

# **The Role of Transportation Support in the Driving Cessation Process among Community-Dwelling Older Adults**

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## **Statement of the Research Problem**

Driving is necessary for mobility among older adults in the United States. Older adults age 65 and older use private vehicles more than any other mode of transportation, making 89 percent of their trips in a private vehicle either as a passenger or driver (Houser, 2005; Rosenbloom, 1993). In addition to this personal importance, older drivers have received increasing social attention because of the road safety issue. Fatal motor vehicle crash rates per miles driven follow a U-shape curve, with the highest rates among the youngest and oldest drivers (Dellinger, Sehgal, Sleet, & Barrett-Connor, 2001). However, older drivers tend to drive shorter miles than other age groups except the youngest drivers (Federal Highway Administration, 2003). Given that, fatal motor vehicle crash rates could be biased upward (Dickerson et al., 2007) and need to be carefully interpreted. Nevertheless, it is clear that older drivers are a vulnerable group to accident-related injuries due to their age-related frailty. Older adults have a greater risk of being killed or seriously injured when involved in a crash, and if they survive, they are more likely to require hospitalization, and their recovery is longer and less complete than for their younger counterparts (Dobbs & Carr, 2005).

Due to social concerns about road safety, a large volume of studies have been conducted on risk factors for driving cessation. However, the majority of previous studies have been developed based on perspectives of macro-stakeholders like social policy makers with a focus on safety issues. Those studies have mainly focused on how to regulate older drivers' behaviors, dealing with subjects such as older drivers' collision involvements, screening at-risk older drivers, or factors influencing older drivers to change their driving behaviors. In this context, causes of driving cessation have been extensively explored in the prior literature (Edwards et al., 2008; Marottoli et al., 1993). However, surprisingly little is known about how older adults satisfy their transportation

needs when they face difficulties in driving private vehicles and how formal and informal transportation support influences older adults' decision making about stopping driving.

Furthermore, previous studies have shown that driving cessation causes negative consequences in social and psychological well-being among older adults (Fonda, Wallace, & Herzog, 2001; Marottoli, Mendes de Leon, Glass, & Williams, 1997; Marottoli et al., 2000a; Ragland, Satiriano, & MacLeod, 2005). Specifically, driving cessation increases depressive symptoms (Fonda et al., 2001; Marottoli et al., 1997; Ragland et al., 2005) and decreases out-of-home activity levels (Marottoli et al., 2000b). Considering the negative consequences of driving cessation on social and psychological wellbeing among older adults, having accessible alternative transportation is very important for older adults to maintain their lifestyles and self-identity as an independent person after ceasing driving. Thus, formal and informal transportation support plays an important role in mobility of older adults throughout the driving cessation process. Nonetheless, very few studies have explored the role of transportation support in the driving cessation process among community-dwelling older adults.

In this regard, this study aims to fill the knowledge gaps in the role of transportation support in the driving cessation process among community-dwelling older adults by examining (1) relationships between transportation support and driving avoidance, (2) the impact of transportation support on decision-making about driving cessation, (3) the difference in receiving transportation support between former and current drivers, and (4) gender differences in receiving transportation support after controlling driving status.

## **Research Background and Hypotheses**

### **Role Theory**

Role theory provides a good theoretical foundation for understanding the driving cessation process in later life. Across the life course, individuals experience role changes, role losses or gains, which influence their social identities and self-concepts. Two key concepts derived from role theory in understanding the driving cessation process in later life are role loss and gender norms.

Driving ability means mobile independence and competence in American culture (Satiriano, 2007), thus the loss of the driver role causes the transformation of self-concepts and identities for many older adults. Existing studies have shown that driving cessation leads to role changes not only from drivers to passengers, but also from the independent to the dependent (Adler & Rottunda, 2006; Marottoli et al., 1997; Rudman, Friedland, Chipman, & Sciortino, 2006).

In addition to this role loss, gender norms constructed across the life course continue to influence individuals' decision to stop driving as well as receiving formal and informal transportation support. For both drivers and former drivers, women are more likely to be passengers than men (Kostyniuk & Shope, 1999), and older women voluntarily stop driving at younger ages and in better health than their male counterparts (Adler & Rottunda, 2006). A majority of those who never drove are more likely to be women and minority ethnic groups (Davey, 2007; Siren & Hakamies-Blomqvist, 2006).

Given gender norms, it is more socially acceptable for women to be dependent on their families and friends regarding mobility than for men. Thus, women can be more comfortable asking for and receiving help from their informal networks than men. Siren and Hakamies-Blomqvist (2005) suggested that women had a much higher degree of dependency on other people, most often their spouse, than men did for their personal mobility. Adler and Rottunda (2006) also pointed out that older males were more reluctant to ask family and friends for transportation than older females. Therefore, gender norms appear to influence patterns of individuals' usage of alternative transportation in later life.

### **The Selection, Optimization, and Compensation (SOC) Model**

The selection, optimization and compensation (SOC) model, as a strategy of life management, builds on the assumption that throughout the entire life span, people experience gains and losses. People encounter certain opportunity structures (e.g., education) as well as limitations in resources (e.g. illnesses) that can be mastered adaptively by an orchestration of three components: selection, optimization, and compensation (Freund & Baltes, 1998). In old age, a dynamic interplay between gains and losses becomes one involving an increasingly less positive balance. This is at least partly due to the fact that, although resources promoting growth are limited throughout the entire lifespan, this limitation increases with age (Freund & Baltes, 2000). Successful development is defined as the simultaneous minimization of losses and maximization of gains (Freund & Baltes, 2000).

The SOC model provides a theoretical foundation in understanding the adaptation to the balance between driving cessation (losses) and transportation support (gains). Due to age-related declines like physical impairment, older adults decide to stop driving their vehicles (selection). To maintain their lifestyles and mobility, former drivers enhance their knowledge about alternative transportation or move to a place where driving is less demanded (optimization). Finally, former drivers receive more formal and informal transportation support, such as receiving rides from friends or hiring drivers, than they do when driving. Through that, former drivers reduce the impact of driving cessation on their mobility (compensation). In this regard, transportation support can be a compensatory means for driving cessation.

The SOC model has a well-structured framework with three specific components, which are applicable to adaptation to non-driving. This framework is useful in developing hypotheses for the research questions proposed in this study. In particular, the concepts of optimization and compensation assist with identifying the change in transportation support that older adults receive throughout the driving cessation process. For example, given the process of optimization, learning about available alternative transportation helps older adults to achieve the selected goals, driving avoidance or cessation. Moreover, the SOC model would predict that former drivers are more likely to seek and receive transportation support than current drivers to compensate for their loss of driving function.

### **Formal and Informal Transportation Support for Older Adults**

Glasgow and Blakely (2000) analyzed positive and negative aspects of different modes of informal transportation arrangements, using qualitative data from focus groups of older nonmetropolitan residents. In Glasgow and Blakely's study, informal transportation support gave older nonmetropolitan residents a sense of being cared for by family members as well as positive social interaction between older peers, which was mutually beneficial to both older drivers and passengers. Supporting this, Johnson (2008) showed that an adequate number of family members and friends providing rides to older adults influenced them to maintain driving cessation and to feel loved and supported by families and friends. In this regard, informal transportation support can serve as a form of social integration (Glasgow and Blakely, 2000).

However, informal transportation support is characterized to varying degrees by accessibility, flexibility, reciprocity, and the feeling of being a burden to older adults, depending on ride providers such as family members or friends. Glasgow and Blakely (2000) illustrated that older participants in their study tended to prefer getting rides from friends than from family members. Adult children and other working age family members were more likely to be employed workers contrary to age peers who were not engaged in gainful employment (Glasgow & Blakely, 2000). Thus, older nonmetropolitan residents were reluctant to ask family members to take time away from jobs to give rides to them (Glasgow & Blakely, 2000). The feeling of being a burden and limited flexibility of transportation support from family members cause many older adults to be reluctant to request rides from family members unless it is an essential trip such as a medical appointment or shopping for food (Adler et al., 2006; Davey, 2007; Gilhooly et al., 2003; Glasgow & Blakely, 2000).

On the other hand, rides from friends were more often for recreational outings and were viewed as social events among older nonmetropolitan residents (Glasgow & Blakely, 2000). Thus, ridesharing among older adults contributes to reducing isolation and strengthening their informal networks. Moreover, older drivers who are able to provide rides to their friends would feel helpful to others. Godfrey, Townsend and Denby

(2004) suggested that central to a “good life” in old age is the value attached to interdependence, e.g., to be part of a community where people care about and look out for each other and not being a burden, especially on close family. Nonetheless, receiving rides from friends and neighbors raises the issue of reciprocity, which causes emotional costs to older adults. Older adults are reluctant to ask for additional rides to friends and neighbors due to the issue of give-and-take, a requisite for healthy interpersonal relationships (Carp, 1988). In addition, ridesharing among older peers raises the issue of safety. Carp (1988) explained that older adults suppressed their fears and distrust in friends’ driving skills because of future rides and personal relationships.

The advantage of using public transportation is to enable older adults to maintain independence and personal control, compared with rides from informal networks. Glasgow and Blakely (2000) showed that older adults viewed riding a bus as more independence enhancing than reliance on rides from their informal network. However, public transportation tends to have limited accessibility and flexibility to older adults. Fixed routes, limited access, and long wait and travel times were identified as major inconveniences in older adults’ usage of public transportation (Glasgow et al., 2000; Kostyniuk & Shope, 1999).

Besides public bus or transit, some older adults have other transportation options. For example, despite the small number, some former drivers hire personal assistants or drivers to satisfy their mobility needs. Considering the work hours and contract conditions, hired assistants are able to provide rides to older adults to a certain level of distances and/or routes. Hired assistants also provide good accessibility and safety while giving little feeling of being a burden to older adults. However, the costs of hiring personal assistants are high compared to other transportation options.

Furthermore, many older adults living in retirement communities may use shuttles run by senior residential organizations. Residential facilities often provide transportation within a limited geographical area, and destinations include local supermarkets or malls, doctors’ offices, and occasional social or cultural outings (Adler and Rottunda, 2006). Even though they have limited routes, these shuttles are designed for older residents, and therefore this type of transportation has fair feasibility, good safety, and good personal control compared with other transportation support for older adults.

The existing evidence has been useful for developing hypotheses for research questions proposed in this study. For example, regardless of support types, older adults with available transportation support are more likely to stop driving or avoid driving in difficult situations than those without it. However, given the varied accessibility, available routes, safety issues, and feeling of being a burden associated with different types of transportation support, we would predict that transportation supports from a spouse, family members, friends/neighbors, residential organizations, and hired assistants have different impacts on driving avoidance or cessation.

In particular, regarding informal transportation support, transportation support from a spouse and friends/neighbors would have larger impact on driving avoidance and cessation, as compared with transportation support from family members, which has poor accessibility and high feeling of being a burden. Concerning formal transportation support, transportation support from hired assistants may have larger impact on driving avoidance and cessation than that available from residential organizations, which has limited routes. To sum up, evidence from previous studies on formal and informal transportation support for older adults provide guidelines for developing the hypotheses in this study.

## **Methodology**

Data were obtained from the first three waves of the Florida Disability Study (1990, 1991, and 1992). The Florida Disability Study is one of the longest ongoing panel studies of the community-dwelling oldest old with extensive information about transitional experiences in later life. This study has been conducted by the research team of the Elderly Care Research Center (ECRC) directed by Eva Kahana, Ph.D. at Case Western Reserve University. The study population consists of generally healthy and active community-dwelling older adults living in Florida retirement communities. Respondents have no access to public transportation, but organizations and agencies provide shuttles for grocery shopping to residents on a regular basis. Respondents mainly drive their private vehicles for mobility. The majority of residents are white working or middle-class older adults who migrated from the Midwest, but respondents have diverse occupational backgrounds including skilled workers, teachers, tradesmen, and entrepreneurs.

Three sub-samples were created from the first three waves of the Florida Disability Study (1990-1992) to test the four research questions. Table 1 summarizes the details of the subsamples.

Table 1 Summary of Three Subsamples

	Subsample 1	Subsample 2	Subsample 3
Questions to test	Research question 1: the relationship between transportation support and driving avoidance	Research question 2: the impact of transportation support on driving cessation	Research questions 3 and 4: difference in receiving transportation support by driving status or gender
Waves used	Wave 3	Waves 1, 2, and 3	Wave 1
Subjects	Respondents who were driving at Wave 3	Respondents who drove at Wave 1 and retained over three years	Respondents who had ever driven at Wave 1
Sample size	562	602	940

Logistic regression models were employed to cross-sectionally examine relationships between transportation support and *driving avoidance*. In these models, sociodemographic and health factors were included as control variables. Discrete-time multivariate hazard models were used to examine the impact of transportation support on *driving cessation* while controlling for sociodemographic characteristics (age and gender) and health conditions (comorbidity, cognitive impairment, functional impairment, and visual impairment). Transportation support from a spouse, family members, and friends/neighbors were categorized into informal transportation support. Formal transportation support included transportation support that respondents had received from organizations and hired assistants. Chi-square tests, Fisher's exact tests, and *T*-tests were used to cross-sectionally examine the difference in receiving transportation support by driving status and gender.

## Results

A higher percentage of older drivers avoided driving at night than on the highway. This result implies that night driving might be more challenging to respondents than highway driving. None of the five types of transportation support showed a statistically significant relationship with driving avoidance. Gender was the most influential factor for both night and highway driving avoidance. Older women were more likely to avoid driving at challenging situations than their male counterparts. Having glaucoma, poor self-rated health, and older age were found to be risk factors for both night and highway driving avoidance. However, as compared to other factors, the relationship between older

age and driving avoidance was weak. This implies that we cannot judge driving patterns of older drivers solely by their ages.

Older drivers with a higher number of transportation supports were significantly more likely to cease their driving in a longitudinal framework. This finding was consistent with reports that older adults with available alternative transportation were more likely to stop driving than those without it (Marottoli et al., 1993). Conspicuously, transportation support from hired assistants and friends/neighbors was more influential on older drivers' decision to stop driving than sociodemographic and health factors were. This implies that the accessibility and flexibility of alternative transportation are important in older adults' decision to stop driving in addition to its availability. The restricted availability of rides offered by family members and the limited routes of transportation provided by organizations may hardly meet older adults' everyday transportation needs. Thus, those rides might not be influential on older adults' decision making about driving cessation. In addition, among control variables, having glaucoma, worse functional impairment, and older age were found to be risk factors for driving cessation.

Furthermore, former drivers were more likely to receive both formal and informal transportation support than current drivers. However, regardless of their driving status, older adults tended to largely depend on informal transportation support such as rides from a spouse, friends/neighbors, and family members rather than formal transportation support. Moreover, women were more likely to receive formal and informal transportation support than men for current drivers, while no gender difference was found for former drivers.

## **Utility for Social Work Practice**

This dissertation research provided evidence that older drivers' decision to stop driving is influenced more by transportation support than by their sociodemographic characteristics or health status. Given that, gerontological social workers need to approach their clients' mobility limitations from the ecological perspective, which considers both individuals and their environments, beyond focusing on individuals' physical impairments. The driving cessation process cannot be understood apart from the totality of a client's life space (Germain, 1994), wherein individuals interact with families, friends, neighbors, and social service providers. Through a comprehensive assessment of the clients' mobility considering environmental conditions, gerontological social workers will be able to provide them transportation alternatives, which fit in the clients' travel patterns.

Gerontological social workers also need to be aware of gender difference in the driving cessation process. Today's older adults grew up in the era when gender norms

were highly valued, and the gender norms influence their coping with difficulties in driving and using diverse transportation alternatives. The findings imply that men tend to have more confidence in their driving abilities, are less likely to avoid driving in challenging situations, and are less likely to receive transportation support from informal networks throughout the driving cessation process. Therefore, gerontological social workers need to pay more attention to their client's driving abilities and available transportation alternatives, if the client is a male.

Furthermore, only two out of five types of transportation supports - those from hired assistants and friends/neighbors - were influential in older drivers' driving cessation. Given the limited routes of transportation provided by organizations and the restricted availability of rides offered by family members, the findings imply that accessibility and flexibility of alternative transportation are important to meet older adults' transportation needs. Thus, policy makers need to consider accessibility and flexibility in developing public transportation.

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