts to enhance older adults' social support may have an important role in maintaining quality of life during the driving cessation process. Such efforts could include supporting programs that help older adults assess and build social support within their families and communities when they are making decisions about transportation and long-term mobility.

REFERENCES

- Stanford, C., Mielenz, T., DiMaggio, C., Betz, M.E., DiGuseppi, C., Jones, V., Li, G. Driving cessation and health outcomes in older adults. Washington, DC: The Urban Institute and AAA Foundation for Traffic Safety; 2015.
- Mezuk, B., Rebok, G. Social integration and social support among older adults following driving cessation. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*. 2008. 63: S298-S303.
- Curl, A. Giving up the keys: How driving cessation affects engagement in later life. *Gerontologist*. 2014. 54: 423-33
- Ader, D. N. (2017). Developing the Patient-Reported Outcomes Measurement Information System (PROMIS). *Med Care*, 45, 1-2.
- Blanchard RA, Myers A. Examination of comfort and self-regulatory practices in older adults using in-vehicle devices to assess natural driving patterns. *Accid Anal Prev*. 2010 Jul;42(4):1213-9. doi: 10.1016/j.aap.2010.01.013.
- Buetell N. *Life satisfaction, a Sloan work and family encyclopedia entry*. Sloan Work-Family. 2006.
- Centers for Disease Control and Prevention. Older adult driver factsheet. https://www.cdc.gov/motorvehiclesafety/older_adult_drivers/index.html. 2010. Accessed September 28, 2018.
- Charlton J, Koppel S, Odell M, et al. *Influence of Chronic Illness on Crash Involvement of Motor Vehicle Drivers: 2nd Edition*. Monash University Accident Research Centre; 2010. Report No. 300.
- Chihuri S, Mielenz TJ, DiMaggio CJ, et al. Driving cessation and health outcomes in older adults. *J Am Geriatr Soc*. 2016;64(2):332-341. doi:10.1111/jgs.13931.
- Corriani, P, Olsen, M, Pedersen, L, Dekkers, OM, Vandenbrouche, JP. Effect modification, interaction and mediation: an overview of theoretical insights for clinical investigators. *Clin. Epidemiol*. 2017; 9:331-338.
- Dam AEH, de Vugt ME, Klinkenberg IPM, Verhey FRJ, van Boxtel MPJ. A systematic review of social support interventions for caregivers of people with dementia: Are they doing what they promise? *Maturitas*. 2016;85: 117-130.
- De Gonzalez, AB, Cox, DR. Interpretation of interaction: A review. *The Annals of Applied Statistics*. 2007. 1(2):371-385.
- Dickerson AE, Molnar LJ, Bedard M, et al. Transportation and aging: an updated research agenda to advance safe mobility among older adults transitioning from driving to non-driving [published online ahead of print 2017 Jul 29]. *Gerontologist*. doi:10.1093/geront/gnx120.
- Edwards JD, Lunsman M, Perkins M, Rebok GW, Roth DL. Driving cessation and health trajectories in older adults. *J Gerontol A Psychol Sci Soc*. 2009;64A (12):1290-1295. doi:10.1093/gerona/glp114.

Freeman E, Gange S, Munoz, B. et al. Driving status and risk of entry into long-term care in older adults. *American Journal of Public Health* 2006;96:1254-1259.

Gottlieb BH., Bergen AE. Social support concepts and measures. *Journal of Psychosomatic Research*. 2010;69(5):511-520.

Hays, R. D., Spritzer, K. L., Schalet, B. D., & Cella, D. (2018) PROMIS®-29 v2.0 profile physical and mental health summary scores. *Qual Life Res*, 27, 1885-1891

Heaney C A, Israel BA. Social networks and social support. In: Glanz K, Rimer BK, Lewis FM., eds. *Health Behavior and Health Education*, 3rd Ed. San Francisco: Jossey-Bass, 2002. pp 185-192.

Hetland A, Carr DB. Medications and impaired driving. *Ann Pharmacother*. 2014 Apr;48(4):494-506. doi:10.1177/1060028014520882.

Hirsch JA, Winters M, Sims-Gould J, et al. Developing a comprehensive measure of mobility: mobility over varied environments scale (MOVES). *BMC Public Health*. 2017 May 25;17(1):513. doi:10.1186/s12889-017-4450-1.

House, J.S. *Work stress and social support*. Reading, Mass: Addition-Wesley; 1981.

Jones, V, Johnson, R, Rebok, G, Roth, K, Gielen, A, Baker, SP, Molnar, LJ, Pitts, S, GiGuiseppi, C, Hill, L, Strogatz, D, Mielenz, T, Eby, D, Li, G. The differences in the alternate sources of transportation used by older adult drivers and related to distances traveled. *Journal of Transport and Health*. 2018. Sept;10:284-289.

Li G, Eby DW, Santos R, et al. Longitudinal research on aging drivers (LongROAD): Study design and methods. *Inj Epidemiol*. 2017 Dec;4(1):22. doi:10.1186/s40621-017-0121-z.

Marshall SC, Man-Son-Hing M, Charlton J, Molnar LJ, Koppel S, Eby DW. The Candrive/Ozcandrive prospective older driver study: methodology and early study findings. *Accid Anal Prev*. 2013 Dec; 61:233-5. doi:10.1016/j.aap.2013.07.007.

Mezuk B, Rebok G. Social integration and social support among older adults following driving cessation. *J Gerontol B Psychol Sci Soc Sci*. 2008 Sep;63(5): S298-303.

Northwestern University. PROMIS. HealthMeasures. <http://www.healthmeasures.net/explore-measurement-systems/promis>. 2017. Accessed September 27th, 2018.

Roth DL, Mittelman MS, Clay OJ, Madan A, Haley WE. Changes in social support as mediators of the impact of a psychosocial intervention for spouse caregivers of persons with Alzheimer's disease, *Psychol. Aging*. 2005;20: 634-644.

Rosenbloom S., Herbel S. The safety mobility pattern of older women: Do current patterns foretell the future? *Public Works Management & Policy* 2000;13:338-353.

Stanford C, Mielenz TJ, DiMaggio CJ. et al. Driving cessation and health outcomes in older adults. *JAGS*. 2016 Jan; 64:332-341. <https://doi.org/10.1111/jgs.13931>

Unsworth C., Wells Y., Browning C., et al. To continue, modify, or relinquish driving: Findings from a longitudinal study of health ageing. *Gerontology* 2007;53:423-431.

VanderWeele, T, Knol, MJ. A tutorial on interaction. *Epidemiol. Methods*. 2014. 3(1):33-72.

White MN, King AC, Sallis JF, et al. Caregiving, transport-related, and demographic correlates of sedentary behavior in older adults: The Senior Neighborhood Quality of Life Study. *J Aging Health*. 2016 Aug;28(5):812-33. doi:10.1177/0898264315611668.

ABOUT THE AAA FOUNDATION FOR TRAFFIC SAFETY

The AAA Foundation for Traffic Safety is a 501(c)(3) nonprofit, publicly supported charitable research and education organization. It was founded in 1947 by the American Automobile Association to conduct research to address growing highway safety issues. The organization's mission is to identify traffic safety problems, foster research that seeks solutions and disseminate information and educational materials. AAA Foundation funding comes from voluntary, tax-deductible contributions from motor clubs associated with the American Automobile Association and the Canadian Automobile Association, individual AAA club members, insurance companies and other individuals or groups.

ACKNOWLEDGEMENTS

The research described in this research brief was performed at Johns Hopkins University Bloomberg School of Public Health with support from the AAA Foundation for Traffic Safety.

SUGGESTED CITATION

Jones, V., Johnson, R., Borkoski, C., Gielen, A., and Rebok, G. (2020). Perceived Social Support Differences between Male and Female Older Adults Who Have Reduced Driving: AAA LongROAD Study. (Research Brief). Washington, D.C.: AAA Foundation for Traffic Safety.

DocuSigned by: *Jeanette Casselano* DE575F9857A7406...

DocuSigned by: *Tara Kelley Baker* 5D8D68882BB485...

DocuSigned by: *Jill Ingrassia* F32F285B1021466...

DocuSigned by: *David Yang* A3E38F8E038944A...