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ORIGINAL INVESTIGATION

"The closer you get …": age, attitudes and self-serving evaluations about older drivers

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Abstract The present study investigates the attitudes of older drivers and road safety measures with a particular focus on self-serving evaluations. Driving capacity is considered here as an indicator of awareness of age-related changes that may lead to a higher risk of self-stereotyping, motivating self-serving evaluations with advancing age. In order to test this notion, we used the perceived distance between one's chronological age and the age assigned to the social categories of "older driver" and "old person" as an indicator of age-group dissociation or identification, respectively. Self-serving evaluations were expected depending on the distance between chronological and subjective age estimates. In addition to this, we tested gender and age effects on the specific evaluations. A sample of 350 participants aged 19–88 completed an online questionnaire on negative and positive stereotypes about older drivers and road safety measures. Results indicated in general a more positive than negative view of older drivers; approval with measures to increase road safety by regulating older drivers was comparatively low. Female participants tended to agree more with negative stereotypes and regulative measures than male participants. Regression analyses revealed as well that increasing chronological age was associated with less agreement with negative stereotypes and measures for road safety. Differences between chronological age and subjective age estimates of when a person is old or an old driver were differentially related with the criteria. The closer the chronological age and subjective age estimates were the lower was the agreement with negative stereotypes and measures to regulate road safety. Findings underline in general that road safety enhancing efforts should avoid highlighting chronological age as the sole driving risk factor to circumvent negative stereotyping with ageing and unjustified driving cessation.

Keywords Older drivers · Awareness of age-related changes · Subjective age · Self-serving bias

Introduction

The over-representation of older drivers in serious casualty collisions per kilometres driven is observed in various countries (Insurance Institute of Highway Safety 2006; Loughran et al. 2007). This observation is all the more worrying as the proportion of older drivers is growing due to the ageing population. Projections show that around a quarter of all drivers will be aged 65 or more in Europe and US in 2030 (OECD 2001). The over-representation of older drivers in accidents is explained by an increase of risk factors (i.e. sensorial, physical, psychological) with increasing age leading to larger risks of accidents (Anstey et al. 2005). Moreover, poor survivability due to physical frailty and more frequent police reports when drivers involved in accidents are old contribute to this phenomenon (Cheung and McCartt 2011). Some data suggest that around one-half of the additional fatality risk of drivers aged 75 years or more might be due to frailty rather than unsafe driving practises, whereas healthy older adults who drive regularly are amongst the safest drivers (Langford

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et al. 2006). In summary, older drivers are typically perceived as at-risk drivers even though this might only be true for a small part of this group.

The idea that older drivers have an increased risk of accident is also linked to political discourses on the adequacy of measures aimed at improving road safety. Several measures such as regular medical examinations or road safety trainings are already or could be implemented in European and American countries (OECD 2001). However, the balance between safety and mobility is not easy to find and could be perceived as a violation of individual autonomy. Moreover, a large part of these measures is of a restrictive nature (i.e. driving licence restriction) and has sometimes shown limited efficiency to improve road safety (OECD 2001). The following study picks up these notions and investigates attitudes about older drivers and measures to increase road safety from the perspective of different age groups. Perception of driving capacity with advancing age is considered a prototypical case of awareness of age-related changes (AARC, Diehl and Wahl 2010), and the self-regulative strategy of age-group dissociation (Weiss and Lang 2012) is analysed as means to cope with negative stereotypes about older drivers.

Stereotypes about older drivers

Starting point of the current study is the question of how the social category "older driver" is perceived by the general population and which public attitudes about older adults and driving safety exist. Joanisse et al. (2012) discuss that both negative and positive on-road behaviours constitute central features of the social construct "older driver" but they also underline that stereotypes about older drivers are mainly negative. According to these authors, the most commonly held negative stereotypes are that older drivers are dangerous and unsafe drivers, a nuisance for other drivers and traffic, affected by several declines (i.e. physical, perceptual and cognitive), and uncomfortable behind the wheel; the positive on-road behaviours associated with older drivers are experience, prudence and courtesy.

Joanisse et al. (2013) illustrated the effectiveness of such stereotypes in a sample of highly functioning older adults. In an experimental design they compared subjects primed with the stereotype that older drivers are more often involved in accidents than other age groups with a group without such priming. Findings revealed that the first group under stereotype threat showed a significant lower performance in a driving simulator (measured by speeding, traffic light tickets, stop signs missed, centreline crossings, road edge excursions and simulator missed instructions) than the second group. In another driving simulator study with a comparatively small sample of younger adults, aged between 21 and 35 years, Branaghan and Gray (2010) showed that the implicit activation of an elderly stereotype was not linked to driving, but was associated with lower maximum speed and longer driving time.

Schmader et al. (2008) propose an integrated model of stereotype threat effects on performance that links the disruption of performance to the physiological stress response, the monitoring processes and the suppression of the negative thoughts and emotions primed by the stereotype. All these three mechanisms are suspected to consume executive resources, especially working memory, required for the performance task. This model is yet to be tested on driving performance, but data obtained by Yeung and von Hippel (2008) are congruent with the fact that stereotype threat diminishes the performance by a disruptive mental load. Similar findings are reported by Levy (1996) showing that subliminally activated age stereotypes affect self-evaluation and can change memory performance of older adults (see also Hess et al. 2003).

These results highlight the potential impact of negative stereotypes about older adults in general and about older drivers in particular on their road safety. Another possible negative effect of such stereotyping is an increase of driving cessations, which implies an in fact not justified deprivation of mobility and autonomy in older adults. Driving cessation is besides financial difficulties, or lack of access to a car often linked to anxiety during driving (Choi et al. 2012). Negative stereotypes about older drivers could lead to anxiety and thus accelerate the loss of confidence in one's own driving skills. Driving cessation may then lead to further consequences such as less out-of-home activities (Marottoli et al. 2000) and an increase of negative feelings such as depression or loneliness (Ragland et al. 2005; O'Neill 2000).

Awareness of age-related changes and coping with driving-related stereotypes

The concept of awareness of age-related changes (AARC) by Diehl and Wahl (2010) refers "to all those experiences that make a person aware that his or her behaviour, level of performance, or ways of experiencing his or her life have changed as a consequence of having grown older (i.e. increased chronological age)." (p. 340). The authors elaborate that differing states of awareness are triggered by experiences residing both within (e.g. subjective feelings of diminished capacity) and outside the person (e.g. reactions by others and social–structural conditions). This description perfectly matches the situation of older drivers since these may be confronted both with subjective experiences of a changed capacity as well as with the public discourse about the risk older drivers may represent due to potentially

diminished capacity. Moreover, driving is a domain that is highly important for the AARC because it is linked to several dimensions underlying this construct: driving capacity is clearly related to physical and cognitive functioning, also has consequences for interpersonal relations as well as for one's life style and engagement (see Diehl and Wahl 2010).

One can thus assume that specific experiences of diminished capacity with respect to this domain—in line with specific experiences in other domains of functioning—may lead to a greater awareness of having grown older. Such raised awareness is then linked to social stereotypes about human ageing—mostly described by a focus on age-related losses and decline—which may lead in turn to negative self-stereotyping and its various detrimental effects described above. It is here that self-regulative strategies are used to avoid this threat to the self. Diehl and Wahl (2010) describe these strategies triggered by AARC as psychological processes of personal meaning making and self-regulation of behaviour and they include theoretical models here proposed by Brandtstädter and Rothermund (2002), Heckhausen and Schulz (1995) or Baltes (1997).

The presence and effectiveness of coping strategies dealing with negative stereotypes is for instance suggested by findings showing a favourable social comparison of older drivers. When older drivers are asked to compare themselves with drivers of different age groups, they continue to show—comparable to the other age groups—an optimistic bias indicating that they have better driving skills and lesser accident risks than other drivers of the same age group or of younger age groups (Gosselin et al. 2010; Spitzenstetter and Moessinger 2008). Such a self-serving bias aims at the reduction of anxiety and the maintenance of self-confidence and it also suggests that negative stereotypes about older drivers do not completely alter their driving self-confidence.

We will focus here on the distance between one's chronological age and subjective age estimates of when people think one is an "old person" and one is an "old driver". Studies on subjective age estimates have shown a possible age-group dissociation described by the detachment from one's age group with respect to specific performance criteria. This also implies the devaluation of the diagnostic value that one's chronological age may have for one's performance and weakly identified older adults feel younger than their chronological age. Weiss and Lang (2012) showed for instance that older adults are more likely to psychologically dissociate themselves from their age group when negative age stereotypes are salient, and the salience of these stereotypes may be triggered by the growing experience of AARC. Consequently, the more one

grows old and the more AARC shows, negative age stereotypes will became salient and one may distance oneself from one's age group to protect one's self-esteem against negative age-related information (Weiss et al. 2013).

Similarly, one could assume that the estimation of one's driving capacity could be associated with a younger age than one's actual chronological age and thus become object to a self-serving dissociation. On the other hand, there are limits to such dissociation given that changes in one's physical and functional status may become so strong and impair daily activities to such a degree that they may no longer be object to self-serving interpretation and evaluation. Driving may represent such a domain since the effects of driving impairments may directly lead to immediate and deleterious consequences for the driver as well as all the other persons involved.

Finally, we would like to underline that driving capacity in old age as a trigger of AARC may be differentially perceived with respect to gender given that there are gender-based differences in health as well as double standards of ageing concerning the social construction of ageing for men and women. One could assume that female drivers show less agreement with negative stereotypes than males about older drivers because they probably are themselves victims of the stereotype that female drivers are more dangerous than male drivers (Yeung and von Hippel 2008). In addition, previous data showed that female respondents agree less with punitive policies in general (Gault and Sabini 2000) suggesting that they would also agree less with restrictive measures such as driving restriction or driving licence removal. However, the reverse results about stereotypes and restrictive measures are also possible due to women having higher empathy than men but, contrary to them, present a not significant correlation between empathy and forgiveness (Toussaint and Webb 2007). Due to this, women could also show a higher awareness of problems that exist with respect to older drivers and consequently show a more negative evaluation of this group both with respect to negative stereotypes and measures to guarantee road safety.

Research questions

The overall goal of the present study was to obtain insights into attitudes about older drivers as well as the evaluation of measures aimed at improving road safety with respect to older drivers. In line with findings indicating a self-serving bias, we hypothesized that agreement with negative stereotypes (e.g. more dangerous, more error prone) about older drivers will decrease whereas agreement with positive stereotypes (e.g. more experience, more responsible) will

increase with advancing age, indicating an identification with one's age group rather than a dissociation. Correspondingly, we also hypothesized that agreement with restrictive measures aiming at older drivers will decrease with ageing, reflecting a similar self-serving bias.

In addition, we assumed that the difference between the chronological age and the subjective age estimates could play a role in coping with stereotypes and restrictive measures to guarantee road safety. We distinguished between subjective estimates of (a) when someone is old and (b) when someone is an old driver and we expected the distance in age-related assessment for both to be associated with stereotypes and restrictive measures. In particular, we expected that with a low distance between one's chronological age and the age of an older driver—indicating an age-group identification—more positive and less negative attitudes will be self-servingly attributed to old drivers and less agreement with restrictive measures regarding older drivers will be expressed. On the other side, we were interested to see if there is an age-group dissociation with advancing age—indicated by larger differences between chronological age and subjective age estimates—and we wanted to investigate how this is related to stereotypes and restricting measures.

Two alternative hypotheses are possible with respect to the relation between gender and stereotyping. Given the fact that women are themselves stereotyped as poor drivers and have shown less agreement than men with punitive policies, one can assume that female drivers will show less negative and more positive stereotypes than male drivers, as well as less agreement with restrictive measures. On the other hand, the higher level of empathy expressed by women could also motivate female drivers to adopt more negative and less positive stereotypes towards elderly drivers, as well as more agreement with restrictive measures than male drivers.

Method

Sample

Data collection was achieved via an online questionnaire between April 24, and June, 10, 2013. Participants were contacted by comprehensive distribution lists provided by Alzheimer Luxembourg as well as the "Ministry of Sustainable Development and Infrastructures". Participants were also asked to forward the link to the questionnaire to other potentially interested persons. The questionnaire was available in German or French, two of the three officially recognized languages in Luxembourg. No rewards were being offered for study participation and criterion for participation was a driver's licence.

A total of 350 participants completed the questionnaire. Their mean age was 49.4 years old (SD = 14.9; min–max = 19–88) and 52.6 % of participants were women. All participants have a driving licence and 88 % of the drivers reported to drive almost every day (assessed by a 5-point Likert scale from "almost daily" to "less than once per month"). The mean distance travelled by year was less than 5.000 kilometres for 6.6 % of the participants, between 5.000 and 10.000 for 17.7 %, between 10.000 and 20.000 for 29.1 %, between 20.000 and 30.000 for 26.6 % and more than 30.000 kilometres for 19.4 % of the respondents. A Spearman correlation between age and driving distances showed a small but significant correlation of $r = -.21$ ($p < .00$) indicating that distances decreased with increasing age. The mean number of years since obtaining one's driving licence was 29.9 years (SD = 14.4; min–max = 0–69). Trivially, this number of years correlated highly positive with age ($r = .98$, $p < .00$).

Measures

Attitude measurement

Participants filled out a newly constructed self-report questionnaire comprising several scales relevant for this study. A first part assessed "stereotypes about older drivers" and the second part addressed "measures to increase road safety aiming at older drivers". The items of the questionnaire were extracted from specific literature about stereotypes regarding older adults and about policy measures to reduce driving age-related risk. Participants evaluated the items on a 5-point Likert scale ranging from *don't agree at all* to *fully agree*, with a possible neutral answer (*without opinion*). Wordings as well as descriptive statistics (relative response frequencies per item, means and standard deviations) for all items are presented in Table 1.

Stereotypes about older drivers

This part contained $k = 12$ items describing common stereotypes regarding older drivers. Seven items were about negative stereotypes (e.g. "older drivers cause more accidents than younger drivers"; "older drivers make more driving errors than younger drivers") and $k = 5$ items were about positive stereotypes regarding older drivers (e.g. "older drivers are more thoughtful than younger drivers"; "older drivers comply exactly with the speed limits"). A principal axis analysis with Varimax rotation was performed on this scale, with KMO = .88 and Bartlett's test of sphericity significant ($p < .001$). A two-factor solution was accepted explaining a total variance of 44 % and reflecting the distinction between negative and positive

Table 1 Response frequency distribution, means and standard deviations for the items measuring positive and negative stereotypes about older drivers as well as measures to increase road safety with respect to older drivers

Item text	Don't agree at all	Don't agree	Neither agree nor disagree	Agree	Fully agree	M	SD
Stereotypes about older drivers							
Older drivers are quickly overwhelmed with the traffic situation	4.6	14.6	18.3	51.4	11.1	3.50	1.02
Older drivers cause more accidents than younger drivers	18.3	38.9	33.7	8.0	1.1	2.35	.91
Older drivers make more driving errors than younger drivers	9.4	37.1	31.4	18.3	3.7	2.70	1.00
Older drivers overestimate their driving capability	9.1	33.4	18	32.3	7.1	2.95	1.14
Older drivers comply exactly with the speed limits	3.1	17.7	16.0	51.1	12	3.51	1.03
Older drivers are the more reasonable drivers.	2.6	17.4	32.9	40.9	6.3	3.31	.92
The increase of older drivers may pose a potential safety threat	6.6	28.3	28.6	32.0	4.6	3.00	1.02
Older drivers tie up traffic	6.6	23.7	26.9	36.3	6.6	3.13	1.05
Older drivers are more thoughtful than younger drivers	2.9	19.7	26.6	42.6	8.3	3.34	.98
Older drivers react more slowly than younger drivers	.9	5.1	8.3	55.4	30.3	4.09	.81
Older drivers have the most experience in traffic	2.3	14	23.1	48.4	12.6	3.55	.96
Older drivers are more peaceful	2.3	15.4	31.7	43.7	6.9	3.37	.90
Measures to increase road safety							
The drivers licence should be suspended by the first signs of dementia	1.7	12.6	10.6	42.3	32.9	3.92	1.04
Older drivers should pass a road safety training frequently	4.0	15.4	14.3	46.0	20.3	3.63	1.09
Older drivers should only do short trips by car	11.1	38.3	17.4	28.0	5.1	2.78	1.13
Older drivers should not be permitted to drive during darkness	20.0	37.7	23.4	15.4	3.4	2.45	1.08
The drivers' licence of people over 75 should be automatically suspended	48.9	32.6	9.1	6.6	2.9	1.82	1.03
Drivers over 65 should pass a roadworthiness test every two years	19.7	20.6	11.7	37.4	10.6	2.99	1.34
In case of noticeable excessive demand, older drivers should voluntarily give back their drivers licence	1.4	6.0	8.9	51.4	32.3	4.07	.88
The automobile manufacturer should provide the technology to enable older people to drive to drive safely for a long time	4.0	12.9	22	33.4	27.7	3.68	1.13

stereotypes. The derived subscales correlated significantly with $r = -.41$ ($p < .001$), showing that participants who agreed the most with the negative stereotype subscale agreed less with the positive stereotype subscale and vice versa. The internal consistencies for the negative stereotype subscale ($\alpha = .86$) and positive stereotype subscales ($\alpha = .74$) were quite good. The difference between the factor-analytically derived subscales was significant ($t(349) = 5.00$, $p < .00$) indicating that positive stereotypes about older drivers ($M = 3.41$, SD $= .66$) received a higher agreement than negative stereotypes ($M = 3.10$, SD $= .75$).

Measures to increase road safety

This part comprised $k = 8$ items, some of these describing restrictive measures regarding older drivers such as "the drivers licence should be suspended by the first signs of dementia". One item proposed adaptations of the cars to guarantee road and traffic safety and was recoded in consequence. Again, a principal axis analysis with Varimax rotation was performed, with KMO $= .75$ and Bartlett's test of sphericity significant ($p < .001$). Here, a one-factor solution (accounting for 31 % of the variance) was accepted reflecting measures to increase road and traffic safety with respect to older drivers. The internal consistency of this scale (MEASURE) was quite satisfactory with $\alpha = .74$. The mean score ($M = 2.99$; SD $= 65$) depicting approval of measures to increase road safety significantly differed both from agreement with positive stereotypes ($t(348) = 7.30$, $p < .00$) and negative stereotypes ($t(348) = 3.29$, $p < .00$). Thus, agreement with measures controlling older drivers was in general lower than agreement to both stereotypes.

The score derived on the basis of the principal axis solution correlated significantly with the negative stereotype subscale ($r = .64$, $p < .001$) and the positive stereotypes subscale ($r = -.35$, $p < .001$). The difference between these two correlations was significant ($z = 5.17$, $p < .001$) indicating that the agreement with measures to guarantee road safety showed a significantly stronger association with negative than with positive stereotypes towards drivers.

Subjective age estimates

Two indicators of age-group dissociation were obtained by age estimations concerning the social categories "old driver" and "old person". In particular, we asked "at what age do you estimate that a driver is old?" and "at what age do you estimate that a person is old?"

Results

Subjective age estimates

Table 2 shows the distributions resulting for the two questions about when one can be considered an "old driver" and about what age one can be described as old. In total, respondents chose here six or seven age boundaries marking the age at when one is an "old driver" (60 to 85 years) or and old person, respectively (60 to 90 years). These values accounted for over 90 % of all valid responses to the questions. Responses not described in Table 2 reflected individual estimates between these modal values. With respect to the mean values, the age of an "old driver" ($M = 69.84$, $SD = 6.99$) was estimated lower than the age of an old person ($M = 75.83$, $SD = 7.91$). The mean difference of 5 years was significant with $t(348) = -12.31$ ($p < .001$). The paired samples correlation between the two scores was significant and positive with $r = .49$ ($p < .001$) indicating a trend that high ratings in one category were associated with high ratings in the other one.
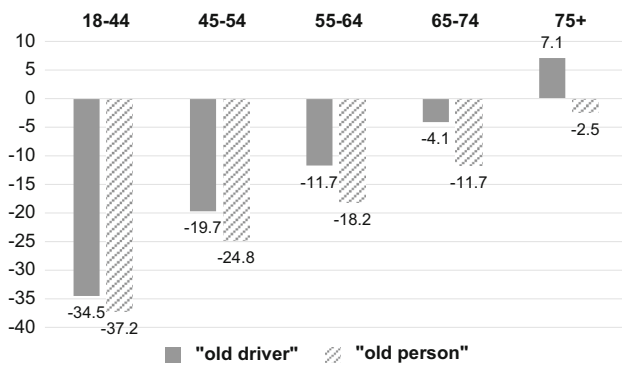
The differences between chronological age and the two subjective age estimates that serve here as an indicator of age-group identification or dissociation reflected this ratio. The mean distance between one's chronological age and the age of an "old driver" was $M = -20.45$ ($SD = 14.8$) showing a range between a minimum value of -51 years to a maximum of 22 years. The distance between oneself and an "old person" varied between a minimum of -62 years and a maximum of 6 years with a mean of $M = -25.45$ ($SD = 13.0$). Both estimates correlated substantially with $r = .86$ ($p < .00$) and significantly differed at the mean level ($t(348) = 12.31$, $p < .00$) indicating that the distancing to "old person" was more pronounced than to the category "old driver". Overall, distributions for both variables showed a clear tendency to distance oneself from being "old" as a driver or as a person. The value 0 indicating no age difference with an "old driver" showed only for three participants, and only 30 participants (8.6 %) estimated oneself older than this target. This distribution was even more pronounced with respect to the difference between chronological age and age of an "old person"; here, only one participant obtained a value of 0 and seven persons showed a positive difference indicating that they had a higher chronological than the subjective age.

Figure 1 depicts the differences resulting between the age estimates of the two target groups and chronological age within five age groups contrasting groups of young (18–44; $n = 130$), middle (45–54; $n = 101$) and late adulthood (55–64; $n = 45$) with groups of "young old" (65–74; $n = 60$) and a group of 75 and above at the end of this age period ($n = 14$). All groups thus represent different life periods with differing developmental tasks and challenges. The mean comparisons between these groups showed that the amount of the differences is highest within the youngest age groups and lowest in the two oldest groups. The distance to the category of "old driver" gets lower across the age groups and reaches a positive value in the oldest group considered here. Respondents in this group thus estimated themselves older than what they considered the age of an "old driver". The difference to the category "old person" decreases as well but the mean value still indicates that respondents in the oldest groups judged themselves younger than this target. F-statistics obtained in this analysis were highly significant indicating a common variance between chronological age and the difference to "old driver" of $\eta^2 = .73$ ($F(4/349) = 231.4$; $p < .00$) and

Table 2 Multiple modes of the distributions resulting for two questions about subjective age of an "old driver" and an "old person"

Age	Frequency	Percent	Age	Frequency	Percent
At what age do you estimate that a driver is old?			At what age do you estimate that a person is old?		
60	37	10.6	60	12	3.4
65	57	16.3	65	31	8.9
70	114	32.6	70	82	23.4
75	73	20.9	75	65	18.6
80	44	12.6	80	99	28.3
85	1	.6	85	31	8.9
			90	11	3.1
Total	326	93.6		331	94.6
M	69.84		*M*	74.83	
SD	6.99		*SD*	7.91	

Fig. 1 Mean values of differences between chronological age and age of an "old driver" and an "old person" across five age groups

to "older person" of $\eta^2 = .66$ (F (4/348) = 170.0, $p < .00$). Since differences did not or not pronouncedly show in the two oldest groups, these findings challenge the notion of an age-group dissociation in this age range with respect to driving capacity.

Prediction of stereotypes and measures to guarantee road safety

We performed multiple regressions to predict differences in agreement with positive and negative stereotypes as well as measures to increase road safety. Age, gender and the difference variables computed between chronological age and estimated ages of an "old driver" and "an old person", respectively were included as predictors.[1] We also considered the scores indicating agreement with positive and negative stereotypes as well as with measures to increase road safety in the specific regressions to control for their common variance. Driving practise—as potential control variable—was excluded from the analysis given its high correlation with chronological age.

Results of these analyses are summarized in Table 3 and they show that partialling out the common variance between predictors lead to differing regression equations for the specific criteria. The agreement with *negative stereotypes* was predicted by five significant predictors: agreement with positive stereotypes ($\beta = -.41$; $p < .00$) and measures to increase road safety ($\beta = .64$; $p < .00$) went along with lower or higher agreement with negative stereotypes, respectively; chronological age ($\beta = -.34$, $p < .001$) obtained the strongest weight of the remaining predictors indicating that agreement to negative stereotypes was lower in older age groups; gender ($\beta = .05$,

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[1] We did not include an interaction term "gender x age" reflecting a double standard of ageing due to the distribution of the age variable; a t test showed that male participants ($M = 54$, $SD = 13.5$) were significantly older than female respondents (t (331.9) = −5.84, $p < .00$).

$p = < .00$) contributed as well to the prediction and the beta indicated a greater consent with negative stereotypes by women; the significant weight obtained for the difference between one's age and the age of an "old person" ($\beta = .20$; $p < .01$) showed that the smaller (greater) the distance the less (more) the agreement with negative stereotypes. The difference to the estimated age of an "old driver" did not gain significance in this model that explained 52 % of the criterion variance.

Agreement with positive stereotypes was negatively predicted by consent with negative stereotypes ($\beta = -.27$, $p < .00$). No further predictor gained significance in this analysis which accounted for 18 % of the criterion variance.

The regression of agreement with measures for road safety identified four significant weights explaining 43 % of the total variance. Agreement with negative stereotypes towards older drivers ($\beta = .64$, $p < .00$) predicted a high consent with the specific measures of road safety; agreement with positive stereotypes gained no significant weight here. Chronological age ($\beta = -.22$, $p < .001$) obtained a positive coefficient indicating that agreement to the measures decreased with advancing age. The difference of one's age to the age of an "old driver" obtained a positive significant weight ($\beta = .28$, $p < .001$). This signifies that the smaller (greater) the difference to this category the less (more) the agreement with the specific measures. A further significant beta showed for gender ($\beta = -.11$, $p < .00$) indicating a stronger agreement to these measures in the female sample.

Since subjective age estimates were closer to one's chronological age in age groups above 65, we also tested if the predictive weight of the distances accounts for differences in agreement to stereotypes and measures of road safety in this age group by collapsing the last two age groups already mentioned above ($n = 74$; $M = 70.8$ years, $SD = 4.95$). These analyses showed that the differences to an "old person" and an "old driver" did not predict agreement with positive and negative stereotypes within this group. Solely for consent with measures concerning road safety the distance to "old person" gained a significant negative weight ($\beta = -.30$, $p < .00$) suggesting that distancing—described by larger differences with one's age—went along with higher agreement to these measures.

Discussion

This study considers driving capacity to be a trigger of AARC that may motivate self-serving evaluations to avoid negative stereotypes associated with ageing in general and being an old driver in particular. Descriptive findings obtained in the study demonstrate that there is no clear-cut

Table 3 Results of regression analyses relating chronological age and distance from an "old driver" and an "old person" with negative and positive stereotypes, as well as measures for road safety

Predictor	β	t-value	p	Zero order r	Partial r
Negative stereotypes ($R^2 = .52$; $F(6/342) = 62.64$, $p < .001$)					
Positive	−.16	−3.94	.00	−.41	−.15
Measures	.43	6.57	.00	.64	.43
Age	−.34	−3.66	.00	−.50	−.14
Gender	.05	1.14	.00	−.12	.04
D "age—old driver"	−.12	−1.31	.19	−.40	−.05
D "age—old person"	.20	2.48	.01	−.35	.10
Positive stereotypes ($R^2 = .18$; $F(6/342) = 13.72$, $p < .001$)					
Negative	−.27	−3.94	.00	−.41	.09
Measures	−.12	−1.83	.07	−.34	−.19
Age	.21	1.73	.09	.30	.08
Gender	.02	.39	.70	.10	.02
D "age—old driver"	−.13	−1.07	.28	.22	−.05
D "age—old person"	.02	.19	.85	.01	.01
Measures ($R^2 = .43$; $F(6/348) = 45.74$, $p < .001$)					
Positive	−.08	−1.83	.07	−.34	−.07
Negative	.57	11.54	.00	.64	.46
Age	−.22	−2.17	.03	−.37	−.09
Gender	−.11	−2.44	.01	−.19	−.10
D "age—old driver"	.28	2.89	.00	−.23	−.12
D "age—old person"	−.08	−.89	.38	−.28	−.04

evaluation of older drivers in the sense of a predominant negative view. Mean value comparisons reported in the method section of this paper showed in general that participants reported significantly more agreement with positive than negative evaluations of older drivers, which is contrary to the findings described by Joanisse et al. (2012). Although we cannot exclude that this finding may be due to social desirability, the anonymity of the chosen method of an online survey, however, supports an interpretation that underlines the more positive view as expression of a general view.

Moreover, approval of measures to increase road safety was lowest compared to both positive and negative stereotypes. This might express a generally more lenient—and self-serving—evaluation motivated by the fact that these measures may be more threatening to the self than negative stereotypes. Low agreement with measures aimed at restricting (controlling and depriving) older drivers may also reflect a value judgement linking driving capacity to the value of mobility—and associated with this—autonomy in old age. Since approval of restrictive measures may reduce mobility, the comparatively lenient assessment may also indicate the general high value which is accorded to mobility and autonomy.

The central message of these descriptive findings is that promoting measures of road safety that address older drivers should offer comprehensive information and sound evidence about why this has to be done, i.e. referring to

potential limitations and pitfalls. It should also be highlighted that these measures are not necessarily linked to chronological age per se since some limitations and impairments (e.g. eye sight, effects of medication, alcohol or other drugs) apply for each period of life even though they may show a heightened probability with increasing age. Focusing on the older person as the sole object of preventive efforts may also lead to a consolidation of negative stereotypes that negate the apparent variability and plasticity of the ageing process in general and the capability of "older drivers" in particular. Moreover, focusing on "the" older driver may also lead—via introjection of such evaluations—to unjustified driving cessation, depriving older persons from a significant part of mobility and, hence, autonomy.

Descriptive analysis also confirmed that "old driver" and "old person" represent distinct social categories—the first one being estimated considerably "younger" than the second one. Different judgment criteria (e.g. comparison dimensions and targets) and different strategies may thus underlie the estimations of these two categories. Findings also hint that driving capacity is a significant trigger of AARC in the individual biography of drivers. This assumption is supported by the notion that changes in driving capacity that have direct effects on the driving performance leading to challenging situations are—due to directness of this experience—less open to self-serving reinterpretations. Furthermore, as noted above, driving capacity is crucially

linked to several further dimensions of AARC, especially physical and cognitive functioning, and a reduced capacity will have evident consequences for interpersonal relations as well as for one's life style and engagement.

Two research questions addressed the role of chronological age and the perceived distance to the categories of "old person" and "old driver" as a potential coping strategy to deal with stereotypes and measures to increase road safety. When discussing the findings of the present study, we would like to emphasize that the study is correlational in nature and therefore does not permit any causal references between the variables under study. Regression analysis was used to test if the distance to the social group of "old drivers" and to the category of an "old person" was associated with different views on stereotypes and safety increasing measures.[2] The regression analyses showed that chronological age gained significant predictive weights for two criteria, namely agreement with negative stereotypes as well as with the measures to improve road safety. Compared with positive stereotypes these two measures represent the indicators with the highest threat potential to the self which may explain why they are associated with chronological age.

Distancing oneself from old drivers was particularly important for the agreement to measures regulating road safety; persons with decreasing distance reported less agreement to these measures that aim to control older drivers and try to compensate for a potential age-correlated reduction of capacity. Distance to an "old person" had a specific impact on the agreement with negative stereotypes since persons with decreasing distance reported significantly less agreement with these. In summary, these findings underline the importance of chronological age when dealing with stereotypes showing that the closer one gets to the age of an "old person" or "old driver" the less one agrees with negative stereotypes and specific measures to improve road safety with respect to older drivers.

In addition to this, mean comparisons showed that the differences to both groups get smaller with increasing age and results obtained for the subgroup of the older adults above 65 years revealed that differences between age estimates and chronological age showed no significant relation with agreement to negative and positive stereotypes. Only consent with measures for road safety was predicted by the perceived distance to the age of an "old person" in

this group—persons showing a weak identification as indicated by larger differences showed higher agreement with these measures, whereas respondents with lower differences agreed less. Since the difference with an "old person" was associated with this measure in the analysis using the total sample, this finding hints that only the target "old driver" may allow for distancing from one's chronological age in advancing age leading to different evaluation of the considered criterion.

Regression analysis provided two interesting gender differences with respect to the approval of the attitudes under study. Results indicated that female participants tended to agree more with negative stereotypes about older drivers as well measures to regulate road safety. This finding can be related to the above-cited findings by Toussaint and Webb (2007) about empathy and forgiveness in men and women. Our results are in favour of the assumption that due to a higher empathy than men, women have a higher consciousness of problems that exist with respect to older drivers. Consequently they approve more with negative stereotypes about older drivers as they agree more than men with restrictive regulations. The empathy-driven motivation of such a decision would be to reduce the potential dangers that driving with physical and functional impairments may have to the community. Given the small effect size of the findings, however, one should be careful in not over-interpreting these gender differences. The results indicate however, that it will be an interesting future research question to inspect the reasons and arguments for a gender-specific view on driving that are so to say behind the evaluations observed here. Especially differing levels of empathy may play a significant role here. In general, different gender-related AARC and different consequences of this gets evident here as well.

Taking all these findings into account, analyses indicate that chronological age represents the strongest predictor for negative stereotypes and measures for road safety as the most threatening factors for the self in old age. With advancing age people seem to less agree with negative stereotypes and specific measures which may be motivated by the need to protect one's self-evaluation. Results also indicate that an age-group dissociation appears more difficult to achieve with increasing age in general as well as with respect to driving in particular. The latter represents a domain of AARC which leaves less interpretative space for a self-serving evaluation.

Closing, we have to underline as a limitation of the present study that data were collected by an online survey and are thus object to limitations underlying such an approach (e.g. Cook et al. 2000). We certainly have a selective sample here and following this is a non-response bias. Nevertheless, the results give starting points for further studies. Findings in the sample underline that

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[2] One could question if the theoretical status of predictors and criterion could be changed, the approval with stereotypes being the predictors of subjective age estimations. Since we assume that distancing oneself in terms of age represents the expression of a self-serving motive to avoid stereotyping oneself as older driver with specific limitations we chose agreement to stereotypes to depend on these indicators of age-group dissociation.

preventive efforts should avoid negative stereotyping by highlighting chronological age as the sole reason for risks associated with driving. On the other side, such measures should also be aware of self-serving biases and pick up this issue when developing specific educational material addressing older drivers. Lastly and nearly trivial, one should also have in mind that risks associated with driving occur across the entire life span and do not represent a specificity of old age.

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