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To drive or not to drive, that *isn't* the question—the meaning of self-regulation among older drivers

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ABSTRACT

Problem: This research examines older drivers and how they rationalize and cope with their own changing psychological and physical functioning vis-à-vis self-regulation and driving. *Method:* A national survey was mailed to a sample of drivers over the age of 50. An overall response rate of 53.11% was achieved, with 3,824 valid responses returned. This paper discusses the qualitative findings of the open-ended questions in this survey. *Results:* A rich, multidimensional description of self-regulation emerged from the data. Driving self-regulation was not simply a checklist of behaviors performed but a combination of attitudes and behaviors, including important social and psychological processes and automobile attributes. Household composition played an important role in determining what one's options were for getting around and how serious they were in enforcing self-regulation behaviors. *Discussion & Summary:* As a society, we must realize the importance of driving in maintaining independence, feelings of self-worth, and being connected to life and society. This research presents the qualitative findings of a nationwide survey of drivers over the age of 50. The results revealed that older drivers define self-regulation as much more than the changes in behaviors due to declining health and ability. The older adults in our research strongly emphasized the psychological processes surrounding independence, self-worth, remaining connected to life and society, and what role the automobile plays. Household composition impacted decisions related to self-regulation. For instance, those from a two-person household were more willing to let their partner drive or share in the driving, while those who lived alone were less likely to self-regulate their driving. *Impact on Industry:* Education programs targeting older adults need to be expanded to include not only the behavioral components of self-regulation, but also the psychological factors that play an equally meaningful role. Legislators devising policy programs need to reconsider what are viable transportation options for the older adult.

1. Problem

At the turn of the last century, the average life expectancy in the United States was 49 years of age. By the turn of this century, the average age a person was expected to live in the United States had increased by nearly 30 years. Besides life expectancy, what differentiates those aging a century ago from those aging today? Well to start, most older Americans today can expect to be healthier, have more education, larger incomes, more retirement and leisure time, and more active lives with varied interests—lives and interests that depend on personal mobility and seamless transportation (Coughlin, 2002). The Baby Boomer generation, more than any other generation before them, has been shaped by the personal automobile and its implicit promise of freedom to go wherever one wants whenever one wants. Ironically, however, contemporary older adults are living lives that cover more geographic distance than their counterparts 100 years ago. With relatively few transportation alternatives available to most people in the United States, it is no surprise that as the Baby Boomer generation ages, its members will actually be driving personal automobiles more in their older years than any previous generation (Bush, 2001).

According to the Nationwide Personal Travel Survey (1995), as presented in Rosenbloom (1999), the personal automobile accounts for 93.7% of older adult trips, with walking and bicycling accounting for 4.6%, and public transportation 0.9%. Moreover, the Insurance Institute for Highway Safety (2003) reported that 75% of people 65 and older were licensed to drive in 1995, up from 63% in 1983, while the percentage of drivers of other ages remained the same; and annual mileage increased 44% among older drivers, compared with 25% for the whole driving population. Why is this increase in driving relevant to us as a nation? While older drivers are a statistically safe group on the road when compared to other age groups with respect to number of miles traveled and the number of accidents incurred, "accident risk" does begin to increase by approximately age 70. Because of the

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projected increase in the numbers of older adults expected to be driving by the year 2030, drivers 70 and older are projected to account for nearly 16% of all crashes and 25% of all fatal crashes (National Highway Traffic Safety Administration, 2001). "The oldest among them will experience greater risk of both accidents and fatal accidents when they drive. As the 50+ driving population expands in size and activity level, concern about accidents and fatalities will continue to grow" (MIT and The Hartford Executive Summary, 2003, p.2).

While older driver issues are a mainstay in the transportation discussions on state and federal policy agendas in the United States, neither policy makers nor scholarly researchers have paid adequate attention to the concrete concerns and needs of older drivers. Fewer than one-third of states have measures in place pertaining to the re-licensing of older drivers and only a handful of states, such as Florida and Maryland, are initiating education programs, counseling strategies, and more appropriate testing methods for older adults. At the federal level, task forces, technical reports, and outreach events have been offered (Coughlin, 2002). As Coughlin (2002) asserts, "However, despite incremental movement by the states and the federal government, the national policy governing older drivers rests on self-regulation" (p.4). But what exactly is self-regulation?

The research literature includes multiple definitions to represent the term. These definitions are broad and range from the immensely specific to highly generalized. Some examples of how researchers have defined and used the term in their research are:

- "Self-regulation is an alteration of driving patterns based on sociodemographic factors and specific health conditions." (Kingston, Reuben, & Rogowski, 1993)

- "Self-regulation refers to the extent to which drivers alter the amount and types of driving they do and the conditions in which they elect to drive." (Baldock, 2004)

- "Self-regulation is an avoidance of potentially challenging situations which are generally believed to be more difficult." (Ball et al., 1998)

- "Self-regulation is when older drivers make adjustments in their driving behavior that adequately match their changing cognitive, sensory, and motor capacities." (Charlton, Oxley, Fildes, & Les, 2001)

- "Self-regulation is, in effect, compensation for age-related declines in abilities by reducing their annual mileage as well as regulating when and where they drive." (Dobbs & Dobbs, 2001).

Overall, the definitions reviewed view self-regulation as an overall alteration of driving behavior, usually adjustments to or a reduction in driving as a result of changing or declining health and ability (Hakamies-Blomqvist & Wahlstrom, 1998; Marottoli & Richardson, 1998; Messinger-Rapport & Radar, 2000).

How a term is defined is important because it determines how it is identified, studied, and measured. To date, only the research of Rudman, Friedland, Chipman, and Sciortino (2006) have studied senior drivers and ex-drivers to examine their perspectives on the meaning of self-regulation and what it consists of in later life. Their research team uncovered four themes and developed a robust preliminary model of the process of self-regulation, highlighting the intrapersonal, interpersonal, and environmental influences on why, how, and when aging drivers adapt or cease driving. The four themes were: (a) the importance of driving, (b) mechanisms of self-monitoring and self-regulation, (c) people who influenced decision making, and (d) opinions regarding licensing regulations. With the exception of this research, the majority of the research on aging and driving has focused on sensory and motor changes, including vision, hearing, mobility, and reaction time (Kostyniuk & Shope, 2003; Sherman, 2003). Studied to a much lesser degree are the psychological processes and how older drivers themselves define self-regulation (Donorfio, Mohyde, Coughlin, & D'Ambrosio, 2008; Rudman et al., 2006). While research on functional declines is necessary, for without such declines there would be no need for self-regulation, additional research on the factors affecting decision-making with regard to self-regulation is warranted.

A main goal of this research was to ask older drivers what meaning self-regulation had to them and what attributes they see as important when asked to describe self-regulation. By doing so, this may provide greater insight into what is really important to older adult drivers vis-à-vis self-regulation and driving. Such research can aid in the development of more meaningful programs and intervention strategies to help older drivers understand why self-regulation is important, to build confidence, to continue to drive safer longer, and to remain independent for as long as possible.

2. Research design

The AgeLab at the Massachusetts Institute for Technology (MIT) and The Hartford Financial Services Group joined efforts to conduct the "Safe Driving for a Lifetime Project," an extensive three-phase research project designed to help identify and define the factors that influence drivers over the age of 50 to self-regulate and change their driving habits. The research consisted of three phases: Phase I—conducting exploratory focus groups; Phase II—administering a representative national survey; and Phase III—conducting confirmatory in-depth interviews with older drivers and their families. This paper will outline the qualitative findings from the open-ended questions in Phase II of this project. Findings from Phase I have been reported previously (Donorfio et al., 2008), as well as some of the quantitative findings from Phase II related to gender differences in self-regulation attitudes and behaviors (D'Ambrosio, Donorfio, Coughlin, Mohyde, & Meyer, 2008) and family conversations surrounding driving (D'Ambrosio et al., 2008).

3. Method

A professional market research facility was contracted to pre-identify participants and to administer the survey. The sample was drawn from a consumer market research panel, stratified by age and gender. Participants were a nationally representative sample of drivers over the age of 50 (sampling error +/- 3%). In order to be considered drivers, they had to be licensed and to have driven a car within the past 12 months. The survey was 14 pages in length and mailed with a $1 incentive for return. One month prior to the mailing, the survey was piloted (n=25) to check the flow and to make sure questions made sense. A pre-alert postcard was mailed two weeks prior to the mailing, primarily to alert recipients about the survey and to help build trust/comfort to enhance the response rate. In May of 2002, 7,200 surveys were sent out. In June of 2002, 3,824 valid responses were returned for an overall response rate of 53.11%.

Two variables our research team felt were important because of their impact on driving decisions and patterns were household composition (whether the person lived alone/only driver or in a two person household/two drivers) and health status. The final sample consisted of: gender: males 1,704, females 2,120; age: 50-59 1,591, 60-69 1,040, 70-79 811, 80+ 382; household composition: one-person households 1,984, two-person households 1,840; and health status (self-reported): excellent health 549, very good health 1,529, good health 1,252, fair health 401, and poor health 93.

The overall objective of the survey was to identify and define the factors by which drivers over the age of 50 begin to realize a change in their driving behaviors and patterns. Specifically, to examine what

self-regulating changes drivers make as a result of this realization and the tradeoffs, motivations, and contributing factors associated with these changes. Because Phase I of our research found that self-regulation meant so much more than the actual behaviors employed, we were very interested in including open-ended questions in the survey, asking participants what driving and self-regulation personally meant to them. The open-ended questions specifically probed the personal meaning of driving, how they changed or modified where, when or how they drive as they have gotten older, and what did they see as the reasons for these changes in habits or patterns.

Under the guidance of the first author, four senior research analysts were trained to inductively analyze the open-ended responses. A theme was achieved when consensus was reached by three of the five analysts. Because all participants did not answer all open-ended question, 5,469 total comments were analyzed and coded, for a response rate of 35.75%. The entire analysis took approximately six months to complete.

4. Results

A rich, multi-dimensional description of self-regulation emerged from the data. Throughout the analysis, our research team began to understand that driving meant much more than getting from point A to point B, rather, driving represented independence and being connected to society and life. Respondents did not see the decision of whether to continue to drive or not as a binary one. Instead, they thought in terms of how they could continue to drive in a meaningful way for as long as they possibly could. Driving self-regulation was not only a checklist of behaviors performed, but also involved strong psychological processes that shaped the nature and extent of self-regulation. In other words, self-regulation is as much about the psychological processes behind the behaviors as it is about the self-

regulation behaviors themselves. Overall, respondents indicated that self-regulation is a process that gradually happens over time and directly impacts one's identity and feelings of self-worth. The following results will first present the multidimensional description of self-regulation and then the importance of household composition and health status in decision matters related to driving and self-regulation.

4.1. Older Driver Multidimensional Description of Self-Regulation

At the very center of the description, respondents indicated that self-regulation was a combination of both attitudes and behaviors (see Fig. 1). Four dimensions strongly surfaced to reflect this combination: (a) Driving Skill and Ability, (b) Life and Society, (c) Self-Worth, and (d) Role of the Automobile. All of these dimensions contained one important main theme, respectively: (a) Declining Confidence, (b) Increased Dependence, (c) Importance of Independence, and (d) the Lack of Public Transportation.

4.1.1. Dimension 1—Driving Skill and Ability

Respondents overwhelmingly indicated that they were very aware of age-related changes to their driving ability, physical as well as psychological. As health status declined, cumulative changes in driving ability were noted. The top four changes included driving slower, more defensively, more cautiously, and being more alert. As two respondents conveyed, "More defensive driving is required than at an earlier age" and "I can't react as quickly, nor can I make decisions as quickly while I am driving." A third respondent shared, "My speed has slowed behind the wheel." Many indicated that they have become very aware of other drivers, especially aggressive drivers, and specifically anticipate other drivers' actions.

Fig. 1. Older Driver Multidimensional Description of Self-Regulation.

4.1.2. Main Theme—Declining Confidence

While respondents noticed an accumulation of physical changes first, psychological changes were a close second, specifically changes in confidence levels. To try to boost confidence, many indicated that they had taken a defensive driving class to "polish up" on the rules of the road and to see if any new techniques could be learned to help them drive more defensively. Pre-planning trips, including laying out what the best route was and strategizing to avoid rush hour traffic, highways, and longer distances also helped to maintain driving confidence.

4.1.3. Dimension 2—Life and Society

The role that driving played in keeping older adults connected to life and society was very powerful. Even though respondents indicated that they "don't drive as much as they once did" and sometimes "only when necessary," driving kept them connected to what was meaningful to them. For some, carpooling with friends became a very appropriate option. For others, "hitching a ride with family members passing through the area" was also appropriate. Regardless of the means of transportation, being able to go where one wanted to go remained just as important as when they were younger.

4.1.4. Main Theme—Increased Dependence

Many respondents indicated that they had begun to think about becoming increasingly dependent and "not being able to do what they once did and how this would impact their life in the future." One respondent referred to it as "feeling trapped in my own house." While many indicated that they now "forego trips" and "are content to stay at home," the importance of being able to drive and "get around" was still salient.

4.1.5. Dimension 3— Self-Worth

Respondents indicated that driving and "being able to continue to drive" contributed to feelings of self-worth and self-reliance. Some reported that they had a "greater awareness" of what driving allows them to continue to do, especially witnessing what some of their parents had to go through when they lost their ability to drive. Many used the word "freedom." As one respondent shared, "My driving is the most important aspect of my life and it represents freedom to me."

4.1.6. Main Theme—Importance of Independence

Respondents had a greater awareness of how driving contributed to their current level of independence and how aging or decreased health would change this. According to one respondent, "Now I realize my driving days could be getting fewer; I do not want to endanger another person. It is very difficult to give up one's independence, but it comes with age." Maintaining one's independence becomes increasingly important as respondents begin to think about the possibility of losing it. As one respondent stated, "Losing independence is hard to face."

4.1.7. Dimension 4—Role of the Automobile

The automobile, particularly its safety features and equipment, took on a new importance in the life of the respondents. They spent time finding out what the different cars had to offer and how to properly use the safety features. Many pointed out that they were "sure to get the latest model to be sure the equipment is newer and safer." Some had their cars serviced more because of potential breakdowns. As one respondent noted, "Cars are not made like they used to [be]." Another stated: "I like that my doors lock automatically on my car and that there are more safety features on new cars above and beyond accident related issues." Many indicated that they had increased the use of their cars' apparati such as the rear and side mirrors, seat belts, and cruise control (in order to maintain a safe speed). Other important variables included the size and weight of the car, and whether or not the car had antilock brakes and airbags.

4.1.8. Main Theme—Lack of Public Transportation

The lack of public transportation (bus or other mass transit) was mentioned consistently across age group, health, and household status. As one respondent noted, "If I had the option of taking the bus or other mass transit, I would, but there are no viable options available for me where I live." For some, not having adequate public transportation increased the personal significance of their automobile. As one respondent shared, "Even though I don't drive as much as I used to, my car is in my garage and I know I have it if absolutely necessary."

4.2. Importance of Household Composition in Driving and Self-Regulation Decisions

Household composition played an important role in determining what one's options were for getting around and how serious they were in enforcing self-regulation behaviors. For instance, those who lived alone or were the primary drivers in their households were less likely to self-regulate their driving. Those from a two-person household were more willing to let their partner do the driving or to split up the driving. Woman more frequently relied on their spouse for transportation than men. As one woman voiced: "There are virtually no changes except all the personal driving, highways, etc., my husband does….my vision at night is not good and I prefer to not drive." Another stated, "I leave it up to my spouse now as much as possible." Living in a two-person household also provided other benefits: an extra person to help navigate, a second pair of eyes on the road to read signs, and feedback (whether wanted or unwanted) on driving abilities and actions. As one husband shared: "My wife says I don't pay enough attention while driving!"

4.3. Health Status and Driving and Self-Regulation Decisions

As self-reported health declined, the number of self-imposed limitations on driving and self-regulation behaviors increased. Also, as self-reported health declined, so did driving confidence and enjoyment. For example, those in "excellent health" still enjoyed driving, were still confident in their driving ability, and did not modify where, when, or how they drove. Those who rated themselves in the category of "good health" indicated that they enjoyed driving less and had a less stable confidence level. They also began to notice more self-imposed limitations on driving, such as being more careful, cautious, and driving shorter distances. As two respondents wrote, "I don't drive just for fun anymore" and "I am content to stay at home." In the last health category, "poor health," respondents indicated that they had relatively no confidence and that they do not enjoy driving anymore. As someone stated, "Nowadays I only drive out of necessity. Years ago, we used to drive for fun and enjoyment." Those in the "poor health" category also indicated more than any other health categories that they had someone talk to them about their driving.

5. Limitations

Several methodological limitations must be recognized with this research. First, while the sample was nationally representative of drivers over the age of 50, the sample was drawn from a consumer market research panel; therefore, opinions expressed may be different than those of persons not willing to be members of such a panel. Second, all the participants were currently drivers. Future research should look at those who have recently (within the past 12 months) given up driving, both initiated by self or others. Third, all data are self-reported and may be incomplete and inaccurate based on self-assessment and recall. Lastly, the first author led the qualitative analysis. Hence, findings could be different if another led the analysis and trained the senior analysts.

6. Discussion & Summary

All too often, the driving decision is thought of in terms of the binary "to drive" or "not to drive." Although this may become the choice for some, this thought process is both overly simplistic and incomplete. More often, the reality of the driving decision involves when and where to drive, what trips are priorities, and how to best cope with outside conditions, including both the weather and safety (MIT & The Hartford Executive Summary, 2003). Our research asked older drivers what self-regulation meant to them and by doing so, uncovered many important variables in the driving decision. Typically, past research has provided definitions of self-regulation a priori, which generally view self-regulation as an overall alteration of driving behavior, usually adjustments to or a reduction in, due to changing or declining health and ability (Kostyniuk & Shope, 2003; Messinger-Rapport & Rader, 2000). The results from our research revealed that older drivers define self-regulation as much more than the changes in behaviors due to declining health and ability. The older adults in our research strongly emphasized the psychological processes surrounding independence, self-worth, remaining connected to life and society, and what role the automobile plays.

Our research revealed a rich description of self-regulation, comprised of four different dimensions: (a) Driving Skill and Ability, (b) Life and Society, (c) Self-Worth, and (d) The Role of the Automobile. Each dimension contained one main theme respectively: (a) Declining Confidence, (b) Increased Dependence, (c) Increased independence, and (d) Lack of Transit. Our multi-dimensional model is similar to parts of Rudman et al.'s (2006) model, which contains three processes of self-regulation that highlight the intrapersonal, interpersonal, and environmental influences. Within these processes, Rudman et al. found that having alternative transportation was an important variable when older adults considered self-regulation. Our research also found this, with respondents feeling as though public transportation was lacking and not really a viable option to help in the driving decision. The Rudman et al. model also highlighted the symbolic and practical importance of driving. Our research also found similar findings within the dimensions of Self-Worth and Life and Society. As Eisenhandler (1990) found, "For some older drivers, driving is not simply a matter of choice or convenience, but instead a fundamental part of their identity and sense of independence."

Other researchers have similarly identified some elements of our self-regulation model. For instance, Marottoli and Richardson (1998) found that social factors play into the decision to avoid or stop driving whereas our research indicated that life and social factors strongly impact the decision to continue to drive. As has been found in other studies, the importance of self-confidence and its relationship to continued driving was powerfully underscored in this study (Eby, Molnar, Shope, Vivoda, & Fordyce, 2003; Parker, Macdonald, Sutcliffe, & Rabbitt, 2001; Rudman et al., 2006) as well as the importance of driving and maintaining one's independence (Kostyniuk & Shope, 2003; Rudman et al., 2006).

As age advances, self-regulation does increase, but equally important is health as a powerful indicator of behavior change (Ball & Owsley, 2003). Respondents in the self-rated health categories of excellent and very good indicated that they did little to no self-regulation. As health declined, respondents began to see themselves self-regulating more consciously. Perceived health status also impacted their confidence and enjoyment as well, with those in the fair category enjoying driving less while those in the poor category indicating they only drive out of necessity and for emergency purposes only.

As Coughlin (2002) points out, "Transportation—like electricity—is an element of daily life that we ignore or forget until it is not available." Older adults, just like other adults regardless of age, rely on the car for personal transportation needs with over 90% choosing it as compared to other options (Collia, Sharp, & Giesbrecht, 2003). While older adults may not make as many trips or drive as many miles as younger adults, the notion that retirement is a time of relaxing at home is a myth. For those aged 75-plus, a decline in trip-making by car only decreases by 1.5 trips per day, 4.5 versus 3 per day, but driving continues (Bureau of Transportation Statistics, 2004). The desire and/or financial necessity to work later in life will present added pressure to drive. In addition, the ways in which people modify their driving will vary based on both individual and contextual factors that encompass variables such as social networks and available alternatives. Coughlin (2002) sums this up as, "Transportation becomes the glue that makes all the little and large activities of a quality life possible…Equally vital to a person's quality of life, however, is transportation that is made up of the trips that are not often recognized as critical in the classic sense."

7. Impact on Industry

In today's social climate, there are no specific norms related to the meaning of driving to help and guide older drivers and their families (Donorfio et al., 2008). All too often, older driver concerns and issues go unrecognized and unquestioned because no one knows what the right approach is. As a society, we must realize the importance of driving in maintaining independence, feelings of self-worth, and being connected to life and society. Additional research is needed to better understand and highlight the importance of the psychological components of self-regulation and what role these psychological components play in one's decision to employ or not to employ specific self-regulation behaviors.

Education programs targeting older adults need to be expanded to include not only the behavioral components of self-regulation, but also the psychological factors that play an equally meaningful role in defining independence, lifestyle choices, and feeling connected to society. Including these areas in older driver education programs could help empower older drivers and their families. Our research also found that household status plays an important role in one's driving decision. Perhaps education programs can capitalize on this by addressing the added pressures of those older adults who live alone, having only themselves to rely on for all their transportation needs.

Legislators devising policy programs need to reconsider what are viable transportation options for the older adult. As this research found, many don't feel they have any options available to them other than continuing to drive or carpooling with friends or family. As shared by one respondent, "There is a need for a more and better public transportation system so that people will have an easier time making the transition from being a driver." New and creative programs need to be developed with the older adult in mind considering such issues as: feeling safe, being able to physically navigate, having enough stamina to use, cost, and ease of connecting or making reservations. Under the Americans with Disabilities Act, every public transportation agency is required to provide complimentary paratransit service along fixed routes, but for those who live away from fixed routes (or for those who are frail) public transportation may be ruled out completely (American Public Transportation Association, 2006). Programs such as the Beverly Foundation's Supplemental Transportation Programs (2002) and Southern California's "Getting Around: Alternatives for Seniors Who No Longer Drive" (AAA, 2007) are excellent examples of providing creative transportation options to seniors who find it necessary to reduce or stop driving. According to the Beverly Foundation, mobility alternatives should meet the five A's of senior friendly transportation: availability, accessibility, acceptability, affordability, and adaptability. Transportation is vital to individual well-being and quality of life and a vital part of healthy and productive aging. As Coughlin (2002) states, "Unless truly viable and attractive transportation service are greatly expanded or reinvented, they will not meet the mobility needs of older adults who do not, or who no longer drive."

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