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# Self-rated Driving and Driving Safety in Older Adults

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## Abstract

Many U.S. states rely on older adults to self-regulate their driving and determine when driving is no longer a safe option. However, the relationship of older adults' self-rated driving in terms of actual driving competency outcomes is unclear. The current study investigates self-rated driving in terms of (1) systematic differences between older adults with high (good/excellent) versus low (poor/fair/average) self-ratings, and (2) the predictive nature of self-rated driving to adverse driving outcomes in older drivers ($n$=350; mean age 73.9, SD=5.25, range 65–91). Adverse driving outcomes included self-reported incidences of (1) being pulled over by the police, (2) receiving a citation, (3) receiving a recommendation to cease or limit driving, (4) crashes, and (5) state-reported crashes. Results found that older drivers with low self-ratings reported more medical conditions, less driving frequency, and had been given more suggestions to stop/limit their driving; there were no other significant differences between low and high self-raters. Logistic regression revealed older drivers were more likely to have a state-reported crash and receive a suggestion to stop or limit driving. Men were more likely to report all adverse driving outcomes except for receiving a suggestion to stop or limit driving. Regarding self-rated driving, older adults with high ratings were 66% less likely (OR=0.34, 95% CI=0.14–0.85) to have received suggestions to limit or stop driving after accounting for demographics, health and driving frequency. Self-ratings were not predictive of other driving outcomes (being pulled over by the police, receiving a citation, self-reported crashes, or state-reported crashes, $p$s>.05). Most older drivers (85.14%) rated themselves as either good or excellent drivers regardless of their actual previous citation or crash rates. Self-rated driving is likely not related to actual driving proficiency as indicated by previous crash involvement in older adults. Suggestions from other individuals to limit or cease driving may be more influential on self-ratings.

### Keywords

older drivers; self-rated driving; driving safety; motor vehicle crashes (MVC)

## 1.0 Introduction

Research on older drivers has shown that most consider the ability to maintain driving as key to personal mobility (Marottoli *et al.* 1997). However, for some older adults, cognitive

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or physical impairments may begin to impact their ability to drive safely, especially as they approach their late 70's and early 80's, when crash rates begin to rise (Waller 1991, Anstey *et al.* 2005, Ball *et al.* 2006). According to the Insurance Institute for Highway Safety (2010), only Illinois mandates older driver testing (road test for those drivers over the age of 75). Other states prohibit older drivers from renewing their licenses by mail (Alaska, California, Indiana, Louisiana, Massachusetts and Texas), or require older drivers to renew their licenses more frequently than other drivers, with renewal rates that vary from 2–5 years (Insurance Institute for Highway Safety 2010). As such, it is commonly the responsibility of the older drivers or their physicians to judge their own driving competency.

There is increasing evidence that older adults have a tendency to overrate their driving abilities and driving safety (Goszczynska and Roslan 1989). Marottoli and colleagues (1998) reported that objective evidence of driving ability did not impact a driver's confidence or self-rating of abilities. In fact, neither confidence nor self-rated ability was associated with past involvement in adverse driving situations. This was confirmed by Freund and colleagues (2005) who found that compared to drivers who believed they were the same or worse than other drivers their age, drivers who considered themselves better were actually four times more likely to be unsafe drivers as measured in a driving simulator. Gianutso (1994) reported that older drivers did not perform as well as younger drivers on a driving simulator, yet gave themselves slightly higher ratings. Ackerman and colleagues (2011) found that older drivers' self-rated driving did not change over a three month period even after failing the Useful Field of View® Test (UFOV, a commonly used test for driving competency). Other research has found mixed results with weak to no correlations between self-rated driving and on-road driving assessments in older adults without cognitive impairment (ages 65–85, $n$=85) (Selander *et al.* 2011).

In contrast, other studies suggest that older adults' self-rating of driving may be more realistic as indicated by self-restrictions of driving. Lyman and colleagues (2001) reported that among drivers aged 65 or older ($n$= 901), participants who reported difficulty in three or more driving situations or drove less than 3 days per week were less likely to report the quality of their driving as excellent compared to participants who did not report any difficulty driving. The study concluded that an association existed between self-rated driving and self-regulation of actual driving. Baldock and colleagues (2006) reported moderate to large relationships between lower reported confidence (self-rated driving) and greater avoidance in difficult driving situations among drivers aged 60–90. Parker and colleagues (2001) reported an association between poor confidence in a range of driving situations and low self-rated driving ability.

Self-rated driving has also been found to be predictive of restrictions in driving behavior among cognitively unimpaired older adults, and to a lesser degree for those with cognitive impairments (Dobbs 1999). Self-rated driving ability is frequently assessed by asking participants to compare their own driving to the average driver. For example, asking drivers to rate themselves compared to the average driver, or rating their driving on a scale where one option is 'average'. It has been noted that older drivers' self – ratings on this type of assessment may be more reflective of perceived self-efficacy rather than actual functional abilities (Ackerman *et al.* 2010) .

The goal of this study was to investigate the association of older adults' self-rated driving with driving competency as indicated by: (1) being pulled over by the police, (2) receiving a citation, (3) receiving a suggestion to limit or stop driving, (4) self-reported crashes, and (5) state-reported crashes over the previous five years. The first aim of this study was to determine whether or not any systematic differences exist between older drivers who rate their driving as good/excellent versus older drivers who rate their driving as average/fair/

poor. The second aim of this study was to investigate adverse driving outcomes as a function of self-ratings of driving ability.

## 2.0 Methods

### 2.1. Participants and Procedure

The Maryland Motor Vehicle Administration project is an ongoing population-based prospective cohort study designed to investigate general mobility and driving competency/crashes among older adults (Ball *et al.* 2006, Ross *et al.* 2009). Between 1998 and 2000, 4203 older adults aged 55 and older were approached after renewing their driver's licenses at three Maryland Motor Vehicle Administration (MVA) locations or a retirement facility to participate in assessing a new test battery consisting of cognitive, physical and mobility assessments designed to predict crash risk. Of these, 49.5% ($n$=2121) agreed to participate and signed the IRB-approved informed consent. In accordance with Maryland regulations, all drivers must have successfully passed a visual screening equitable to a corrected far visual acuity of 20/70 and a continuous field of vision of at least 140 degrees. No other eligibility criteria were part of this study and the sample was representative of the Maryland older driver population. Study participation had no impact on driving privileges (please see Ball *et al.* 2006 for further details). Relevant to the current study, a random subsample of participants were also invited to take part in annual follow-up telephone interviews regarding their driving habits ($n$=787). For the purposes of this project, only participants who reported driving at baseline, were aged 65 or older, and who completed five years of phone interviews were included in analyses ($n$=350). Participants included 53.1% females and 94.6% Caucasians with a mean education of 14.09 years (SD=3.07, range 5–20) and a mean age of 73.90 at baseline (SD=5.25, range=65–91). The first telephone interviews occurred an average of four months (SD=1.5) after the MVA visit, and are included as part of the baseline data. Participants were then re-interviewed annually, thus providing driving outcome data for a total of five years. For more details on the study design and methods, see Ball and colleagues (2006) and Ross and colleagues (2009).

### 2.2. Measures

**2.2.1. Self-rated driving at year five—**Participants were asked to "rate the quality of your driving" on a scale of 1("poor"), 2("fair"), 3("average"), 4("good") or 5("excellent") during each annual interview. This variable at annual five was investigated as a grouping variable of poor/fair/average ($n$= 52) and good/excellent ($n$= 298).

**2.2.2. Driving Outcomes—**At each annual telephone interview participants were asked about four driving outcomes for the previous year. These outcomes were: (1) the number of times they were *pulled over by the police* (regardless of whether or not they received a citation), (2) the number of *citations* (other than parking citations) received, (3) if anyone had *suggested that they should limit or stop driving,* and (4) the number of *self-reported crashes*, regardless of fault. Additionally, (5) *state-reported crashes* were also collected for each year. A dichotomous variable of no (0) or yes (1) was created for each of the five driving outcomes to indicate if the participant reported that one of the incidences occurred over the previous five year period. This resulted in 4 self-reported and 1 state-reported negative driving outcomes that indicated the presence or absence of the event across a five year period.

**2.2.3. Driving frequency—**Participants reported the number of days typically driven during a normal week. This item was included as a measure of driving frequency at year 5.

**2.2.4. Demographic and Health Measures—**Gender data was collected, and age was coded in years. Total Number of Medical Conditions: Participants were queried annually over a five-year period as to whether they had been diagnosed and/or treated by a physician over the prior year for a variety of medical conditions. Responses for Parkinson's disease, stroke, epilepsy, heart disease, depression, diabetes, cancer, Alzheimer's disease, or high blood pressure conditions were combined and summed across the previous five years (range 0–9). Total Number of Eye Conditions: The same procedure above was repeated for visual diseases including glaucoma, cataracts, diabetic retinopathy, macular degeneration, optic neuritis, and retinal detachment (range 0–6).

## 3.0 Analyses

Older adults who reported driving at baseline and had complete data across the five years were included ($n$=350). Descriptive analyses were conducted comparing older drivers with low and high self-rated driving. Chi-square (for categorical) and multivariate analysis of variance (MANOVA; for continuous) were conducted to investigate systematic differences between those with high and low self-rated driving. Five logistic regressions were conducted to assess predictors of negative driving outcomes (being pulled over, receiving a citation, receiving a suggestion to stop or limit driving, or self- or state-reported crashes), as well as whether self-rated driving was predictive of these outcomes after accounting for other potential predictors of age, gender, fifth year driving frequency, and number of medical/eye conditions.

## 4.0 Results

The majority of older drivers (85.14%) rated their driving ability as good/excellent. Chi-square analyses revealed that a higher proportion of older adults with low self-rated driving had received suggestions to stop or limit their driving, $\chi^2 = 12.42$, $p<.01$. MANOVA revealed that those with high and low self-rated driving significantly differed, Wilks' $\lambda=0.96$, $F(4,345)=3.31$, $p=.01$. Specifically, older drivers who rated themselves as having lower driving skills (poor/fair/average) reported significantly more medical conditions across the five years, $F(1,348)=5.70$, $p<.02$ and had significantly lower driving frequency at year five $F(1,348)=7.23$, $p<.01$. There were no significant differences between low and high self-raters in age or gender, nor in visual health across the five years. Neither did the two groups differ on driving outcomes such as reports of being pulled over by the police, receiving a citation, or self- or state-reported crashes across five years. See Table 1 for study descriptives by self-rated driving.

Logistic regressions investigated the impact of demographic, health, driving frequency, and self-rated driving on five adverse driving outcomes across the previous five years (see Table 2). Older adults were more likely to have a state-reported crash (OR=1.10, 95% Confidence Interval (CI)=1.03–1.17) and to report receiving a suggestion to limit or stop driving (OR=1.13, 95% CI=1.05–1.23), although age was not predictive of being pulled over, receiving citations, or self-reported crashes. Men were more likely to report being pulled over (OR=1.83, 95% CI=1.05–3.16), receiving a citation (OR=2.66, 95% CI=1.32–5.35), having a self-reported crash (OR= 2.07, 95% CI=1.23–3.47), and incurring a state-reported crash (OR=2.20, 95% CI=1.07–4.53), but not receiving a suggestion to stop or limit driving. Greater driving frequency at five years was predictive of reporting being pulled over (OR=1.20, 95% CI=1.04–1.39), receiving a citation (OR=1.35, 95% CI=1–11–1.64), or a self-reported crash (OR=1.22, 95% CI=1.06–1.39), but was not related to any of the other driving outcomes. A higher number of medical conditions was not predictive of any of the five outcomes, and a higher number of visual conditions was only predictive of suggestions to limit or stop driving (OR=1.71, 95% CI=1.04–2.81).

After accounting for the demographic, driving frequency, and health measures, self-rated driving ability at year five was not a significant predictor for most of the driving outcomes as measured over the prior five-year period, namely: having been pulled over by the police, receiving a driving citation, and self- or state-reported crashes. Older drivers who rated themselves as good or excellent were 66% less likely (OR= 0.34 , 95% CI= 0.14–0.85) to report that someone had suggested that they limit or cease driving over the previous five years ($p$=.02). Further analyses indicated that these results remained consistent regardless of (1) whether non-significant predictors were removed from the models and (2) if self-rated driving was modeled as a continuous variable rather than a grouping variable. The complete models and relevant statistics are presented in Table 2.

## 5.0 Discussion

Results of this study provide an important contribution to the literature on the association of older drivers' self-rated driving and various driving safety outcomes. Although older drivers are more likely to have a fatal crash, especially those over 75 years of age (Hu *et al.* 1998, Dobbs 2008), they are often responsible for assessing their own driving. In the current analyses, only 14.86% (n=52) of drivers sampled reported their driving as average or worse (low self-rated driving category). Of this 14.86%, the majority (96.15%) rated their driving as "average" (rather than fair or poor). As compared to older drivers with high self-rated driving, those with poor self-rated driving reported less driving frequency, more medical conditions, and a greater frequency of receiving a suggestion to stop or limit their driving. However, they did not differ systematically in terms of age, gender, visual health, or incidences other negative driving outcomes.

Increased age at baseline was predictive of state-reported crashes and receiving a suggestion to stop or limit driving, but not of the other self-report driving outcomes (being pulled over, receiving a citation, or self-reported crashes). Men were more likely to report being pulled over, receiving citations, and more crashes, but not to report receiving a suggestion to stop or limit driving. Greater driving frequency at baseline was predictive of a greater likelihood of being pulled over, receiving citations, and self-reported accidents, but was not related to state-reported crashes or suggestions to stop or limit driving. In line with similar research, state-report and self-report crashes often provide different data (Marottoli 1997, McGwin *et al.* 1998, Anstey *et al.* 2009). Thus in the present analyses, self-reported crashes varied by gender (men reported more) and driving frequency (those who reported driving more frequently also reported more crashes), but not as a function of age. Conversely, state-reported crashes were related to age (increased age was associated with having a crash), but not driving frequency. These results are consistent with other studies in which state-report and self-report crashes differ.

Additionally, after accounting for demographic, health, and driving frequency factors, logistic regressions revealed a lack of an association between self-rated driving and actual driving outcomes other than suggestions to limit or stop driving. These results would indicate that relying on self-ratings of at-risk older drivers is ineffective for evaluating driving competence. The fact that there are few significant differences between older drivers with high self-ratings as compared to those with low self-ratings illuminates how difficult it is to accurately self-appraise driving competency (see Tables 1 and 2). This is in line with research by Johnson (1998), who found that friends and their stated opinions were the greatest influence on the driving behaviors of older adults.

One study found that self-reported perceptions of factors related to driving, such as eye sight and driving difficulty, can be changed through an educational-based intervention (Owsley *et al.* 2003). However, although participants reported more self-restriction of driving behaviors

after this intervention, crash risk did not decrease. Thus, increasing driving avoidance behaviors did not translate to improved driving safety (Owsley *et al.* 2004). Along a similar line, Ross and colleagues (2009) also found that although older drivers who were at-risk for crashes did self-regulate their driving (via reduced exposure and increased avoidance), they still crashed at a greater rate. This discrepancy between self-regulation and driving safety may be compounded by reduced cognitive function in some older at-risk adults as explained by Ragland (2004), who found that older adults with poorer cognitive function are less aware of limitations.

The fact that self-reported and state-reported measures of driving competency were generally unrelated to subjective self-ratings of ability suggests that other factors may be influencing driving habits. Possibilities include fear of the loss of autonomy, cognitive impairment or decline, or inability to assess or acknowledge the loss of adequate physical function (Marottoli and Richardson 1998, Ackerman *et al.* 2011). The reason may be one of the above or a combination, but the conclusion is that self-rated driving is not likely a reliable indicator of actual driving competency.

This speaks to the need for more objective older driver evaluations for those who are at-risk for crashes (e.g., on-road evaluations for those who fail objective cognitive/sensory/physical validated assessments (Anstey *et al.* 2005, Ball *et al.* 2006, Wood *et al.* 2008)). Although many older adults can drive safely throughout the majority of their later years, as a group older drivers have the highest crash involvement after teens when distance travelled is considered (Braver and Trempel 2004). The results of this study suggest that self-rated driving may not be an appropriate indicator of driving competency for many older drivers. Future research should focus on increasing the understanding of self-rated driving and changes in self-rated driving over time, and how such self-ratings are related to driving ability and driving behaviors in older adults. Ultimately, the goal of such research would be creating appropriate interventions (such as driver remediation training or alternative transportation options) for enhanced driver safety and maintained independence. Additionally, future research should investigate the interactions of gender, self-ratings, and driving in young-old and old-old (75+) adults. Unfortunately, the current study did not contain sufficient power to assess these relationships.

Strengths of the current study include the use of five years of driving outcomes that tap a wide range of negative events. Including additional measures such as traffic citations and suggestions to limit or stop driving can provide a clearer picture regarding the driving health of the sample. This study also incorporated both self-report and state-report crashes, which can yield different data (Marottoli 1997, McGwin *et al.* 1998, Anstey *et al.* 2009). There are also several limitations to the current study. First, in accordance with renewing a driver's license in Maryland, participants in the current study were screened for visual acuity and visual field; similar analyses in a region that does not require such screening may yield differing results. Second, other than state-reported crash records, all measures were obtained through self-report. Third, it would have been beneficial to examine the impact of changes in driving perceptions over time in a multi-level model, which would have also allowed inclusion of participants lost to attrition. Unfortunately, there is such limited systematic change within this variable over time that such analyses were not possible.

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## References


Ackerman ML, Crowe M, Vance DE, Wadley VG, Owsley C, Ball K. The impact of feedback on self-rated driving ability and driving self-regulation among older adults. The Gerontologist. 2011; 51 (3):367–378. [PubMed: 21071621]

Ackerman ML, Vance DE, Wadley VG, Ball K. Indictors of self-rated driving across three years among a community-based sample of older adults. Transp Res Part F Traffic Psychol Behav. 2010; 13 (5):307–314. [PubMed: 20957063]

Anstey KJ, Wood J, Lord S, Walker JG. Cognitive, sensory and physical factors enabling driving safety in older adults. Clin Psychol Rev. 2005; 25:45–65. [PubMed: 15596080]

Anstey KJ, Wood JM, Caldwell H, Kerr GK, Lord SR. Comparison of self-reported crashes, state crash records and an on road driving assessment in a population-based sample of drivers aged 69–95 years. Traffic Injury Prevention. 2009; 10 (1):84–90. [PubMed: 19214882]

Baldock MRJ, Mathias JL, Mclean AJ, Berndt A. Self-regulation of driving and its relationship to driving ability among older adults. Accid Anal Prev. 2006; 38(5):1038–1045. [PubMed: 16725099]

Ball KK, Roenker DL, Wadley VG, Edwards JD, Roth DL, Mcgwin G Jr, Raleigh R, Joyce JJ, Cissell GM, Dube T. Can high-risk older drivers be identified through performance-based measures in a department of motor vehicles setting? J Am Geriatr Soc. 2006; 54(1):77–84. [PubMed: 16420201]

Braver ER, Trempel RE. Are older drivers actually at high risk of involvement in collisions resulting in deaths or non-fatal injuries among their passengers and other road users? Inj Prev. 2004; 10:27–32. [PubMed: 14760023]

Dobbs, BM. Dissertation. University of Alberta; 1999. Self-perceptions of competence as determiners of driving patterns.

Dobbs BM. Aging baby boomers- a blessing or challenge for driver licensing authorities. Traffic Injury Prevention. 2008; 9 (4):379– 386. [PubMed: 18696395]

Freund B, Colgrove LA, Burke BL, Mcleod R. Self-rated driving performance among elderly drivers referred for driving evaluations. Accid Anal Prev. 2005; 37:613–618. [PubMed: 15949451]

Gianutsos R. Driving advisement with the elemental driving simulator (eds): When less suffices. Behav Res Methods Instrum Comput. 1994; 26:183–186.

Goszczynska M, Roslan A. Self-evaluation of drivers' skill: A cross-cultural comparison. Accid Anal Prev. 1989; 21(3):217–224. [PubMed: 2736018]

Hu PS, Trumble DA, Foley DJ, Eberhard JW, Wallace RB. Crash risks of older drivers: A panel data analysis. Accid Anal Prev. 1998; 30(5):569–581. [PubMed: 9678211]

Insurance Institute for Highway Safety. Highway safety research and communications:Licensing renewal provisions for older drivers. 2010. Retrieved on March 28, 2011 from http://www.iihs.org/laws/olderdrivers.aspx

Johnson JE. Older rural adults and the decision to stop driving: The influence of family and friends. J Community Health Nurs. 1998; 15(4):205–216. [PubMed: 9834557]

Lyman JM, Mcgwin G Jr, Sims RV. Factors related to driving difficulty and habits in older drivers. Accid Anal Prev. 2001; 33:413–421. [PubMed: 11235803]

Marottoli RA, Cooney LM Jr, Tinetti ME. Self-report versus state records for identifying crashes among older drivers. Journal of Gerontology: MEDICAL SCIENCES. 1997; 52A (3):M184–M187.

Marottoli RA, Mendes De Leon CF, Glass TA, Williams CS, Cooney LM, Berkman LF, Tinetti ME. Driving cessation and increased depressive symptoms: Prospective evidence from the new haven epese. J Am Geriatr Soc. 1997; 45:202–206. [PubMed: 9033520]

Marottoli RA, Richardson ED. Confidence in, and self-rating of, driving ability among older drivers. Accid Anal Prev. 1998; 30(3):331–336. [PubMed: 9663292]

McGwin G, Owsley C, Ball K. Identifying crash involvement among older drivers: Agreement between self-report and state records. Accid Anal Prev. 1998; 30(6):781–791. [PubMed: 9805521]

Owsley C, McGwin G, Phillips JM, Mcneal SF, Stalvey BT. Impact of an education program on the safety of high-risk, visually impaired, older drivers. Am J Prev Med. 2004; 26(3):222–229. [PubMed: 15026102]

Owsley C, Stalvey BT, Phillips JM. The efficacy of an educational intervention in promoting self-regulation among high-risk older drivers. Accid Anal Prev. 2003; 35(3):393–400. [PubMed: 12643956]

Parker D, Macdonald L, Sutcliffe P, Rabbitt P. Confidence and the older driver. Ageing and Society. 2001; 21:169–182.

Ragland DR. Reasons given by older people for limitation or avoidance of driving. The Gerontologist. 2004; 44 (2):237–244. [PubMed: 15075420]

Ross LA, Clay OJ, Edwards JD, Ball K, Wadley VG, Vance DE, Cissell GM, Roenker DL, Joyce JJ. Do older drivers at-risk for crashes modify their driving over time? J Gerontol B Psychol Sci Soc Sci. 2009; 64(2):163–170. [PubMed: 19196692]

Selander H, Lee HC, Johansson K, Falkmer T. Older drivers: On-road and off-road test results. Accid Anal Prev. 2011; 43:1348–1354. [PubMed: 21545864]

Waller PF. The older driver. Hum Factors. 1991; 33 (5):499–505. [PubMed: 1837535]

Wood JM, Anstey KJ, Kerr GK, Lacherez PF, Lord S. A multidoman approach for predicting older driver safety under in-traffic road conditions. J Am Geriatr Soc. 2008; 56(6):986–993. [PubMed: 18422946]

## Table 1

Sample Descriptives by driving self-appraisal at Year Five[a]

| | Low SRD[b] (*n*=52) | High SRD[b] (*n*=298) | *P* |
|---|---|---|---|
| Baseline Age, mean(SD), range | 75.15(5.46), 65–87 | 73.68(5.19), 65–91 | .06 |
| Driving Frequency at Year Five, mean(SD), range | 4.25(2.42), 0–7 | 5.07(1.97), 0–7 | .01 |
| Number of Eye Conditions Across 5 Years, mean(SD), range | 0.31(0.51), 0–2 | 0.24(0.52), 0–4 | .35 |
| Number of Medical Conditions Across 5 Years, mean(SD), range | 1.79(1.07), 0–4 | 1.42(1.03), 0–5 | .02 |
| Pulled over Previous 5 Years, *n* (%) | 13(25.00) | 60(20.13) | .26 |
| Reported ≥ 1 Crash over Previous 5 Years, *n* ( %) | 13(25.00) | 74(24.83) | .55 |
| Reported ≥ 1 Suggestion to Limit or Stop Driving over Previous 5 Years[c], *n* (%) | 11(21.15) | 19(6.38) | .002 |
| Received ≥ 1 Citation over Previous 5 Years, *n* (%) | 8(15.38) | 38(12.75) | .37 |
| Male Sex, *n* (%) | 22(42.31) | 142(47.65) | .29 |
| ≥ 1 State-reported Crash over Previous 5 Years, *n* (%) | 7(13.46) | 33(11.07) | .38 |

*Note*:

[a] A MANOVA (Multi-Analysis of Variance) was used to assess for differences between High and Low SRD for continuous measures (Age, Driving Frequency, Eye Conditions, Medical Condition), and Chi-square tests were used to assess for differences in categorical measures (Sex, Pulled over in Previous 5 Years, Reported ≥1 Crash, Reported ≥1 Suggestion to Limit or Stop Driving, Received ≥1 Citation, and ≥1 State-reported Crash) on between High and Low SRD for categorical measures.

[b] Self-rated Driving;

[c] Driving Frequency at Year Five is the self-reported number of days driven during a typical week.

**Table 2**

Logistic Regression Models Predicting Negative Driving Outcomes Across Five Years ($n$=350)

| | Pulled Over in Previous 5 years | | | Self-reported Accident in Previous 5 years | | | Received Citation in Previous 5 years | | | State-reported Crash in Previous 5 years | | | Suggest to Limit/Stop Driving | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *OR* | *95% CI* | *P* | *OR* | *95% CI* | *P* | *OR* | *95% CI* | *P* | *OR* | *95% CI* | *P* | *OR* | *95% CI* | *P* |
| Baseline age | 0.95 | 0.90–1.00 | 0.06 | 1.04 | 0.99–1.09 | .12 | 0.94 | 0.88–1.01 | .10 | 1.10 | 1.03–1.17 | .005 | 1.13 | 1.05– 1.23 | .002 |
| Male sex | 1.83 | 1.05–3.16 | 0.03 | 2.07 | 1.23–3.47 | .01 | 2.66 | 1.32–5.35 | .01 | 2.20 | 1.07–4.53 | .03 | 1.64 | 0.69– 3.89 | .27 |
| Driving frequency at year five[a] | 1.20 | 1.04–1.39 | 0.02 | 1.22 | 1.06–1.39 | .01 | 1.35 | 1.11–1.64 | .003 | 1.10 | 0.92–1.32 | .30 | 0.84 | 0.69– 1.03 | .09 |
| Number of medical conditions across five years | 1.18 | 0.91–1.54 | 0.22 | 0.93 | 0.73–1.20 | .59 | 1.06 | 0.76–1.47 | .73 | 0.85 | 0.61–1.20 | .36 | 1.40 | 0.95– 2.05 | .09 |
| Number of eye conditions across five Years | 1.04 | 0.72–1.51 | 0.83 | 1.02 | 0.72–1.44 | .93 | 1.37 | 0.90–2.10 | .15 | 1.03 | 0.65–1.64 | .89 | 1.71 | 1.04– 2.81 | .04 |
| High self–rated driving at year five | 0.63 | 0.30–1.31 | .22 | 0.85 | 0.42–1.75 | .67 | 0.64 | 0.26–1.55 | .32 | 0.75 | 0.30–1.88 | .54 | 0.34 | 0.14– 0.85 | .02 |

Note:

[a]Driving Frequency at Year Five is the self-reported number of days driven during a typical week.