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How realistic are older drivers' ratings of their driving ability?

Mark S. Horswill[a,*], Karen Sullivan[b], Janine K. Lurie-Beck[b], Simon Smith[b,c]

[a] School of Psychology, The University of Queensland, St Lucia, Brisbane, QLD 4072, Australia
[b] Institute of Health & Biomedical Innovation, and School of Psychology and Counselling, Queensland University of Technology, Victoria Park Road, Kelvin Grove, Brisbane, QLD 4059, Australia
[c] Centre for Accident and Road Safety – Queensland, Queensland University of Technology, Victoria Park Road, Kelvin Grove, Brisbane, QLD 4059, Australia

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ABSTRACT

One strategy that can be used by older drivers to guard against age-related declines in driving capability is to regulate their driving. This strategy presumes that self-judgments of driving capability are realistic. We found no significant relationships between older drivers' hazard perception skill ratings and performance on an objective and validated video-based hazard perception test, even when self-ratings of performance on specific scenarios in the test were used. Self-enhancement biases were found across all components of driving skill, including hazard perception. If older drivers' judgments of their driving capability are unrealistic, then this may compromise the effectiveness of any self-restriction strategies to reduce crash risk.

1. Introduction

1.1. Background

Drivers in general appear to give unrealistic ratings of their own driving ability. For example, most rate themselves better than average (Freund et al., 2005; Horswill et al., 2004; Marottoli and Richardson, 1998; McKenna et al., 1991; Svenson, 1981; White et al., 2011) and little relationship has been found between self-ratings and objective measures of driving skill (Freund et al., 2005; Groeger and Grande, 1996).

These unrealistic self-ratings may have particular implications for older drivers, because it has been proposed that this age group adjust their driving habits to moderate crash risk against the onset of age-related cognitive, visual, and motor declines. For example, the Multifactorial Model for Enabling Driving Safety (Anstey et al., 2005) posits that the driving behavior (and hence crash risk) of older adults is determined by both their capacity to drive safely and their beliefs about this capacity. That is, there is no one-to-one relationship between driving ability and crash risk because drivers can take compensatory action to adjust for reduced ability by restricting their driving. This idea is consistent with evidence indicating that older drivers do restrict their driving (Baldock et al., 2006; Kostyniuk and Molnar, 2008; Marottoli and Richardson, 1998; Sullivan et al., 2011) and this self-restriction is associated with lower levels of driver confidence (Baldock et al., 2006).

The concern is that older drivers (in common with all drivers) may lack the necessary insight into their own driving capability, given that their self-ratings have been found to be unrealistic (Freund et al., 2005; Marottoli and Richardson, 1998). Consistent with this proposition, Ross et al. (2009) found that individuals who performed poorly in a useful field of view measure (a clinical index associated with crash risk) did appear to compensate for this decline by limiting their driving, but that they still experienced double the crash risk of those who performed well on the useful field of view test. That is, the self-imposed restriction of driving failed to neutralize the increased crash risk associated with poor useful field of view. Also, Ackerman et al. (2010) found that self-rated driving ability failed to predict older drivers' functional performance on measures of cognitive, visual, and physical abilities, and Marottoli and Richardson (1998) found no association between older drivers' self-ratings of driving and an evaluation of their on-road performance by an "experienced driving therapist". While we acknowledge the findings indicating that older drivers have similar crash rates to younger drivers who have similar annual mileage (Hakamies-Blomqvist et al., 2002; Langford et al., 2006), it is nonetheless worth investigating if this rapidly expanding driver group (Shinar, 2007) might be failing to moderate their crash risk as effectively as they could.

* Corresponding author. Tel.: +65 7 334 69520; fax: +65 7 336 54466.
E-mail addresses: m.horswill@psy.uq.edu.au (M.S. Horswill), karen.sullivan@qut.edu.au (K. Sullivan), jk.beck@qut.edu.au (J.K. Lurie-Beck), simon.smith@qut.edu.au (S. Smith).

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1.2. Limitations of previous research examining the realism of older drivers' ability ratings

The present study was motivated by limitations in previous work looking at the realism of older drivers' ability ratings that raise questions as to the validity of past findings. That is, it is possible that older drivers' insight in their own driving skill is not as unrealistic as has previously been concluded. These limitations include: (1) a lack of specificity in definitions of the target skill (where this ambiguity has been argued to account for reported self-rating biases), (2) ambiguity in the wording of the self-rating questions, and (3) the problem that self-ratings may reflect self-presentation concerns rather than genuine beliefs.

1.2.1. Lack of specificity in definition of the target skill

One critical limitation of work on "better than average" effects, in which individuals are asked to rate a particular ability on a scale with an "average" point and typically place themselves as superior to this point), is that self-serving biases could reflect a lack of specification of the target ability (e.g., Ackerman et al., 2002), where the greater the ambiguity, the greater the bias. To put it another way, it could be that if all ambiguity surrounding the target skill was removed then there would be no bias. The concept of driving ability could be argued to be a prototypical example of an ambiguous skill. For example, some may regard driving skill as the ability to park neatly, while others may view it as the ability to change gears more smoothly, or minimize crash risk, where these aspects may well be independent of one another.

1.2.2. Ambiguity in the wording of the self-rating questions

One method that has been used to evaluate self-ratings of performance is to ask participants to rate their confidence in the accuracy of their test performance as a percentage, after completing a computer test of hazard perception ability in driving (Horswill et al., 2011). Confidence ratings did not predict test performance. However it could be argued that the confidence question was ambiguous because the term "accuracy" was not qualified. Also the percentage scale used in the confidence question could have been interpreted in different ways. For example, it could have referred to percentile ranks, where drivers rated themselves compared with unspecified other drivers; or it could have referred to some absolute measure such as the percentage of hazards responded to. Horswill et al. also found that hazard perception test scores were unrelated to ratings of real world driving skill, but again this could be argued to reflect a lack of specificity in the question. For instance, when responding to the question about their real world driving skill, drivers may have been considering more traditional aspects of driving skill, such as vehicle control, rather than hazard perception.

1.2.3. Self-ratings may reflect self-presentation biases rather than genuine beliefs

Another issue affecting self-reports in general is whether "better than average" effects reflect genuine beliefs or whether they are an attempt at self-presentation. That is, participants secretly believe they are no better than average but wish to portray themselves in a positive light to researchers. This could be a particular issue for older drivers who may be sensitive to being considered poor drivers (which they might believe could lead to a loss of driving privileges).

1.3. The present study

The present study was designed to investigate the realism of drivers' ability ratings, while addressing the three issues raised above. We decided to examine older drivers in particular because of the likely importance of the realism of self-perceived skill ratings for the effectiveness of self-regulation strategies thought to be used by this age group. To deal with the lack of specificity in defining driving skill, we chose to focus on one particular driving skill, hazard perception, which has been defined as the ability to anticipate potentially dangerous situations on the road ahead. This particular skill was targeted because (1) it has been associated with crash risk (Cheng et al., 2011; Darby et al., 2009; McKenna and Horswill, 1999; Pelz and Krupat, 1974; Quimby et al., 1986; Wells et al., 2008), including in older adults (Horswill et al., 2010a), (2) it has been found to decline with age in older drivers (Horswill et al., 2008, 2009; Bromberg et al., 2012), where Horswill et al. (2009) found hazard perception response times of 75–84 year olds were slower than 35–55 year olds (though, consistent with other findings (Borowsky et al., 2010; Underwood et al., 2005), those aged 65–74 years were not slower than the younger drivers), (3) it appears to be associated with higher levels of self-enhancement bias than other driving skills, such as vehicle control (Horswill et al., 2004), and (4) it can be measured using objective validated tests (Borowsky et al., 2009; Chan et al., 2010; Horswill and McKenna, 2004; Pradhan et al., 2005; Underwood et al., 2011; Wetton et al., 2010, 2011). Tests of drivers' hazard perception ability are typically computerized measures using video footage of real traffic, in which participants indicate when they anticipate potentially dangerous events. Horswill et al. (2011) failed to find a relationship between performance on such a hazard perception test and older drivers' confidence in their test performance. However, as far as we are aware, this is the only existing research on this issue and, as previously noted, findings could be a function of the self-rating question used.

In the present study, aside from specifying precisely the aspects of driving skill to be targeted, we also examined judgments on performance in an objective hazard perception test on a scene-by-scene basis, with the goal of further minimizing any ambiguity as to what was being measured.

To address the problem of ambiguity in the self-rating questions, we used an instrument previously employed by Horswill et al. (2004), in which younger drivers rated themselves relative to the average driver. This instrument involved clarifying the definition of "average" with a definition ("50% better; 50% worse") and asking participants to also rate someone with the same "gender, age, occupation, driving training and experience" as themselves to use as a reference group (Horswill et al., 2004; Waylen et al., 2004).

Finally, we used accountability to address the issue of whether self-ratings reflected genuine beliefs rather than self-presentation. When participants were rating their perceived performance in the hazard perception test, we ensured that they were well aware that we had already measured their actual level of performance at the task (i.e. there was little motivation to fake good).

We hypothesized that older drivers' self-ratings of their hazard perception ability would predict objective measures of their hazard perception skill once the three stated limitations of previous work were addressed. If supported, this may suggest that perhaps the reliance on self-monitoring as a key route to maintaining older driver safety might not be as problematic as indicated by previous data. We also examined whether, consistent with previous research, self-enhancement biases were significant.

2. Material and methods

2.1. Participants

We tested 94 drivers aged 65 years and over, who were recruited from the local area (64% male, M_{age} = 71.31 years, SD_{age} = 5.03 years, age range: 65–90 years). Participant ranges on the Standardized Mini-Mental State Examination (MMSE) were between 27 and 30 (M_{MMSE} = 29.30, SD_{MMSE} = .89), indicating no gross cognitive