



On-road driving evaluations: A potential tool for helping older adults drive safely longer

Jane C. Stutts^{a,*}, Jean W. Wilkins^b

^aHighway Safety Research Center, University of North Carolina, 730 Airport Road, Campus Box 3430 Chapel Hill, NC 27599-3430, USA

^bSchool of Medicine, University of North Carolina, Chapel Hill, NC, USA

Abstract

Problem: This paper explores the potential use of on-road driving evaluations as a tool for helping older adults extend their safe driving years. *Method:* Three separate research activities were carried out. The first was a national telephone survey of current and former older drivers. The results of this survey provide information relevant to the potential market for on-road driving evaluations. The second was a series of focus groups with potential stakeholders in the process: driver educators, occupational therapists, and physicians. These groups explored the feasibility and requirements of offering on-road driving evaluations to the wider public. Supplemental data were also collected from a mail survey of driving schools nationwide. *Results:* Based on the results of these efforts, a number of recommendations are presented for expanding the availability of on-road driving evaluations, specifically to help older adults make more responsible decisions about continuing or stopping driving, and more generally to help them drive safely longer.

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Keywords: Driving evaluation; Driver assessment; Older driver; Fitness to drive

1. Introduction

In the United States, older adults are heavily dependent on personal automobiles for meeting their transportation needs. According to data from a 1995 Nationwide Personal Transportation Survey, 92% of trips taken by persons age 65 or older are in personal vehicles, and for three fourths of these trips older adults drive themselves (European Conference of Ministers of Transport [ECMT], 2000). Older adults who have relinquished their license suffer a loss of mobility: they make fewer trips, engage in fewer activities outside the home, and are less satisfied with their ability to go places (Evans, 2001; Marottoli et al., 2000; Rosenbloom, 2001; Stutts, Wilkins, Reinfurt, Rodgman, & Van Heusen-Causey, 2001). They experience decreased life satisfaction and a loss of independence and personal identity (Burkardt, Berger, Creedon, & McGavock, 1998; Carp, 1988; Cutler, 1975; Eisenhandler, 1990). They also experience greater health problems, including higher incidences of depression, and may be at risk for other negative health outcomes including heart disease, fractures, and stroke (Bassuk, Glass, & Berk-

man, 1999; Fonda, Wallace, & Herzog, 2001; Marottoli et al., 1997). Given this litany of losses, it is no wonder that maintaining their license to drive is a top priority for most older adults.

The reality of aging, however, is that many of the sensory, physical, and mental skills needed to safely operate a motor vehicle deteriorate. As a group, older adults have poorer visual acuity, reduced nighttime vision, poorer depth perception, and greater sensitivity to glare; they have reduced muscle strength, decreased flexibility in the neck and trunk, and slower reaction times; they also are less able to divide their attention among tasks, filter out unimportant stimuli, and make quick judgments. In addition, older adults are more likely to suffer from chronic medical conditions and to consume medications for their treatment, both of which can further compromise their ability to drive (Dobbs, 2002; Janke, 1994; Johansson & Lundberg, 1994; Pleis & Coles, 2002; Rathmore, Mehta, Boyko, & Schulman, 1998; Ray, 1992). Although their reduced miles keep their overall crash numbers low, older drivers' crash rate on a per mile driven basis is twice that of middle-aged drivers, and once these individuals are involved in a crash their greater fragility makes them three to four times more likely to experience serious or fatal injury (Cerrelli, 1998; Eberhard, 1996).

* Corresponding author. Tel.: +1-919-933-0563; fax: +1-919-962-8717.

E-mail address: jane_stutts@unc.edu (J.C. Stutts).

For those older adults who must stop driving, there are often few options for maintaining mobility. Seventy-three percent of U.S. adults age 65 and older live in suburban or rural areas that provide little or no access to public transportation, and 30% live alone (40% of women and 17% of men; Administration on Aging, 2002). As a result, many are faced with the dilemma of either continuing to drive at increased risk of injury to themselves and others, or stopping driving and suffering the negative consequences of reduced mobility.

It is within this context that the U.S. Department of Transportation (DOT) has set a national highway safety priority of keeping older adults driving as long as they can do so safely, and providing adequate transportation options for those who cannot do so or who simply choose not to drive (U.S. DOT, 1997). This paper reports on a research project that investigated the potential usefulness of on-road driving evaluations as a tool for helping older adults make responsible decisions about continuing or stopping driving and maximizing their safe driving years.

2. Background

As part of a cooperative agreement with the U.S. Department of Transportation, General Motors funded a number of 3-year research studies beginning in 1998 focusing on the safety and mobility of older adults. A project awarded to the University of North Carolina Highway Safety Research Center was entitled “The Premature Reduction and Cessation of Driving by Older Men and Women.” The primary goals of the project were to (a) identify potentially remediable factors associated with premature driving reduction or cessation, and (b) explore possible interventions for counteracting the premature reduction or cessation of driving and extending the period during which older adults are able to provide for their own mobility needs with safety and confidence (Stutts et al., 2001). The project involved a series of focus groups, a pilot study, and national telephone and mail surveys.

As a first step in the project, 10 focus groups were held in five locations across the country (Stutts, Wilkins, & Schatz, 1999; also available in Stutts et al., 2001). Half of the groups targeted seniors who had either recently stopped driving or who might soon be facing such a decision, and half targeted family members (most often the adult children) of such seniors. The purpose of the focus groups was to develop a better understanding of the process that seniors go through when faced with decisions about continuing or stopping driving. The researchers also wanted to explore whether there really was a subgroup of seniors who stopped driving prematurely, and who exactly these were.

Results of these initial focus groups suggested that older adults do not adequately plan for stopping driving and that men are especially reluctant to stop. When faced with this difficult transition, most seniors and their families feel that

they are alone in their struggles, with few resources to turn to for help. Although seniors considered it important to make their own decisions and thought that they would know when to stop driving, it appeared that some were continuing to drive too long, while others were stopping prematurely. In particular, older women who had never really enjoyed driving, who were uncomfortable in their current driving environment, and who had a spouse who was ready and willing to drive them places, were identified as likely candidates for stopping driving too early (Stutts et al., 1999).

As a follow-on to these focus groups, two additional groups were held and an intervention was piloted (Wilkins, Stutts, & Schatz, 1999; also available in Stutts et al., 2001). The focus groups targeted just those women who had been identified as candidate “premature reducers.” Specifically, they were women between the ages of 62 and 85 who had stopped driving on a regular basis no more than 10 years ago, who now drove either not at all or no more than once a week; who had no vision or other health problems that would preclude them from driving, and who had not stopped driving for financial reasons or because of a preference for public transportation. Of the 15 women who participated in the focus groups, 10 expressed a strong desire and/or need to resume driving and agreed to participate in an on-road driving evaluation to assess their driving capabilities.

The evaluations were conducted by an experienced driving instructor who was employed by a local driving school. Eight of the 15 women eventually participated in the evaluations. Of these eight, four drove well and the instructor saw no need for additional lessons; three more drove acceptably and safely but were encouraged to schedule one to three lessons to build confidence, practice skills, and correct any bad driving habits; the final driver’s skills were more questionable and she was recommended for further evaluation. When contacted later about their experiences, almost all the women reported more frequent driving, and the subjective response to the evaluations was highly favorable (Wilkins et al., 1999).

Based on this initial success, additional research activities were planned to further explore the potential market for on-road driving evaluations and the feasibility of offering them to seniors through local driving schools. Although piloted in a population of women as an intervention for helping them resume regular driving, our initial focus groups with male and female drivers who had recently stopped driving or who might soon be needing to stop suggested that the evaluations might be a useful tool for any older adult facing concerns about their driving ability. Not only could they provide objective, “third party” feedback that seniors could incorporate into their own decision making, but they could relieve some of the pressure family members feel in being solely responsible for an older relative’s driving safety. Thus, the focus of the project was expanded to studying on-road driving evaluations as a

potentially useful tool for helping all older adults make more responsible decisions about driving—neither stopping driving too soon and needlessly restricting their mobility, nor continuing driving too long and placing themselves and others at increased risk of crashing.

Three separate research activities were carried out. The first was a national telephone survey of current and former older drivers. The results of this survey provide information relevant to the potential market for on-road driving evaluations. The second was a series of focus groups with potential stakeholders in this process: physicians, occupational therapists, and driving school instructors. These groups explored the feasibility and requirements for offering evaluations to the wider public. As a supplemental activity, data were collected from a mail survey of driving schools throughout the country. The results of these efforts are summarized in the remainder of this paper. More detailed information on each is provided in [Stutts et al. \(2001\)](#).

3. Methods

3.1. National telephone survey of current and former drivers age 65 or older

The sampling frame for the national telephone survey was a purchased listing of names, addresses, and telephone numbers of 4,999 U.S. residents age 65 or older. Potential participants were mailed a postcard explaining the survey prior to telephoning. When contacted by telephone, participants were screened to exclude persons under the age of 65 and those who had never had a drivers license. The survey was conducted during November and December of 1998 using computer assisted telephone interviewing, with interviews generally lasting 12–15 minutes.

The survey encompassed a broad range of driving and mobility topics (see [Stutts et al., 2001](#), for the full survey). For the purposes of this paper, results focus on the responses of former drivers to questions about their decision to stop driving, and on the responses of both former and current drivers to questions about their participation in driver education, training, or evaluation programs.

3.2. Stakeholders focus groups

Focus groups were conducted with key stakeholders to obtain input regarding the practical aspects of offering on-road driving evaluations to seniors. These targeted driving school owners and instructors, occupational therapists, and physicians. Five focus groups with driver educators were scheduled in conjunction with regional and annual conferences of the Driving School Association of the Americas (DSAA) during the spring and summer of 1999. These were held in Detroit, Toronto, and Las Vegas. Two more focus groups with occupational therapists and/or certified driver rehabilitation specialists were conducted in conjunction with

the annual meeting of the Association for Driver Rehabilitation Specialists held in Louisville, KY, in August 1999. A group of physicians representing a wide range of practices was convened in Chapel Hill, NC, also in the summer of 1999. (A second focus group was planned for the eastern part of the state to hear from physicians working in more rural settings, but had to be cancelled due to a hurricane and its aftermath.)

The focus groups explored such issues as the potential value of on-road driving evaluations, how the evaluations should be structured, who should offer them, and how they might be marketed. Copies of the moderator guides are included in [Stutts et al. \(2001\)](#). The focus groups were audio recorded and transcribed, and results were tallied and summarized according to topic area.

3.3. Driving school survey

In addition to these focus groups, a mail survey was conducted to obtain more detailed feedback from a larger sample of driving schools. Using a mailing list provided by the DSAA, surveys were sent to all 219 member schools and to a sample of 384 nonmember schools. The nonmember schools were randomly selected from each state proportional to their representation on the list (i.e., states with more listed schools were sent more surveys). All but 3 of the 50 states were represented in the final mailout of surveys.

Topics addressed by the survey included current practices with regard to offering on-road driving evaluations, sources of referral, cost of evaluations, marketing strategies, and general interest in and needs for providing this type of service. A copy of the full survey is included in [Stutts et al. \(2001\)](#).

4. Results

4.1. National telephone survey of current and former drivers age 65+

The overall response rate to the survey was 50.2%. Nonrespondents included households never contacted (6.6%), noneligible households (4.4%), noneligible subjects (10.4%), inability to participate due to hearing, language, or health problems (4.2%), refusals (22.0%), and other (2.2%). The survey cooperation rate, defined as the number of completed interviews divided by the number of completions plus refusals, was 69.6%. There were a total of 2,510 participants, consisting of 2,339 current drivers (93.2%) and 171 former drivers (6.8%). Overall, 56.7% of participants were female and 43.3% were male, compared to 51.3% female and 48.7% male for all licensed U.S. drivers age 65 or above ([Federal Highway Administration, 2000](#)). The age distribution was similar to the overall licensed driving population except for a slight underrepresentation in the oldest age categories (ages 80–84 and 85 or above).

Survey results were not weighted, but were examined with respect to both variables.

Compared to current drivers, former drivers were significantly more likely to be older, female, and non-White: 63.1% were age 75 or above (compared to 35.1% for current drivers), and 79.5% were female (compared to 55.0% for current drivers). Very few, only 5.6%, were males under the age of 75. When asked about their primary reason for stopping driving, just over half cited a health-related reason (see Table 1). However, over a fourth offered reasons that were not tied to any specific medical condition or event, but which were more related to a lack of confidence in their driving ability and a lack of comfort driving under current roadway and traffic conditions.

Women were much more likely than men to give a comfort-related reason for stopping driving (26.7% vs. 5.7%). They were also more likely to have stopped because of the costs of owning a car or because they no longer owned a car (11.1% vs. 3%). Men, on the other hand, were more likely to cite a health-related reason for stopping driving (77.1% vs. 45.2%). In contrast to these gender differences, there were no significant age differences in primary reason for stopping driving.

Former drivers were also asked whether, in retrospect, they felt they had stopped driving at the right time, earlier than they should have, or later than they should have. Nearly a third (31.7%) responded that they stopped driving

earlier than they should have; 59.6% said they stopped at the right time, and 8.7% admitted to stopping too late. Younger females and younger males were equally likely to feel that they had stopped driving too early—44% for both sexes. Not surprisingly, the percentage of respondents saying they stopped earlier than they should have decreased with age, from a high of 56% for the youngest respondents, ages 65–69, dropping to 13.3% for those aged 85 or above. These age categories represent the respondent's age at the time of the survey, and not when they stopped driving.

As a follow up, former drivers were also asked whether they felt they had made the right decision to stop driving. Overall, 88.2% said that they had; however, only 72.0% of 65- to 74-year-old females said that they had.

Both former and current drivers were asked if they had ever attended a driving class or driver refresher course, other than one they may have taken when first learning to drive. One fourth (25.4%) reported that they had. For nearly a third of the respondents this had been within the past year, and for another third it had been within the past 2–4 years. The AARP 55 Alive Mature Driver class was by far the most frequently identified course, but both AAA courses and National Safety Council defensive driving classes were also mentioned. Most said that they took the class simply because they thought it was a good thing for them to do (43.5%), or because of the car insurance discount provided (39.3%).

Apart from a driver education class, all participants were also asked if they knew of any place in their community where they could voluntarily go to take a road test (i.e., “actually drive for about an hour with someone in the car with you to evaluate how well you drive”). Although nearly a fourth (23.6%) said that they did, the location that was most often identified was the local driver's license office or DMV. Only a small percentage identified driving schools, senior centers, or other non-DMV associated sites, and only 50 respondents (2.0% of all respondents) said that they themselves had participated in an on-road driving evaluation.

When asked if they thought there was a need for a place, other than driver license offices, where seniors could voluntarily go to be road-tested, half (49.6%) agreed that there was. However, 28.5% did not see it as a need, and 21.9% had no opinion on the issue. Younger drivers were significantly more likely than older drivers to support the idea, and males more likely than females. Reactions to having one's own driving evaluated at such a place were mixed, with the largest proportion saying, “Not now, but maybe in the future.” Cost of the evaluations was also a factor, with four out of five respondents saying that the US\$60 fee typically charged by a driving school for a 1-hour on-road evaluation was too much.

4.2. Focus group with stakeholders

Altogether, there were 31 participants in the driving school focus groups, 10 participants in the occupational

Table 1
Responses of 171 former drivers to the following open-ended question: “Please tell me the most important reason why you stopped driving”

Primary reason for stopping driving	%
<i>Health related</i>	
Problems with vision	23.5
Health problems other than vision	13.5
Problems with use of arms or legs, turning head or neck	9.4
Doctor advised not to drive	5.3
	51.7
<i>Driving comfort related</i>	
Didn't enjoy or feel comfortable driving	5.9
Didn't like driving environment	4.1
Didn't need to drive, someone else could drive	4.1
Didn't feel a safe driver	4.1
Nervous	4.1
Poor reflexes, didn't feel could react quickly enough	1.8
Afraid of crime	1.2
Family encouraged	1.2
	26.5
<i>Other</i>	
Cost to own a car	4.7
No longer own car	4.7
In an accident	4.1
License not renewed	2.4
	15.9
Unspecified	5.9
TOTAL	100.0

Responses grouped for presentation.

therapist groups, and 7 participants in the single physician group. Highlights follow.

4.2.1. Driver educators

Almost all of the driving school participants said that their schools provided evaluations for seniors. Because of laws in some Canadian provinces requiring seniors to take a road test every few years once they have passed a certain age or if involved in a traffic crash, the Canadian schools tended to offer the evaluations more frequently. Although most of the participants said that they enjoyed providing evaluations to seniors, there was consensus that not every instructor possessed the necessary skills and qualities to evaluate and teach older adults. A sharp contrast was drawn between evaluating and training older adults, and teaching teens how to drive. One of the greatest challenges identified was knowing how, and when, to tell an older adult that they should not be driving. Participants cautioned that it was wrong for instructors to give older adults the impression that lessons can make them safe drivers if their driving performance clearly indicated otherwise. Even though instructors realized that their evaluations carried no legal weight with driver licensing officials, they still felt a responsibility to persuade those who should not be driving to stop. When conducting their evaluations, most, but not all, felt that they needed to test seniors in all types of driving environments, regardless of whether the senior claimed that they “just want to be able to drive in the neighborhood” or not.

Although driving instructors generally do not hold any specialized degrees, most of the focus group participants felt that they had developed the skills and knowledge necessary to evaluate a senior’s driving ability. At the same time, they were receptive to additional training, for example, on the effects of stroke, vision changes in the elderly, and medication effects on driving. And while they saw benefits in collaborating with occupational therapists and certified driving rehabilitation specialists (e.g., letting them do the initial assessment and driving schools the training), they also pointed out that the services of occupational therapists are expensive and that “the bottom line” was how well drivers performed.

4.2.2. Occupational therapists

The 10 occupational therapists who participated in focus groups all worked in hospital or rehabilitation settings and primarily evaluated clients with medical conditions referred to them by physicians. Their evaluations typically involved an initial interview for obtaining medical and driver histories; a clinical component in which they tested their client’s vision, cognition, range of motion, strength, coordination and sensation; followed by a behind-the-wheel driving assessment. The clinical portion generally took about 2 hours and the on-road portion 1 hour. While these could all be done on the same day, participants saw advantages to scheduling the road test on a separate day so that they would have more time to review and interpret the clinical results

before letting the client drive. Access to the client’s medical chart was seen as especially helpful, since it guides the selection of tests for the clinical exam and suggests what to look for in the on-road exam.

Not all clients need the full clinical exam (e.g., those with an identified disability seeking adaptive equipment). Participants generally agreed, however, that unless clients’ clinical results clearly substantiated their inability to drive safely, they should be given the opportunity to drive. Even though the more typical outcome might be for clients to perform worse on the on-road test than predicted by their clinical evaluation, there were still occasions where clients “surprised” the evaluator by performing better. Results from the driving evaluation were also seen as an important tool for convincing some clients to stop driving.

In addition to pointing out what to look for in the on-road assessment, participants said that they used the clinical results to help them identify and address specific driving-related deficits (e.g., by providing appropriate adaptive equipment). In general, the occupational therapists saw the clinical portion of their evaluations as too important a component to omit, and cited this as the primary reason driving schools might not be adequate for the task of evaluating older adults competency to drive. And while they expressed some willingness to partner with driving schools in providing on-road driving evaluations, they clearly wanted to remain in control of the process.

4.2.3. Physicians

Physicians were recruited to participate in a focus group primarily to learn how they typically deal with their elderly patients about issues of driving safety. The seven doctors who participated represented the fields of geriatrics, family medicine, internal medicine, ophthalmology, psychiatry, and neurology. All felt a responsibility for addressing their patients medical fitness to drive. However, while they agreed that they could tell if a patient was clearly unsafe to drive, determining that they were safe drivers posed greater difficulties for these physicians. Most said that faced with this situation, they would refer their patient to a physical or occupational therapist, or to the DMV. They saw particular benefits to the former, since they felt it resulted in a thorough assessment and did not threaten the doctor–patient relationship. At the same time, they saw a responsibility to report potentially unsafe patients to licensing authorities, both to ensure their safety and to protect themselves against possible lawsuits.¹ The physicians were mixed, however, in how they used the DMV, some preferring to report only those patients who they knew would not stop driving on their own, some using it more freely to avoid “playing the bad guy” themselves, and another not wanting to use it because she felt the DMV was far too lenient in

¹ In North Carolina, physicians are not legally required to report drivers they believe may be unsafe, but are provided immunity from potential prosecution if they do so.

who it allowed to drive. For most, the goal was to have the type of doctor–patient relationship that precluded the need for reporting.

When asked if they would consider using the services of a driving school to assist them in evaluating and counseling their patients, the physicians gave their unanimous approval. In further discussion, they indicated that they would prefer that the driving instructor report the results of the evaluation directly to them, so that they could appraise it in conjunction with their own knowledge of the patient and advise the patient accordingly. They also felt that it was important for the driving instructor to be trained and certified in offering on-road driving assessments (although not necessarily at the level of an OT or certified driver rehabilitation specialist). Finally, the physicians indicated that a flyer or brochure mailed to their office would be the best approach for driving schools to market such services.

4.2.4. Driving school survey

A total of 603 surveys were mailed to driving schools nationwide. Of these, 13 were undeliverable due to incorrect addresses. Of the 590 remaining surveys, 196 were completed and returned for an overall response rate of 33%. Forty-nine percent of the returned surveys were from schools that were members of the Driving School Association of the Americas, and 51% were from nonmember schools.

One hundred twenty-two, or 62%, of the responding schools said that they provided on-road driving evaluations “to experienced senior drivers.” While most (59%) did so only rarely, 30% said that the driving evaluations were “a reasonable part” of their business and 11% said they were “an important part” of their business. When evaluating a senior, 58% of the schools said that they used a standard form for documenting performance; however, each school’s form was different. The majority of the schools reported that they were willing to tailor their evaluations to match a driver’s needs: 60% reported doing so occasionally, and 26% often. Only 14% said that they never did so. On average, the schools reported that 46% of the individuals they evaluated came to them on their own accord or at the urging of family or friends; 27% were referred to them by a physician, rehabilitation specialist, or other medical personnel; 15% were referred by state licensing officials; and 1–2% arrived by other means.

Only about a fourth of the schools routinely examined drivers functional abilities as part of their evaluations: 20% reported routinely checking vision; 34% mental abilities; and 24% physical function. Use of standardized assessment instruments or procedures was rare. More often, schools reported evaluating drivers informally through observation, conversation, and during the on-road assessment.

The average length of an evaluation was just under 2 hours, and the average cost was US\$88. Three fourths of the schools reported charging less than US\$100, and one fourth charged less than US\$50. Cost and length of an evaluation

were closely correlated (Pearson $r=.76$). There was also some indication that the higher priced assessments may have incorporated further evaluations and/or lessons. Nearly half (48%) of the schools said that they sometimes scheduled persons for follow-up evaluations, for example, if they were nervous or upset during the initial drive or if there were changes in their medical condition. And for many of the schools, evaluations could be a springboard to further lessons or training.

When questioned about pitfalls or problems encountered in providing evaluations, a frequent response was having to deal with family members or medical professionals who pressure them to tell someone they should stop driving, even when the evaluation results indicate that stopping may not be necessary. Another frequent response was the poor attitude on the part of many seniors, and their refusal to accept constructive criticism about their driving. Despite these problems, most driving instructors said that they enjoyed working with seniors. Some of the things they most enjoyed were helping seniors be safe drivers, helping them regain or retain their license and independence, helping them build their confidence as drivers, and providing a valuable service to the community by making the roads safer.

Finally, schools offering evaluations were asked if they did anything to market their services to seniors. Only 29% said that they did. By far the most popular marketing tool was an ad in the Yellow Pages of the telephone book. Other approaches included brochures and other print materials distributed to physicians and rehabilitation centers, print materials for distribution to the broader community, and simply encouraging current customers to help “spread the word.” Only one school specifically noted making presentations at senior centers, churches, or other community settings.

The 74 driving schools that reported not providing driving evaluations to seniors were asked if they felt they had the information and skills needed to offer such a service. A majority, 58%, felt that they did, primarily because of their years of experience in teaching others to drive. Only 17% said they did not have the prerequisite information or skills, while 25% expressed uncertainty. Regardless of their perceived qualifications, many of the respondents not currently providing evaluations expressed interest in education or training to better prepare them to work with senior drivers. In addition to information on how aging affects abilities related to driving, suggestions included having standardized guidelines for conducting evaluations and involving physical therapists in the training process (and sometimes in the evaluations themselves).

The most frequent reason given for not offering on-road driving evaluations was that there was no demand in the area for the service (45% of respondents). Other reasons included being too busy with younger clientele (23%), not feeling qualified (8%), and a belief that the service is too costly to be profitable (7%). Despite these reservations, 42%

of the schools not currently conducting evaluations said that they were very interested in doing so at some future time, and an additional 37% said that they were somewhat interested.

5. Discussion

This paper reports on several activities carried out to explore the potential usefulness of on-road driving evaluations as a tool for helping older adults extend their safe driving years. The on-road evaluations were originally conceived as a way of helping older women resume driving following premature reduction or cessation. However, in discussing driving with older adults and family members, it became clear that many wanted an objective, professional source of advice when faced with the decision of whether to continue or stop driving. This led to a broader examination of who might benefit from the evaluations, what should be included, and how they could be made available.

The results of the national telephone survey revealed that many older adults might be helped to make better decisions about driving. In particular, women appear at risk of stopping driving prematurely, while men may be at risk of stopping too late. Women who participated in the survey were much more likely than men to have stopped driving. They were also much more likely to have stopped for reasons unrelated to their health. Like the women who had participated in our earlier pilot study, they had often (27% of the time) stopped because of a lack of confidence in their driving skills and feelings of discomfort behind the wheel. Also like the women in our pilot study, many had since come to believe that they stopped too early. This was especially true for women in the 65–74 year age range, where 44% told us they stopped driving too soon. Although 44% of men age 65–74 also said they stopped driving too soon, there were many fewer men in this age range who had stopped driving. Overall, the females interviewed were three times more likely than the males to have stopped driving, even though their age distributions were similar. While this does not necessarily imply that men are stopping driving too late, it does suggest that this possibility should be investigated.

The telephone survey also confirmed what was already suspected about driving evaluations: that very few older adults know of places, other than the DMV, where they can go for an evaluation, and even fewer have actually used such services. While this largely reflects the dearth of existing facilities (either driver evaluation and rehabilitation programs or driving schools catering to older adults), it also points to a need for better marketing of whatever programs currently exist.

Clearly occupational therapists and other rehabilitation specialists trained in driving assessments are well equipped to evaluate older adults' driving. But if the goal is to help as many older adults as possible drive as long as possible, then

the results of this research suggest that there might also be a role for driving schools to play in this process. In particular, occupational therapists should continue their involvement in evaluating and, when appropriate, rehabilitating individuals with medical conditions and/or functional impairments that can seriously limit their ability to drive. With appropriate training, driving instructors might also perform this function, especially if they are coordinating with an individual's physician. A primary role of driving schools, however, should be to evaluate, counsel, and train the "well elderly." In this capacity, greater emphasis should be placed on maintaining lifelong driving skills, with the goal of identifying and correcting driving deficiencies before they create safety problems and/or before they cause persons to stop driving.

This approach can only be successful if driving instructors know when they should refer individuals for the more comprehensive assessment of an occupational therapist or other medical professional (vision specialist, orthopedic specialist, etc.). At a minimum, this requires some level of client screening using standardized tests and procedures. It also requires that driving instructors receive some formal training on age-related diseases and disabilities that can impair driving abilities. Ideally, driving schools would form cooperative relationships with occupational therapists, with each freely referring to the other. While a few good examples of such programs exist (for example, at Ohio State University Medical Center), they are by no means the norm. Another option is for driving schools to market their services to physicians, with the physician assuming responsibility for the "clinical" portion of an evaluation. Again, this will be most successful if the driving instructor and physician have established open channels of communication.

The real goal, however, is for driving evaluations, either by occupational therapists or driving schools, to be marketed as a resource directly to older adults and their family members. Even without the involvement of a physician, older adults and their families need to know that if questions about driving arise, there are places where they can go for assistance. Not only can these places evaluate driving, but they can provide guidance and training to help maximize an older person's years of safe driving. Thus, in addition to physicians' offices, marketing strategies might target area agencies on aging, senior centers, DMVs, churches, group lunch programs, and other settings where seniors congregate.

There are considerable benefits to involving driving schools in offering on-road evaluations to older adult drivers. There are many more driving instructors than there are occupational therapists and certified driver rehabilitation specialists—something that will become even more critical as the baby boomers advance into the realm of older drivers. In addition, driving schools can provide their services at significantly lower costs than can hospital-based programs, in part because they already have access to vehicles and vehicle insurance. They can also efficiently incorporate

seniors into their programs, filling in the times when teen drivers are in school. And as noted above, they are especially well suited to evaluating and counseling the majority of older adults who do not have significant health problems affecting their driving.

6. Future work

The following recommendations for future research and programmatic activities are offered: (a) Encourage occupational therapists and driver educators to work cooperatively to make driving evaluation services more widely available and affordable to older adults; (b) Encourage more occupational therapists to obtain formal certification as Driver Rehabilitation Specialists, and develop a similar training and certification program for experienced driver educators; (c) Encourage driving schools to offer evaluations and to market their services to the growing population of older adult drivers; (d) Educate physicians about potential resources available in their communities for assisting them in counseling their patients about driving; (e) Explore linkages between DMVs and driver evaluation programs/driving schools (e.g., DMV involvement in training and certifying driving instructors, DMV referrals for evaluation); and (f) Develop comprehensive community-based senior transportation programs that can provide referrals to needed driver evaluation and training services, as well as information on alternatives to driving for meeting transportation needs.

Acknowledgements

This research was funded by General Motors, pursuant to an agreement between General Motors and the U.S. Department of Transportation. The opinions expressed in the report are those of the authors and not necessarily those of the sponsors.

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Jane C. Stutts is Associate Director for Social and Behavioral Research at the University of North Carolina Highway Safety Research Center. During her 28 years at HSRC she has conducted research on a wide range of transportation safety topics. In addition to her work in the older driver area, she has directed projects on driver distraction, drowsy driving, pedestrian and bicyclist safety, motorcyclist safety, and novice driver education. She is a member of the Transportation Research Board Committee on the Safety and Mobility of Older Persons (A3B13), and served on the Steering Committee for a Conference on Transportation in an Aging Society: A Decade of Experience. Dr. Stutts received her undergraduate degree in psychology from Wake Forest University and her PhD in epidemiology from the University of North Carolina at Chapel Hill.

At the time of this project, **Jean Wilkins** was a Clinical Associate Professor at the UNC School of Medicine, Departments of Psychiatry and Neurology. During her 20 years at the University of North Carolina, Dr. Wilkins was a clinical psychologist specializing in neuropsychology. Her clinical and research interests included the assessment and prevention of brain injury. She received her BA in Psychology and her PhD in Clinical Psychology from the University of North Carolina at Chapel Hill. She now enjoys a second career as Event Coordinator at Virginia International Raceway.