

EXPLORING FACTORS THAT INFLUENCE VEHICLE PURCHASE DECISIONS OF OLDER DRIVERS: WHERE DOES SAFETY FIT?

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Summary: Vehicle design features that enhance safety can mitigate older driver frailty and declines in ability. We have investigated the older driver's perception of vehicle safety and how this influences their vehicle purchase. Focus groups ($n = 27$) were conducted among drivers aged 70-90 in South-Western Ontario. Questions focused on participants' perceptions of vehicle safety and design, the vehicle purchasing process, and resources used therein. Participants emphasized the importance of a few standard safety features (e.g., seatbelt, reliable brakes) but de-emphasized the role of safety on their purchase decisions. Safety was superseded by other purchasing considerations, most notably price. Stressful dealer-buyer interactions and poor congruency of information created barriers. Purchasing aids for older drivers should be developed that speak to the spectrum of safety technologies and emphasize the relationship between safety and other design features on driving ability.

INTRODUCTION

Driving is critical to independence and successful aging for many older adults (Oxley & Whelan, 2008), yet this group of vehicle users are more vulnerable to injury and mortality in crashes than younger drivers (e.g., Evans, 2001), and are burdened by physical and cognitive impairments that can impact driver safety (e.g., Anstey, Wood, Lord, & Walker, 2005). To keep older drivers safe while on the road, researchers are beginning to consider the role of the driving environment, including vehicle design features (Vrkljan & Miller-Polgar, 2005). When evaluating which design features will best serve the safety needs of older drivers, it is also critical to consider the older driver's perception of the efficacy and value of these features. Currently, many resources support the use of specific automotive features for older drivers, and some directly address their unique safety needs (e.g., Herriotts, 2005). However, it is unclear whether the older driver's definition of vehicle safety is congruent with these findings. Furthermore, few researchers have focused on the influence of safety in older drivers' purchasing decisions and the relationship between safety and other purchasing criteria (e.g. convenience, accessibility, brand loyalty, price). Older drivers have been shown to favour luxury, size, and comfort in vehicle purchase (Coughlin, 2005), but the relative prioritization of safety is unclear. Finally, attention must also be paid to the sources of information that older drivers consider when purchasing a vehicle. This type of investigation is necessary in order to tailor safety-related information more effectively towards older drivers at the time of vehicle purchase (Vrkljan & Anaby, In Press). The purpose of our study was twofold: 1) to explore the knowledge and use of automotive design features among older drivers with a particular focus on safety, and 2) to examine the purchasing decisions of older drivers and the influence of safety considerations on their vehicle purchase. In so doing

we chose a focus group approach to facilitate depth of understanding and synergistic responses among older participants (Morgan & Krueger, 1998).

METHODS

This study was approved from the Hamilton Health Sciences Research Ethics Board. Participants were selected from a database from another project involving older drivers; original recruitment took place through newspaper advertisements. To be included in the study, participants had to be at least 70 years old with a valid driver's license. A total of, 27 participants (20 male, 7 female) were recruited to participate across 4 focus groups. Group sizes (6-8 per group) were consistent with those suggested by Morgan and Krueger (1998). Participants ranged in age from 70 to 87 years (mean = 79, SD = 4.95) and reported driving between 50-750 km per week (mean = 235); driving experience ranged from 54 to 78 years (mean = 63.2 years). The most common vehicle type driven was a 4-door car sedan (44.8%) followed by the minivan (17.2%), 2-door car and SUV (10.3%). Overall self-reported health assessments among participants were positive (mean rating of 4.2/5, with a '1' being 'very poor' and a score of 5 indicating 'excellent') for general physical health as compared to others in their respective age group.

Focus groups were conducted in July 2010, with a follow-up session in October. The follow-up session was conducted in order to allow an opportunity for member checking whereby participants affirmed themes distilled from the first session as well as to provide further depth to these themes, if necessary. A structured protocol was used to facilitate the first session (i.e., one main moderator and one assistant moderator to record comments). Questions during this session focused on eliciting information about vehicle purchasing experiences, sources of information when purchasing a vehicle, dealer(sales staff) – driver interactions, as well as the influence of safety and other features on their purchase decision. Participants were asked to describe the process by which they decided on a vehicle purchase, including identifying key information sources. They also prognosticated the sorts of things they would consider important with regard to vehicle design and design influenced their purchase decision.

Sessions were transcribed verbatim using audio- and video-recordings and written notes (Kidd & Parshall, 2000); finished transcripts were independently reviewed and systematically coded using an open coding process to highlight emergent themes. Morgan and Krueger (1998) identified that saturation is typically reached after four to six focus group sessions, although this number might depend on the topic being explored. Investigators later discussed and compared emergent themes (Morgan & Krueger, 1998) and saturation with respect to themes was determined. A third party peer with expertise in older driver research impartially assessed the research process, including the determination that saturation was reached.

RESULTS

Perceptions of vehicle safety among older drivers

Participants equated feeling safe in a vehicle if it was equipped with certain design features, including seatbelts, airbags, power steering and reliable brakes. Seatbelts, in particular, were seen as a critical safety feature, as one participant stated: "How long have we been using

seatbelts? ...Like, you have to wear a seatbelt...you'd be crazy not to..." [male, age 71]. In reflecting on their driving history, participants noted that vehicle design had advanced citing the seatbelt as just one of many example. With these advancements, some indicated few notable differences between the safety of one vehicle model versus another, or even between manufacturers: "You can't buy a bad car anymore. You can find a better one, but you cannot buy a lemon. Most cars are okay." [male, age 84]

When discussing advancements in vehicular telematics, there were conflicting responses with respect to their utility. Participants debated the merits of Global Positioning Systems (GPS) and entertainment systems on the basis of their potential for distracting drivers. Pros and cons were discussed with some feeling adaptive cruise control, for example, was good with respect to improving safety, whereas others perceived it as taking vehicular control away from the driver with associated consequences. Overall, features that could distract drivers were not seen as advancement, as one participant remarked: "Bells and whistles are not a good thing for me. ...Because, when a whistle blows, you think 'where'd that come from? Did it come from there, or there, or there? Where?'" [male, age 71]

Participants emphasized the ability of drivers, including training and driving habits, as critical to safety. Vehicle technologies could never compensate for poor driving habits. A participant remarked: "...they can make a glass that doesn't kill you, it shatters, and that's fine. ...But, there is nothing you can do when somebody is not a good driver." [male, age 78] Staying focused on the driving task and having good habits, such as routinely performing shoulder and mirror checks, were emphasized. Participants agreed that even when technology was hands-free, it still posed a distraction to the driver. In reference to hands-free phone technology, one participant stated: "...Do you know that it doesn't matter about the hands-on and hands-off? [referring to technology]? It's the fact that your brain is talking to somebody...and you're not paying attention." [male, age 71]

Factors influencing the vehicle purchases of older drivers

Price & Fuel Efficiency. Price was identified as the key factor that influenced vehicle purchase decisions. One participant framed price as the desired outcome in a challenging interaction between the prospective car buyer and the dealer: "Price has got to be involved and really be of interest, because you're dealing with an item that's in the 20 or 30 thousand dollar range... You want every nickel you can get off these guys." [male, age 85] In addition, some participants expressed frustration at the "bundling" of extraneous vehicle design features they felt did not merit the associated costs: "I don't want a sunroof. But if I want A, and a sunroof is D, I gotta buy A, B, C. ...You've gotta buy the package. And to me, that's wrong." [male, age 78] Another participant, a retired car dealer, commented on how the industry has changed: "If I were to go back today, I wouldn't know what the companies are paying the dealers for the cars. They'll sell 'em, the cars to the dealers, today, at invoice, bottom line. But if you buy 10, you might get 1 free, or you might get 4 or 5 free, today. And then, so, what is the bottom line?" [male, age 80]

Fuel efficiency, which participants considered in their overall cost of the vehicle, was also listed as an important consideration. A participant described regretting the purchase of his current vehicle: "I find it heavy on gas for a 3.5 L engine. Because my Oldsmobile, which is a lighter

car, 3.8, or the Blazer I had was a 4.3, and my driving habits were the same, and the Blazer was an all-wheel drive like the Pacifica, the Blazer was easier on gas.” [male, age 81]

Visibility, adjustability, and accessibility. When asked to identify factors that influenced their vehicle purchase, features were grouped according to visibility, adjustability and accessibility. Of these, visibility was explicitly linked to safety. Participants commented that visibility around their car had become increasingly important to them in recent years: “When the car starts to go like that [draws the sloping curve of the car with his finger] and you don’t know whether – the end of the car is here, or here, or here. [points to different parts of the curve] Then you don’t know how close you can get, particularly when your parameters are that much less” [male, age 73]. Another participant specifically attributed this fault to design engineers who he viewed as more concerned about aesthetics than safety: “I find a lot of the manufacturers now are doing this, they’re shortening the windows. Chrysler’s particularly bad for that. They look beautiful on the road, but to see outside though, that’s a problem.” [male, age 72]

In addition to visibility, adjustability and accessibility were highlighted as important considerations when purchasing a vehicle. Participants raised the importance of having a vehicle that accommodated their changing needs and that of their older passengers, as one participant expressed: “It’s another feature that my wife would like. She’s not as tall as I am, and...she likes to drive with her hands out...but then, she can’t reach the pedals. And you know, some vehicles now have pedals that come up...and also seats that can go farther forward than they used to be able to, for sure. So I think adjustable pedals are good.” [male, age 72] Similarly, participants identified that having a vehicle that suited their physical needs was critical. Ease of entry and egress for a passenger with mobility issues influenced one participant’s vehicle purchase as he described: “I bought it [my jeep] mainly because my wife’s got arthritis...and it’s much easier for her to get in and out...” [male, age 70]

Dealer-older buyer interactions. Participants found their interaction with service and sales associates at car dealerships frustrating at times. Problems included the presence of inexperienced staff; a competitive atmosphere among sales people; lack of reliable price information; amongst other issues. Dealers were sometimes remarked upon as a source of stress during the purchasing process, making it hard to reconsider a purchase after a certain point (one participant described helplessly, “Yes, I know I was ripped off, and I’ve got it in writing. ...My car was already going in, so I really couldn’t back out of it, it was very hard.” [female, age 84]) Dealer pressure also limited the ability of the driver to adequately assess the vehicle’s performance capabilities: “You make a big investment in this vehicle, you’re going to keep it, for probably 5 to 10 years...and you’re driving around the block, and you feel a little constrain because the salesperson’s with you and they’re trying to push you to buy it...” [male, age 71]

For female participants, trustworthiness of the dealer was important, as one participant stated: “I’d like to speak as a single woman - the lies that the salespeople tell...women...they think you know nothing about cars. ...And so, I just write them off and I go to another dealership. Even if I have to go far away...to a salesman I trust.” [female, age 77]. Although participants found it challenging to articulate what personal or professional qualities would cause a dealer to project a sense of trustworthiness, one participant felt that first impressions influenced future interactions: “One dealer, I simply didn’t go back in because I wasn’t impressed with him. ... I just got a

feeling, I guess, that I didn't want to buy from him. And, just his attitude, on what he would give me for a trade in for my old one, things like that." [female, age 79] Another was more direct: "Just tell me the truth about things." [female, age 77]

Resources that inform vehicle purchase decisions in older adulthood. In selecting a vehicle, participants used numerous information sources. Participants reporting using the Internet to help guide their vehicle purchase decisions: "I'm an Internet person. ...Just start wandering around 'till I find what I want, and maybe even print the sheet out sometimes." [male, age 70] Another made sophisticated use of online forums: "I just think there are a lot of forums out there, it'd be like "Corolla owners: pros and cons", then you ask questions about features, like "this was what I liked, this is what I don't like", and most of the cars have those." [male, 77] Other participants read specific consumer's guides for cars, such as the Consumer Reports and Lemonaid reviews (<http://www.lemonaidcars.com/>). Still other participants sought the advice of a trusted mechanic or a knowledgeable family member.

Finally, participants vouched for the apparent usefulness of personal experience - renting a vehicle of interest for a test drive or testing the vehicle immediately after purchasing it by taking it for an extended trip. For example, one participant described a family trip that put her purchase into perspective: "...We thought we'd go to the sports model...we took it, we drove to Florida and back in it, we didn't like it at all. It had a bumpy ride, and it's because the wheels were smaller, for one thing, and it just wasn't what we liked at all. So we traded it in for a different model..." [female, age 83]

Contrary to expectations, participants doubted the veracity of the NCAP star ratings, and did not rely on this measure when shopping. One participant felt that the conditions under which crash tests took place could not mirror authentic driving conditions: "Well, it's just the same as the EPA rating, on - you know what they do? They drive the car at 47 miles an hour...on a roller, which they can't do on an all-wheel drive vehicle, but they take it from the others, and - there's no wind resistance!" [male, age 81]

DISCUSSION

In this study, we explored the knowledge and attitudes concerning vehicle design features with respect to safety. In particular, we were interested in examining the process of purchasing a vehicle in older adulthood using a focus group approach with older drivers. Participants described a small number of features that were integral to their personal definitions of safety: seatbelts, power steering, and reliable braking. Airbags were also identified as a built-in feature that provided safety benefits. The safety features identified by these participants as critical to their definition of driving safety in terms of vehicle design stood in contrast to the diverse number and categories of features previously identified as having safety applications for older populations (Vrkljan et al., 2010).

Findings from the focus groups indicated that safety was not a strong influence on vehicle purchase considerations. Participants believed that safety design in cars had vastly improved since the 1950s, and expressed that it is now impossible to purchase a car that is unsafe. Beyond this baseline, safety was largely attributed to adherence to sensible driving practices and driving

experience. Newer safety technologies presented, particularly telematics that caused distraction, were deemed less important than the driver's own skill set. Future research should focus on effectively communicating advantages of in-car telematics in an accessible manner.

Participants noted that dealer interactions could be stressful, and rejected the services of certain dealers who were perceived as untrustworthy (e.g., selling a car with unforeseen costs attached, or not allowing the driver to adequately test drive). Here, the purchasing process is framed as a competitive ordeal for the buyer, rather than a facilitated process. Difficulties in negotiating were particularly relevant to the experience of older, female drivers, consistent with previously described patterns of price discrimination against females (e.g., Ayres & Siegelman, 1995). Techniques for augmenting the negative image of the dealer are critical to effective delivery of safety and vehicle technology information relevant to older car buyers (Coughlin & Reimer, 2006) and should be considered in future studies. In preparation for vehicle selection and negotiations, participants perused a variety of informational resources. Those within the industry were seen to have esoteric knowledge that placed all but the most well informed participant at a disadvantage. Trade-offs for reliable information ranged from significant time invested, expenditure of energy ("shopping around"), and financial payoffs. In spite of these efforts, participants expressed frustration at the inability to know certain facts, such as the "bottom line" price of a car.

Participants prioritized price in purchases of both secondhand and new vehicles, and accounted for long term costs of vehicles into their vehicle selection, including insurance and fuel. Our research suggests that prohibitive costs may result in price-safety trade-offs, resulting in the choice to not use certain design features that could have safety-related implications. However, it is important to note that participants recognized the importance of visibility, a safe design consideration, in the purchasing process.

This study had several limitations. First, in spite of practical steps taken to mitigate error in transcription, some omissions and inaccuracies in the attribution and recording of specific quotes can still be found in the transcription data. Second, response rates for post-group surveys were less than 100%, as 2 surveys were notably incomplete and 2 surveys were missing, potentially misrepresenting the demographic characteristics of some clients. Third, only 7 out of 27 participants were female, owing to limited response from female candidates in the original database from which participants were drawn. Future studies may consider expanding on the specific barriers and needs of older female drivers, who differed from male drivers in areas of dealer interactions and car knowledge in our study. Finally, when discussing the vehicle purchasing process, we failed to anticipate that purchase of second-hand automobiles posed unique challenges, most notably a lack of dealer accountability and subsequent support. The needs of second-hand buyers in the older driver population run contrary to the assumption that older drivers purchase luxury vehicles (Coughlin, 2005) and should be considered in future research.

Based on our findings, we feel that it is imperative to create purchasing aids that bridge the unique safety requirements of the older driver with appropriate vehicle design features during the purchasing process, so that they may continue to perform this critical activity for longer. It is

anticipated that our data will be used to inform the development of a vehicle design rating checklist/system (VDRS) that will assist older drivers in making informed vehicle purchases.

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