

Older drivers' opinions of criteria that inform the cars they buy: A focus group study

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ABSTRACT

Safe driving in older adulthood depends not only on health and driving ability, but on the driving environment itself, including the type of vehicle. However, little is known about how safety figures into the older driver's vehicle selection criteria and how it ranks among other criteria, such as price and comfort. For this purpose, six focus groups of older male and female drivers (n=33) aged 70-87 were conducted in two Canadian cities to explore vehicle purchasing decisions and the contribution of safety in this decision. Themes emerged from the data in these categories: vehicle features that keep them feeling safe, advanced vehicular technologies, factors that influence their car buying decisions, and resources that inform this decision. Results indicate older drivers have gaps with respect to their knowledge of safety features and do not prioritize safety at the time of vehicle purchase. To maximize the awareness and uptake of safety innovations, older consumers would benefit from a vehicle design rating system that highlights safety as well as other features to help ensure that the vehicle purchased fits their lifestyle and needs.

Keywords: driving, aging, vehicle design, safety

1. Introduction

The number of drivers aged 65 and older is expected to double in the next decade due to aging of the generation that came to be known as the baby boomers. Currently, those aged 80 and over are the fastest growing segment of all drivers in North America (National Highway Traffic Safety Administration (NHTSA), 2008; Turcotte, 2012), and unlike previous generations, there will be a larger proportion of older women behind the wheel (Turcotte, 2012). Driving is the preferred mode of transportation of seniors, particularly those living in rural and suburban areas, who rely on driving to maintain their independent lifestyle (Turcotte, 2012).

Unfortunately, with age, people are more likely to develop health problems that compromise driving. Functional declines associated with medical conditions, rather than age alone, have been attributed to higher crash rates (Dobbs, 2008). Relative to younger drivers, older drivers tend to cause more multi-vehicle crashes and, because they are frailer, the severity of their injuries and fatality rates are disproportionately high (Bédard et al., 2002; Braver and Trempel, 2004; Cook et al., 2000; Evans, 2001; Li et al., 2003; Lyman et al., 2002). Unfortunately, evidence suggests that awareness of impairments does not necessarily result in appropriate or sufficient self-regulation of driving habits (Baldock et al., 2006; Banister and Bowling, 2004), necessitating in other interventions.

To date, efforts targeting older driver safety have focused primarily on factors related to driver health and ability, rather than the driving environment. A screening battery for physicians to identify unsafe drivers is under development by Canadian Driving Research Initiative for Vehicular Safety in the Elderly (Candrive) (i.e., (Molnar et al., 2005). Educational initiatives, such as AAA/CAA's Roadwise Review (Myers et al., 2008) and the Driving Decisions Workbook (Eby et al., 2003), also help to raise awareness about the effects of aging and medical

issues. Those efforts do not, however, address problems specific to the driving environment. The U.S. Federal Highway Administration's highway design handbook for transport engineers (Staplin et al., 2001) and complete street initiatives (Lynott et al., 2009) only refer to improvements in the design of road infrastructure. However, such initiatives, while important, do not include components related to the vehicle, which can also influence mobility and safety.

Advanced vehicle design features, including intelligent transportation systems such as navigation systems, adaptive cruise control, and vision enhancement systems, have the capacity to enhance the safety of both older drivers and passengers by targeting a spectrum of age-related functional declines, including increased reaction times, reduced night vision, and limitations in mobility (Caird, 2004; Eby and Molnar, 2012; Guo et al., 2010). Some of these potential benefits have been demonstrated in empirical road tests. For example, the European DRIVE II EDDIT study found that vision enhancement systems and emergency alerts were seen as acceptable and resulted in improvements in safety and performance in a small cohort of drivers who underwent road and simulator-testing (Oxley and Mitchell, 1995).

Existing design features can also be modified to make the driving task easier and safer for older drivers, such as increasing the size of font on GPS systems and improving side mirrors (Herriotts, 2005; Owsley et al., 2011). A recent scoping review by Vrkljan et al. (2010b) of features that enhance crash avoidance and crashworthiness for older occupants offers an overview of both types of features in the driving environment, and finds strong evidence for the use of antilock braking systems (ABS) and stability control. Nevertheless, the efficacy of safety features ultimately hinges on the older driver's perception of their value, and their willingness to pay for and adopt them in their vehicle selection.

Previous surveys conducted with car buyers indicate that while safety is an important consideration (Koppel et al., 2008; Market and Opinion Research International, 2005; Robertson et al., 2012), other factors are often prioritized during the purchase process, including price, luxury, size, and comfort (Charles River Associates Inc., 1998; Desrosiers Automotive Reports, 2002; Vrkljan and Anaby, 2011). Results differ as to whether buyer's age and gender have an effect on the importance of certain features. For example, Koppel et al. (2008) suggested that age did not have a significant effect on the prioritization of safety factors or specific safety features for a cohort of European vehicle owners, whereas Vrkljan and Anaby (2011) found among Canadian vehicle owners that safety and reliability were significantly more important for older as compared to younger drivers ($p < 0.01$, $n = 2,002$). However, when it came to the influence of features associated with a vehicle's performance, which some might consider the converse of safety, their analysis also suggested a relationship with age. These disparate findings suggest that a more nuanced interaction may be taking place during the vehicle purchasing process, and that more insight is needed into how safety is defined, evaluated, and ranked against other competing factors by older drivers during this process.

Translating safety information to consumers has largely depended on tools such as the New Car Assessment Programs (NCAP) 'star rating' system, which assigns a global safety rating out of five based on a vehicle's performance during various crash simulations. Highly rated vehicles show reduced risk of severe or fatal injury (Lie and Tingvall, 2002) and are equipped with occupant protection features that target the areas of greatest vulnerability for older drivers during crashes (Langford et al., 2010), making them potentially valuable tools for older car buyers. Variations on the NCAP have been established in most industrialized nations. In this context, the time of purchase also provides a unique opportunity to investigate the importance

attributed to safety and the influence exerted by objective ratings such as the NCAP on buyer behaviour.

The focus of the current investigation was to understand how older drivers conceptualized and prioritized safety and safety features within the vehicle purchase process, using a qualitative study model that facilitates focused and synergistic discussions among older adults in their own words. The objectives of our focus group study were two-fold: 1) to explore older drivers' knowledge and experience with using automotive features, including more advanced technologies, and 2) to examine factors that ultimately influenced their vehicle-buying decisions, including resources accessed. Results from this study will inform the development of a vehicle design rating system to assist older drivers in vehicle purchases.

2. Methods

2.1 Participants

This study was approved by the Hamilton Health Sciences-McMaster University Research Ethics Board and the University of Manitoba Research Ethics Board. Participants were selected from a database of older drivers who had been recruited for another project for which recruitment had reached saturation, as well as through snowball recruitment, meaning some learned about our study from other participants. Most were recruited through newspaper advertisements and agreed to be considered for other driving-related studies during initial contact. No couples were recruited. However, one of the participants recruited his brother who was also an older driver. In Ontario, participants were sent a thank you card along with a gift certificate for a coffee. In Winnipeg participants were given \$10 per session that was attended.

Inclusion criteria were as follows: 1) aged 70 years and older, 2) English speaking, and 3) possessing a valid driver's license. Individuals were included regardless of when they last

purchased a vehicle. A total of 33 participants (23 males, 10 females) were recruited to participate in six focus groups, four of which took place in Hamilton, Ontario (July-October, 2010) and two in Winnipeg, Manitoba (June, 2011).

2.2 Data collection and analyses

Our research team initiated contact with potential participants by telephone. Those who agreed to participate were mailed a survey that collected demographic information, including self-ratings of health status. Participants then attended focus group sessions based on availability.

Focus groups are an effective means of examining consumer-product interactions in depth with a small representative segment of users who are usually drawn from a larger population (Morgan and Krueger, 1998). This method of data collection has been successfully employed in previous research on driving in later life (e.g., Coughlin, 2001), and in relation to vehicle design specifically (e.g., Owsley et al., 2011; Vrkljan et al., 2010). The size of each focus group (i.e., 6-8 participants) was consistent with sizes suggested by Morgan and Krueger (1998) where possible; though anywhere from 4 to 12 participants per group have been cited in the literature, contingent on various factors (Fern, 1982; Greenbaum, 1988; Kitzinger, 1995). In our study, size of each of the four focus groups held in Ontario ranged from 5 to 11 members. In Winnipeg, group size was smaller overall ranging from 2 to 4 members as some who had agreed to come to a session were unable to attend at the last minute.

Focus groups were conducted with the same members of each of the Manitoba and Ontario research teams to improve consistency of facilitation. The groups took place in conference rooms with refreshments available, as per recommended best practices by Morgan and Krueger (1998). Each session lasted approximately 1.5 hours. Discussions were audiotaped and transcribed verbatim; sessions were also videotaped to ensure that responses were attributed

to the correct participant. At the outset of the group, participants were verbally reminded that their responses within the session would be kept confidential and reported anonymously.

To guide focus group discussions, the research team used a semi-structured script of questions organized around key topics. Topics were derived from the results of a previous scoping review that analyzed over 189 information sources to determine the design features that most enhanced the safety of older vehicle occupants when travelling by automobile (Vrkljan et al., 2010). Table 1 provides an overview of some of the probes that were used during the groups. The moderator provided a brief overview of specific up-and-coming vehicle technologies in order to facilitate discussion concerning their perceptions of advanced vehicular features.

Once the focus groups were completed, two members of the investigative team reviewed each transcript independently. An open coding process was used to highlight emergent themes (Hsieh and Shannon, 2005). Subsequently the team members met to discuss themes and to develop a unified coding framework. All transcripts were reviewed a second time independently by the same investigators and coded using this framework. Lastly a third investigator acted as an auditor to verify the process by which themes were identified. This rigorous triangulation process ensured the integrity of the findings with respect to theme identification, and is commonly used for testing the reliability and validity of a qualitative study (Golafshani, 2003).

The final phase of the study involved member checking through a follow-up focus group session. All but five of the participants returned for this follow-up session. This session provided an opportunity for participants to confirm or refute the researchers' interpretation of the results. It also provided the investigative team with an opportunity to further probe and clarify issues raised during the first session. Themes were also shared using a written summary that was

provided to each participant. Audio and video transcription methods for the follow-up session were consistent with previous sessions.

Table 1

Examples of focus group questions.

<p>Topic 1*: Safety and vehicle design features</p>	<ul style="list-style-type: none"> • What does safe driving mean to you? What does safety mean to you? • Which vehicle design features come to mind when you think about driving safety? Which features make you feel safe? Which features promote safety?
<p>Topic 2: Factors that influence vehicle-purchase decisions</p>	<ul style="list-style-type: none"> • If you were to purchase a car tomorrow, what are the sorts of things you would consider important when it comes to the way the car is designed? • When looking for a vehicle, what particular features catch your eye? • Have you heard of the New Car Assessment “Star” Rating System?
<p>Topic 3: Perceptions of buying an automobile</p>	<ul style="list-style-type: none"> • Consider the last time you purchased a car. What was the experience like? How was it similar to or different from your expectations? What was interesting about the experience? • How would you describe the experience of shopping for a new car in the past 5-10 years? • What do you think is important for you to know about the car [you want to buy]?
<p>Topic 4: Perceptions of advanced vehicular technologies</p>	<ul style="list-style-type: none"> • We are interested in learning about your knowledge of some of the technology available in newer vehicles today. Can you name some of these features? Tell us what you know about these features? • What do you think about technology [name particular devices that were identified] available in automobiles?
<p>Review/closure questions</p>	<ul style="list-style-type: none"> • Have we missed anyone’s question or forgotten to hear anyone’s response? • Is there anything else that you would like to talk about that may shed some light on the issues we have discussed?

*Questions are organized according to major themes that emerged from the study.

3. Results

3.1 Participant demographics

Participants described themselves as relatively healthy with no major medical conditions. On a self-reported rating scale of physical health, where a score of one is very poor and a five indicates excellent health relative to same-age peers, the mean rating was 4.2 ± 0.7 , with a range of 3-5. Overall, participants averaged 206.6 ± 103.1 kilometers (km) per week, ranging from 50-500 km. The most common vehicle type driven was the 4-door sedan (61.0%) followed by the minivan (12.2%), 2-door car (7.3%), and sport utility vehicle (SUV) (7.3%). It is important to note that participants may have owned more than one vehicle and, as such, they reported all vehicles accessed within their household.

3.2 Themes

Key themes identified across focus groups highlighted the relationship between the availability of specific vehicle features and perceptions of safety when travelling by car. Participants welcomed the advent of new technology in the vehicle, but expressed concern that such advancements might impact safety behind the wheel. They identified or discussed features that influenced their vehicle purchase decisions along with key resources that ultimately informed this decision.

3.2.1 Older drivers' perceptions of safety as they are linked to specific vehicle features

Vehicle features that keep them “feeling safe” behind the wheel. Many participants indicated that they would feel safe in their vehicle if it had certain features, including seatbelts, airbags, power steering, and anti-lock brakes. One of the participants responded by listing these features in order of importance: “Brakes I would put as first, visibility would be high up there.

Airbags are okay too. If I have my brakes, I'll definitely be okay" [male, age 78]. Interestingly, other safety features, such as airbags, were perceived as a risk for potential injury rather than a preventative safety measure. Another participant explained his fear of airbag deployment: "I like to be sitting up so I can be fairly close to the steering wheel...I think sometimes that might put me in a little bit of danger if someone hits me, and the airbag comes right into me" [male, age 80]. Another feature that was discussed was tires. Across both sites, participants identified that 'all season' tires were good enough, even in Manitoba, which endures very cold winters. Most agreed that vehicles have come a long way with regard to safety-related features since they first became licensed drivers many years ago.

Advanced vehicular technologies. When discussing advanced telematics and other emerging vehicular technologies, there were conflicting responses with respect to safety. Participants weighed the pros and cons of GPS, entertainment gadgets, collision avoidance, and adaptive cruise control. The value of a device was frequently measured by its potential for distraction. All participants agreed that even when devices were hands-free, they could distract drivers from their foremost responsibility, which was to safely operate a motor vehicle: "Do you know that it doesn't matter about the hands-on and hands-off? It's the fact that your brain is talking to somebody and you are not paying attention to the road" [male, age 71]. In other cases where technology was hands-on, participants preferred to have dials, buttons and displays within easy reach and view of the driver (e.g., located directly on the steering wheel). However, heads-up displays, which project information onto the windshield, were considered too distracting: "If it's down low enough I would think maybe it's okay, but I would find it at the present moment a bit of a distraction because then you'd be looking there instead of up ahead [at the road]" [male, age 84]. Overall, most were excited about emerging vehicular technologies, but expressed

concern that even the most advanced safety features will never compensate for poor driving habits: “They can make a windshield that doesn’t kill you, it shatters and you’re fine, but there is nothing you can do when somebody is not a good driver” [male, age 78].

3.2.2 Factors that influence vehicle purchase decisions in older adulthood

Participants discussed various features that ultimately influenced their vehicle purchase. When asked directly about the role of safety in their buying decisions, older drivers felt cars on today’s roadways are safe and as such, focused on other features during the purchase process. As one participant in Ontario described, “You can’t buy a bad car anymore. You can find a better one, but you cannot buy a lemon. Most cars are okay [for safety]” [male, age 84]. This comment was echoed in Manitoba: “I pay very little attention to safety features [when purchasing a vehicle]. I feel the government has looked after that part, the government and the manufacturers, and so I don’t worry about it” [male, age 78]. When asked about the influence of the star rating from the New Car Assessment Program (NCAP), most were unfamiliar with this rating system and therefore, it did not influence their vehicle-buying decisions. Other features, particularly price and fuel efficiency, were the focus of much discussion concerning the vehicles purchased.

Price and fuel efficiency. Across groups, price and fuel efficiency were of primary concern when deciding which vehicle to purchase. The desired outcome was to purchase the best vehicle at the lowest possible cost. “Price has got to be involved and really be of interest because you’re dealing with an item that is in the 20 or 30 thousand dollar range” [male, age 84]. When discussing some advanced features, several participants didn’t want to pay for what they saw as “extras.” One participant described his experiences with OnStar®, a vehicle safety telematics system that includes 24-hour access to emergency services, in positive terms: “...One of the real splendid features on it was that, if you were in an accident or something, in a ditch - it indicates

if you're in trouble." Nonetheless, after his free trial period he felt he no longer required it. Fuel efficiency was also linked with the overall cost of the vehicle and was described as an increasingly important consideration due to rising gas prices.

Visibility, adjustability, and accessibility. Many participants commented that visibility as a driver was absolutely critical and that this feature had become increasingly important to them as older consumers. They voiced concerns about current designs: "I find a lot of the manufacturers are shortening the windows. They look beautiful on the road, but to see outside the car though, that's a problem" [male, age 72]. Other design changes divided some groups. An example was the emergence of halogen headlights, which some felt enhanced their night vision whereas others expressed concern as drivers in oncoming traffic can be blinded by the glare. One participant stated, "One item that is better now are lights. These new headlights help to see further than you used to with older lights" [male, age 78]. Another disagreed. "I find those bright blue lights or whatever colour they are – are hard" [female, age 86].

Adjustability and accessibility were also mentioned. Older drivers commented on the importance of having a vehicle that would accommodate their physical limitations, including those related to age, as well as the functional needs of other drivers or passengers with whom they share the vehicle. In relation to adjustable pedals and seats, one driver commented: "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...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 the adjustable pedals are good" [male, age 72]. In relation to accessibility, another participant noted that his spouse's arthritis made it important for the vehicle to facilitate easy ingress and

egress: “I bought it [the vehicle] mainly because my wife’s got arthritis and it’s much easier for her to get in and out” [male, age 70].

3.2.3 Key resources that influence vehicle purchase decisions of older drivers

Participants sought out a wide variety of resources during the vehicle purchase process. In particular, they valued the input of family and friends when determining which car to buy. One driver commented, “My son is a great influence. Our whole family has been [vehicle brand] drivers for years and years, but he went through all of the Consumer Reports, and he thought that [vehicle brand] looked a little better [than the others]” [female, age 79]. Some participants demonstrated a sophisticated knowledge of resources available through the Internet, including online forums, which they used to collect information posted by other users: “There are a lot of forums out there – ‘pros and cons of [vehicle brand]’ - then you can ask questions about features” [male, age 77]. Some consulted the most current consumer reports and product guides. When narrowing down their choices, several felt that test driving new vehicles was a good way to finalize their decision: “...We [my husband and I] 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 2010 [car brand]...” [female, age 83].

With respect to the reliability of information being gathered, many participants cited a lack of transparency around pricing information and felt their interactions at dealerships were poor. They felt salespeople exerted undue pressure and tactics causing them to choose a vehicle too quickly or, conversely, fail to choose a product that might have suited their needs. Both male and female participants described dealer-drivers interactions as being particularly challenging with older female drivers citing negative exchanges and what they perceived as discriminatory

sales tactics as one driver explained: "...it was just his [salesperson] attitude. I simply didn't go back because I wasn't impressed" [female, age 79].

4. Discussion

This study used the context of buying a vehicle to set the stage for focus group discussions that explored the importance of safety and other factors on their purchase. The implications of our findings with respect to this growing population of drivers are discussed.

There is an assumption among older car buyers that all vehicles available in today's marketplace are "safe." Participants in this study expressed the opinion that vehicle safety had improved drastically in their lifetime. Safety when travelling by automobile was attributed to the availability of vehicle features that have become standard across vehicles (e.g., seatbelts, power steering, anti-lock brakes). As such, older buyers shifted their focus to other factors during the purchase process, namely price, fuel efficiency and other design-focused features, which is consistent with findings of a recent national poll of vehicle owners conducted by the Traffic Injury Research Foundation (TIRF) (Robertson et al., 2012). Previous research indicates that making a vehicle purchase can involve "price-safety" trade-offs: consumers may be willing to forego certain safety-related features if it means the overall product comes at a lower cost (Koppel et al. 2008). In many ways, the features that this cohort identified (i.e., visibility, adjustability) had as much to do with design as they did with safety. These observations may appear to contradict previous reports suggesting older drivers hold safety in as high or higher regard as younger drivers (see Koppel et al., 2008; Robertson et al., 2012). Through our focus group discussions, we found that while this population of vehicle buyers prioritizes certain safety-related features, there is apprehension about some of these features, which has not been captured in previous studies that used survey and questionnaire formats. Furthermore, our

findings suggest that older car buyers are not trading off safety in favour of price per se; rather they may not recognize the benefits or consequences of having certain safety features on their vehicles in the first place, which is also congruent with findings of the TRIF report (Robertson et al., 2012). A closer examination of our discussion also revealed some safety misconceptions amongst older vehicle buyers. For example, while our participants were correct in inferring that there have been significant gains in vehicle safety in the last 50 years, as illustrated by significant reductions in traffic-related fatalities across all age groups, older vehicle occupants continue to have the highest risk of being killed or seriously injured at the time of a crash (Cerelli, 1998; Cook et al., 2000). Recovery from such injuries is less certain due to driver frailty and pre-existing health conditions, which manifests in the much higher proportion of “delayed deaths” among older drivers relative to younger and middle-aged drivers (Kent et al., 2005; Langford and Koppel, 2006).

A second misconception relates to airbags. Based on an evaluation of an Australian insurance claims database that linked injuries of older drivers to the availability of certain safety features, Langford et al. (2010) posited that older drivers as a group benefit from the availability of crash avoidance and occupant protection technologies, including airbags. However, our results suggest that wariness towards the airbag’s potential for harming occupants during a crash remains a concern in this age group. A previous study that used interviews to elicit seniors’ perceptions of vehicle safety risks reported a similar theme (Shaw et al., 2010).

Our findings support the need for more targeted strategies to be employed by New Car Assessment Programs (NCAP) and other motoring organizations for translating evidence-based safety-related information; this will increase awareness of the benefits of safety-related features among prospective buyers in the oldest age groups (Vrkljan and Anaby, 2011). While some

universal design principles have been employed in the engineering process, such as wider doors and larger dashboard controls (Eby and Molnar, 2012), as well as the emergence of advanced safety features like stability control that will be standard in all models (Robertson et al., 2012), there is still much work to be done to further improve vehicular safety and occupant protection.

Drivers voiced concerns about advanced vehicular technologies and their potential for distraction. Older drivers in the present study understood the potential benefits of in-vehicle technologies for improving performance behind the wheel, but expressed concern about the level of distraction due to such devices. Common themes throughout our discussions emphasized the importance of a driver's ability to safely operate the vehicle as the centre of the safety equation. However, previous driving studies involving this age group have suggested self-reported abilities behind the wheel may not match actual performance, even when functional impairments have clear implications on safety (e.g., Freund et al., 2005; Marottoli and Richardson, 1998; Musselwhite and Haddad, 2008; Stalvey and Owsley, 2000; Wood et al., 2012). The focus of the participants with regard to their potential for distraction from the driving task might in fact result from lack of confidence with using technology, more generally. With the increasing number of in-car technologies and their sophistication, there is increasing onus on manufacturers to consider including supplemental training at their dealerships and elsewhere for consumers who require further guidance, and to improve comfort levels with the driver-vehicle interface. Such training may have particular benefits in terms of driving safety for vehicle users in the oldest age groups (Vrkljan and Polgar, 2007).

Seniors need reliable resources that help ensure the car purchased fits their lifestyle and needs. Participants accessed a variety of resources, including friends and family as well as online forums, when determining which vehicle to purchase. Older drivers in our focus groups

consulted both traditional (e.g., books, magazines) and new media sources (e.g., worldwide web). An earlier study of older adults conducted by Silverstein et al. (2005) also supported the use of a simple video intervention for introducing older drivers to the use of pertinent safety features. These findings suggest that a multi-modal approach may be the most appropriate manner to improve awareness of safety-related features for this age group.

Our results indicate that campaigns to increase public knowledge of vehicular safety features must go beyond the NCAP star rating system. In most countries, this system remains the primary means of translating information to consumers relative to vehicle safety (Vrkljan and Anaby, 2011), and yet appears largely unused in our cohort. Reasons for this may be multi-fold. First, the current NCAP rating does not specify individual vehicle safety features, and the number of stars allocated to a vehicle is based on its overall crashworthiness, making it potentially difficult to interpret and use. Second, the results indicate that most of the participants were unfamiliar with NCAP, which raises questions as to the efficacy of this program in terms of reaching the individuals it is intended to support. Most participants in our cohort assumed all vehicles were safe and, as such, did not focus on safety when making their purchase despite the possibility that they were at high risk of injury and mortality in a crash. It is important that safety-related information is translated in a format that this population can use to inform their purchase; educational programs that operate using a common checklist of safety features and practices, such as the successful CarFit training program in the U.S. (AARP et al., 2013), provide a viable model for a designing a vehicle checklist to raise awareness about certain features as well as address knowledge gaps when considering a vehicle purchase.

In our discussion of resources that were not helpful in the vehicle purchasing process, participants expressed concerns about the quality of their interactions with sales staff at car

dealerships, which may exacerbate the already tenuous relationship between safety considerations and the purchasing process. Their responses are congruent with Koppel et al.'s earlier study (2008), which found that older drivers were significantly less likely to consult dealers than young and middle-aged drivers for information when purchasing a vehicle. Older females in our study identified dealer interactions as being particularly stressful, citing negative exchanges and practices. While tensions between women and automotive salespeople have been well documented (e.g., Ayres, 1991; Ayres & Siegelman, 1995), our study is the first to raise this as a potential issue for this age group. In recent years, there has been a shift in women being recognized as key decision-makers and caregivers in their households with respect to major financial decisions (Prudential Research, 2010). They may be providing input or even taking on vehicle purchase decisions, roles that women may not have had in the past. They require support to feel confident and informed with making this decision, and resources that can help them do this are needed. Conversely, salespersons may also benefit from sensitivity training with respect to addressing the needs of older customers. With more older women driving than ever before, this demographic will become an important and growing segment whose experiences and needs warrant consideration from manufacturers' and industry analysts in the automotive sector and elsewhere.

This study should be considered in light of a few limitations. First, as with all focus group studies, we cannot assume that the perspectives of those who participated are representative of the larger population of older drivers. However, given the purpose of this study, this approach to data collection provided much-needed depth and detail that helped to contextualize findings from previous studies of the conceptualization of safety among older drivers as well as the influence of it and other features during the vehicle purchase process. In addition, our sample came from

two separate geographic regions in Canada, yet their opinions were surprisingly similar with respect to the features that influenced the vehicles they bought, as well as the resources they accessed to inform their decision. Second, our recruitment strategies resulted in groups that were mixed with respect to both age and gender, which may have influenced our findings. In their study of older drivers' preferences for vehicle dashboard designs, Owsley et al. (2011) separated their focus groups by gender, citing that opinions between men and women often differ with respect to vehicle design and felt discussions would be more "frank" (p. 2025). As ours represents an initial foray into the views of older drivers with respect to vehicle safety and purchasing, a future study may involve using more selective grouping criteria, such as gender, to elicit targeted recommendations for subgroups. Findings from the present study can be used to support the development and validation of a vehicle design rating system or checklist that will guide seniors when making a vehicle purchase, taking their own needs and abilities as well as that of their passengers into consideration.

5. Conclusions

Older drivers and passengers are set to become the largest and most affluent segment of automobile buyers in the next decade. However, results from the present study reveal that older drivers may hold misconceptions about the safety of vehicles currently available in today's marketplace, and that safety features must compete for consumer attention with price, fuel efficiency and other factors during the vehicle purchasing process. This process requires a significant outlay of time and effort by the purchaser towards multi-modal research, and is fraught with negative interactions with dealers, putting more barriers in the way of making the safest selection. A vehicle design rating system used at the point of purchasing, along with supplementary resources and training designed specifically to help orient older drivers to

advanced technologies, can improve buyer confidence and put safety in the spotlight during one of the most critical decisions affecting older drivers' future road safety.

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