Review of the Evidence Related to Older Adult Community Mobility and Driver Licensure Policies

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KEY WORDS
• community mobility
• driver licensure
• driving
• older adults
• policy

A systematic review of literature related to the effects of drivers’ license policies and community mobility programs on older adult participation was completed as a part of the American Occupational Therapy Association’s Evidence-Based Literature Review Project. The results revealed that states can achieve a goal of reducing traffic crashes, traffic violations, and traffic-related fatalities through relicensing policies requiring in-person renewal and vision testing as well as driving restrictions. Evidence suggests that failure to consider the continued community mobility needs of older adults can result in increasing fatalities among senior citizens using other modes of community mobility. This evidence-based review is informative for occupational therapy practice; however, it does not reveal the association between policy and community mobility interventions and improved engagement and participation. There is a role for occupational therapy in policy development and community mobility programming to promote engagement in occupation to support participation.


As of 2005, there were more than 36 million people ages 65 or older in the United States, of whom 28 million were licensed drivers, representing 15% of all drivers. During that year, 191,000 adults ages 65 or older experienced traffic-related injuries, and 36,790 older adults were involved in traffic fatalities as a driver, occupant, or pedestrian (NHTSA, n.d.). These demographics highlight the importance of effective policies to support senior mobility while reducing injuries and fatalities. At the same time, we must consider those who can no longer drive and their need to remain mobile within the community for enhanced occupational engagement. Existing and proposed policies and transportation programs must be reviewed and critiqued to determine the feasibility of such programs to support participation among older adults.

The American Occupational Therapy Association’s (AOTA’s) Older Driver Evidence-Based Literature Review project was coordinated to identify evidence supporting interventions that affect safety, performance, and participation of older adults engaging in driving and community mobility. One segment of the project sought to understand the effect of policy and community mobility programs (e.g., alternative transportation, walkable communities, education, pedestrian programs) on older adults’ participation. This portion of the evidence-based literature review is particularly important because it examines the effectiveness of the policies that govern the licensing and associated driving privileges for more than 28 million licensed older Americans. This inquiry is also critical because it helps define the efficacy of community mobility programs, which are necessary to meet the needs of older adults when they can no longer operate a motor vehicle safely.
Statement of the Problem

Most occupational therapists and occupational therapy assistants encounter clients with driving and community mobility issues in practice regardless of their generalist or specialist status (Schold Davis, 2003). Occupational therapy practitioners should address driving and community mobility issues when they arise, because the concerns are within the scope of occupational therapy practice and are identified in the Occupational Therapy Practice Framework: Domain and Process (AOTA, 2002) as an instrumental activity of daily living. Attention to these concerns is particularly important when the issues limit the client’s meaningful engagement in daily occupations. Driving a private automobile provides a mode of mobility beginning in the teenage years and continuing through adulthood. In addition to providing a means of transport from one location to another, adults use driving as an occupation enabler (Stav, 2001), in that driving allows engagement in other occupations. The transportation afforded by driving allows people to travel to and from work, manage household duties, transport children, and explore expanded arenas of recreation and travel. As people age, the need and desire to be independently mobile in the community does not diminish. Older adults continue to use driving to maintain connections in the community to friends and relatives, attend social events, obtain medical care, and shop. For 90% of older adults, the mode of choice for accessing the community continues to be the private automobile (Rosenbloom, 2004). In prioritizing clients’ goals, it is the role of the occupational therapist or occupational therapy assistant to facilitate and support these choices so long as it is safe to do so.

Because the laws and policies surrounding driving directly affect one’s ability to engage in the occupation of driving, understanding the ramifications of these policies is an important consideration for occupational therapy practitioners. Integration of this knowledge will shape practice on both the clinical and the community level. On a clinical level, knowledge of the state-imposed conditions of licensure specific to length of the licensure period, testing requirements for renewal, or driving restrictions is essential to maximizing engagement in driving to the fullest extent that each state will allow. For instance, a therapist working in a state requiring visual acuity tests for license renewal can effectively advise clients to follow up with management of cataracts to retain driving privileges. In another example, a practitioner working with well elderly women, a portion of the population that tends to cease driving before it is necessary (Stutts & Wilkins, 2003), can advise clients of shortened licensure renewal periods to alleviate fears of extended driving longevity.

When a client’s health status is such that promoting driving of an automobile is contraindicated for performance and safety reasons, the objective of occupational therapy continues to be promotion of engagement in occupation to support participation (AOTA, 2002). The occupational therapy practitioner’s therapeutic efforts then focus on identifying and training the client in the use of the most appropriate and effective transportation alternatives available in his or her context (Stav, Hunt, & Arbesman, 2006). It is imperative that occupational therapists and occupational therapy assistants understand the ability of available community mobility programs not to simply transport clients from one location to another but to effectively support engagement and participation of older adults.

Beyond direct service provision to clients, occupational therapy practitioners involved in program development need to identify elements of effective community mobility programs. Awareness of what constitutes an effective community mobility program will allow managers to establish relationships with agencies capable of supporting participation in the community. These relationships can lead to development of referral pathways to expedite use of alternate transportation and facilitate access to the community for clients who should no longer drive.

The scope of influence of community mobility issues extends beyond clinical practice. The needs of society with regard to community mobility become important when considering laws related to licensure or the inability to drive. As a society, Americans are dependent on automobiles to access the community, with the exception of a few urban areas with well-developed transit systems. Policies that limit licensure in areas with little or no community mobility infrastructure can essentially immobilize thousands of people. The impact on individuals can be devastating, but the trickle-down effect to merchants and restaurants in areas that are densely populated with older adults can be equally disastrous.

Policy issues and policy development can also have far-reaching effects. Clearly identifying policies that positively affect crash, injury, and fatality rates is essential to the policy development process. Executing policies that are not effective in improving older driver safety can be costly to society in terms of implementation expenses, lives, and damages. Likewise, policies that do not consider the impact on community mobility needs can be costly to individuals. In 2006, the Florida legislature began requiring drivers ages 79 or older to pass a vision test when renewing their drivers’ license ("Original applications, licenses, and renewals; expiration of licenses; delinquent licenses," Stat. § 322.18, 2003). After the law passed, only 80% of those eligible for license renewal chose to do so, which translates into more people needing transportation alternatives. Of those who chose not to renew their license, approximately half reported that their
decision was based on fear of failing the vision test (McGwin, McCarrt, Braitman, & Owsley, 2007). Further analysis of the older adults who chose not to renew showed that they were older, in poorer health, and more likely to be female than those choosing to renew their license. Most older adults who failed the vision test or chose not to renew their license reported using transportation alternatives (McGwin et al., 2007). Although this policy was written and accepted with public safety in mind, community mobility implications may have necessitated increased services or enhanced awareness of existing resources.

Interpreting and disseminating the evidence related to policies and community mobility for older adults is important to advancing occupational therapy practice and to the practice of other health care disciplines and stakeholders. Synthesis of this information and its implications into occupational therapy education is equally important because it highlights the global nature of occupational engagement beyond consideration of client performance. An early understanding of policy implications and community resources broadens the realm of possibilities and factors reflected on during critical reasoning. Additionally, with an appreciation for the impact of contextual factors such as policy and community resources, novice practitioners may be more likely to participate in community-based or population-based initiatives to support participation.

Background Literature
A search of the literature related to older adults and transportation revealed the urgency of the need for local, state, and national governments and age- and transportation-related agencies to resolve the impending community mobility crisis in the United States as the population ages. The inevitable squaring of the population as the youngest baby boomers reach age 50 (Rosenbloom, 2003), when there will be an equal number of older adults and younger counterparts, combined with what the Community Transportation Association of America calls years of inadequate investment in a transportation infrastructure (Hardin, Bogren, Chamberlain, & Dickson, 2003), has catalyzed a nationwide call to action for community mobility resources. The federal and state governments and transit agencies have been mobilized into action, or at least planning for action, by the projected growth in the older adult population, the associated increase in licensed senior drivers, and the anticipated increase in traffic-related injuries and fatalities. Some licensing agencies are hoping to reduce crashes, injuries, and fatalities by limiting or restricting licensure for marginally safe drivers or altering relicensing guidelines for older adults. The need for alternatives to driving is apparent but may be difficult to implement, in part because of a tendency for older adults to prefer driving themselves or riding as passengers in private automobiles (Collia, Sharp, & Giesbrecht, 2003; Coughlin, 2001; Glasgow & Blakely, 2000; Lyons & Lipowitz, 1982; Rosenbloom, 2003). The older adult population has developed a negative perception of the transit systems and of specialty transportation programs, leading the Transportation Research Board to establish recommended improvements (Transportation Research Board, 2000). Despite the unenthusiastic response by the older adult segments of the population, the transportation industry is making an effort to optimize existing services or create new mechanisms to transport people. Efforts such as United We Ride, an initiative of the Federal Transit Administration, aim to coordinate human service transportation through education, outreach, consolidated access, reduction of regulatory barriers, and coordinated planning (United We Ride, 2006).

Much of the work exploring transportation to date has been related to vehicle design (Petzäll, 1993, 1995); alternate means such as private for-hire vehicles (Gilbert, Cook, Nalevanko, & Everett-Lee, 2002); the role of community mobility in older adults’ lives (Burkhardt, 1999); pedestrian programs (Florida Department of Transportation, 1995); licensure laws and available transportation options (Bittner, Long, & Szylow, 2000); and consumer satisfaction (Potts, 2002). These investigations have been largely exploratory and descriptive and have not presented outcomes related to how the interventions have supported older adult engagement and participation in the community.

Method
The portion of the older driver evidence-based literature review reported in this article addressed the impact of policy and community mobility programs on the participation of older adults. Detailed information about the methodology for the entire older driver evidence-based literature review can be found in the article “Background and Methodology of the Older Driver Evidence-Based Systematic Literature Review” (Stav, Arbesman, & Lieberman, 2008) in this issue of the American Journal of Occupational Therapy. The results of this aspect of the review are reported as separate policy and community mobility domains.

Results
Table 1 summarizes the design, procedures, outcome measures, findings, and limitations of the seven published articles that were relevant to the topic of policy and community mobility and reviewed within this project. The systematic review included 6 Level II articles and 1 Level III article and included policy interventions related to licensure restrictions, relicensing criteria, and retesting and community mobility.
### Table 1. Evidence Table: Policy and Community Mobility

<table>
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<th>Author/Year</th>
<th>Study Objectives</th>
<th>Level/Design/Participants</th>
<th>Intervention and Outcome Measures</th>
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<td>Freund (2002)</td>
<td>Develop and test innovative transportation programs within an independent transportation network that was designed to meet the community mobility needs of older adults</td>
<td>Level II—Nonrandomized control trial Sample comprised older persons in Portland, ME, using the independent transportation network; because this was community based, number of potential participants was not known.</td>
<td>Intervention: Ride-and-shop program Older adults or family members were able to pay for transportation services, and merchants contributed to the financial support of the service. Control: No intervention</td>
<td>Rides to participating merchants were greater in the experimental group. A follow-up survey reported overall satisfaction with the program for merchants and the older adult study participants.</td>
<td>Lack of randomization; lack of cost–benefit analysis Increase in use of services by intervention group may be because of increased attention paid by family members sponsoring rides. Numbers of older individuals who participated in the project were not reported.</td>
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<td>Grabowski, Campbell, &amp; Morrissey (2004)</td>
<td>Describe whether state driver licensing renewal policies are associated with fatality rates among older drivers</td>
<td>Level II—Retrospective cohort study—observational cohort study, N = 74,428 older adults, age 65 and older, and 231,488 control participants, ages 25–64</td>
<td>The authors examined license renewal policies of different states (e.g., in-person renewal, vision test, road test), controlling for factors such as speed limits, use of seat belts, and intoxication level. Outcome: Use of the Fatality Analysis Reporting System in determining number of fatalities within 30 days of crash</td>
<td>States with an in-person license renewal policy had lower fatality rates for drivers age 85 and older (incidence ratio rate of 0.83). States with vision assessments before renewal had lower fatality rates for drivers ages 65–74. Road tests and varying length of renewal periods were not associated with numbers of fatalities.</td>
<td>The Fatality Analysis Reporting System omit fatalities occurring more than 30 days after a crash. Variables omitted by the study as control variables (e.g., driving conditions, other traffic regulations) could have an impact on the number of crashes.</td>
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<td>Hakamies-Blomqvist, Johansson, &amp; Lundburg (1996)</td>
<td>Evaluate and compare the effects of age-based medical screening on improving safety and reducing fatalities for drivers in Finland and Sweden</td>
<td>Level II—Nonrandomized cohort design Participants were all licensed drivers born before 1960.</td>
<td>No intervention; however, the comparison was made in terms of impact of age-related driving license renewal laws between Sweden and Finland. In Sweden, there is no age-related medical screening or review, and license renewal is not required. In Finland, after age 45, individuals need to pass medical and vision examinations every 5 years to keep their licenses active. After age 70, a medical review by a physician is needed, and renewal time gets shorter. Outcomes: Licensure rate, accident and fatality rate for drivers, fatalities for moped riders, cyclists, and pedestrians</td>
<td>Licensure rate for those older than age 70 was 44.2 in Sweden and 14.6 in Finland. Accident and fatality rates for drivers were similar in both countries, but there was a significant increase in fatalities for nondrivers using other modes of transportation that were less protective (mopeds, bicycles, and walking).</td>
<td>Cointervention: The study compared driving safety in two countries with differences in traffic regulations and driving conditions. The reported numbers are not comprehensive because the data include only the number of accidents and fatalities that were reported by police.</td>
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<td>Koffman &amp; Salstrom (2001)</td>
<td>Determine use of customer satisfaction surveys in improving fixed-route transportation services</td>
<td>Level III—Cross-sectional survey, N = 3 separate transit agencies (n1 = 14,965; n2 = 15,058; n3 = 1,399)</td>
<td>No intervention; observational study Customer satisfaction survey: Two agencies used on-board surveys, and one used telephone interviews to identify quality of services in terms of on-time performance, drivers, cleanliness, customer information, security, safety, and overall transit service. Also, two open-ended questions determined overall satisfaction with the services.</td>
<td>An impact analysis that identifies a satisfaction gap and the impact of improving a given service was used; the results indicate that older adults feel that adding service would have the greatest impact on ridership, followed by drivers, reliable equipment, and on-time performance.</td>
<td>A limitation of cross-sectional surveys is that it is difficult to know the timing in the relationship of variables.</td>
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interventions related to program effectiveness and program evaluation.

**Policy**

The discussion of whether to change driver’s license renewal to a more demanding process to screen for high-risk older drivers is currently ongoing in many state licensing agencies. Some states have already imposed increased testing for license renewal for older drivers to decrease crashes, injuries, and fatalities in this age group. In an effort to better understand the impact of license renewal guidelines on older driver fatalities, several studies have been conducted to analyze various outcomes, particularly fatality rates of older drivers across states with regard to the licensing policies.

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**Table 1. Evidence Table: Policy and Community Mobility (continued)**

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<td>Marshall, Spasoff, Nair, &amp; Walraven (2002)</td>
<td>Evaluate the rates of crashes and traffic violations among drivers with restricted licenses and compare the crash and traffic violation rates before and after driver restrictions were imposed</td>
<td>Level II—Cohort Study N = 703,758 (all Saskatchewan drivers registered from January 1992 to April 1999)</td>
<td>No intervention; this was an observational study in which all the drivers with either driving or licensure restriction were followed for 4 years after imposition. Outcome: Number of crashes and traffic violations resulting in insurance claim collected from database of Saskatchewan government insurance</td>
<td>Drivers with restricted driving and licensure were reported to have significantly lower rate of accidents and traffic violations but a higher risk of at-fault crashes compared with drivers with unrestricted driving access. After restrictions were imposed, there was a significant reduction, by 12.8%, in the number of crashes per 1,000 drivers/week. Finally, when the comparison was made in number of crashes after 4 years of imposition to that before imposition, a significant reduction was observed.</td>
<td>Only crashes with insurance claims were included in the study, which might not be a comprehensive inclusion representing all incidences. Because the study was observational in nature, there was no control of the study over improving compliance of drivers with restrictions. The study did not control for the medical diagnosis or disability, which might have affected some of the outcomes.</td>
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<td>Shipp (1998)</td>
<td>Determine the impact of vision-related relicensing policies on traffic fatalities in the United States</td>
<td>Level II—Cohort Study N = 49 state licensing entities</td>
<td>Observational study; no intervention was provided. Outcome: State-level occupant fatalities as reported by the Fatal Accident Reporting System</td>
<td>Although there was no statistically significant difference for the relationship between vision testing policies in relicensing and number of fatalities, when adjusting for nonvision policies and nonpolicy factors (age, gender, socioeconomic status, population density, and environment), there was a significant difference in number of fatalities.</td>
<td>The Fatal Accident Reporting System database provides only number of deaths and not number of incidents.</td>
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<td>Staplin, Gish, &amp; Wagner (2003)</td>
<td>Evaluate the effectiveness of functional capacity evaluations to predict at-fault crashes in older adults</td>
<td>Level II—Cohort Study N = 1,876 drivers from Maryland, age 55 and older, who were randomly selected and then volunteered to participate</td>
<td>Participants were administered the Motor-Free Visual Perception Test, Visual Closure subtest; Trail Making Test, Part B; delayed recall evaluation; Useful Field of View, Subtest 2; rapid pace walk; and head-neck rotation evaluation. Outcome: Number of at-fault crashes at 2-year follow-up (1 year of additional data from earlier follow-up)</td>
<td>Motor-Free Visual Perceptual Test—Visual Closure subtest; Delayed Recall; and Head–Neck Rotation were more valuable in predicting crashes shortly after the tests were administered and decreased predictability as time wore on. Trail-Making Test, Part B, and Rapid Pace Walk were still predictive of crashes 1 year beyond test administration. The results indicate that it is difficult to predict long-term driving performance based on specific cognitive–perceptual measures.</td>
<td>Limiting the outcome measure to at-fault crashes may be an inadequate predictor of the effect of cognitive and perceptual status.</td>
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Shipp (1998) conducted a Level II study examining vision testing on traffic fatalities in the United States. Because of the high prevalence of age-related ocular conditions and subsequent vision changes, this study sought to determine the impact of vision testing during the relicensing process on decreasing crashes, fatalities, and economic costs. All contiguous U.S. states and the District of Columbia were included in the study and used the Fatality Analysis Reporting System (FARS) as an outcome measure of fatalities. For the purposes of this study, fatalities were defined using the FARS’s operationalized definition of death within 30 days of a crash. Regression analyses found a significant relationship \( R^2 = .514 \) between vision policies, non–vision policies, and non–policy factors and the outcome of vehicle occupant fatalities (Shipp, 1998). The results of this study suggest that state-mandated vision testing as part of the license renewal process may enhance traffic safety and reduce the economic burden of fatal crashes. For the period studied, 1989 to 1991, the author concluded that an additional 222 older adult fatalities may have been prevented through the use of mandated vision testing, saving $31 million in the eight states without vision testing (Shipp, 1998). This study supports the use of vision testing in the license renewal process with older adults but was limited by the use of only FARS-defined traffic-related fatalities as the outcome variable and therefore did not capture other nonfatal driving incidents.

Understanding the burden on alternative transportation that can be caused by strict license renewal guidelines, Grabowski et al. (2004) conducted a Level II study that expanded on Shipp’s (1998) work. Grabowski and colleagues sought to determine whether state driver’s licensing renewal policies beyond vision testing were associated with fatality rates among older drivers. The researchers studied all traffic fatalities of persons ages 65 or older in the contiguous United States that were reported to the FARS for an 11-year period. License renewal policies, including in-person renewal, vision tests, and road tests, were examined as possibly resulting in lower fatality rates. After controlling for state speed limits, seat belt laws, blood alcohol limits, and administrative license revocation, the results revealed that states with in-person renewal had lower fatality rates for drivers ages 85 or older at an incident ratio rate of .83 (95% confidence interval [CI] = 0.71–0.96). Drivers ages 65 to 74 had lower fatality rates in states with vision tests at an incident ratio rate of .92 (95% CI = 0.85–0.99; Grabowski et al., 2004). When comparisons were made between older drivers and their younger counterparts, analysis revealed that states with in-person renewal had lower fatality rates for drivers ages 85 or older, with an incident ratio rate of .83 (95% CI = 0.72–0.96; Grabowski et al., 2004). Ultimately, vision testing, road tests, and varying lengths of renewal period were not statistically associated with older driver fatality rates. This study was limited by the use of only FARS-defined traffic-related fatalities as the outcome variable and therefore does not capture other nonfatal driving incidents.

In addition to elements that should or should not be included in license renewal policies, much of the debate has focused on age-based testing for older adults. The question of testing all drivers older than a specified age raises concerns about age discrimination and the availability of political, financial, and program support similar to other health screenings that are age based (e.g., mammograms, prostate screens, bone density screens). A Level II study by Hakamies-Blomqvist et al. (1996) empirically examined age-based testing by evaluating the safety effect of age-based medical screening on drivers in Finland and Sweden. The study examined crash rates between the two countries, which have vastly different licensing policies with regard to age. Sweden has no age-related screening or medical review associated with license renewal, and citizens have a lifelong right to hold a license. Physicians must report patients who are unfit to drive for health reasons; however, this is implemented on a very small scale. Less than 0.1% of older drivers’ licenses are revoked as a result of a physician report. Finland, on the other hand, has strict medical–legal screening associated with license renewal. The right to hold a license after age 45 is conditional, and drivers must pass a medical and vision exam every 5 years to renew their license. At age 70, the license expires, and those wishing to continue to drive must pass a medical review and submit a new application. License renewal periods also shorten after age 80. The study revealed significantly different licensing rates between the two countries, with 44.2% of drivers older than 70 in Sweden licensed and only 14.6% of people the same age licensed in Finland (Hakamies-Blomqvist et al., 1996). Interestingly, the crash and fatality rates between the countries were similar, with no statistical significance reported. The study’s most notable result was the fatality rate of unprotected road users, including pedestrians and bicyclists. Older age groups in Finland experienced a gross increase in fatalities, an odds ratio greater than 2 (Hakamies-Blomqvist et al., 1996), potentially as a result of the large number of seniors restricted to walking and biking after forfeiting or losing their license.

Staplin, Gish, and Wagner (2003) conducted follow-up analyses to the existing data from the NHTSA Model Driver Screening Evaluation Program to determine the likelihood of driver crash involvement after failing a battery of tests compared with passing the tests. The study included several assessments commonly used in driving rehabilitation including the Motor-Free Visual Perception Test, Visual Closure Subtest; Trail-Making Test, Part B; Useful Field of View, Subtest 2; Delayed Recall from the Mini-Mental State Exam;
Rapid Pace Walk; and head–neck rotation (Staplin, Lococo, Gish, & Decina, 2003). The researchers concluded that some of the tools were more valuable in predicting crashes shortly after the tests were administered (Motor-Free Visual Perceptual Test, Visual Closure subtest; Delayed Recall; and Head–Neck Rotation) and presented decreasing predictability as time wore on, whereas others were predictive 1 year beyond the test administration date (Trail-Making Test, Part B, and Rapid Pace Walk; Staplin, Gish, et al., 2003). In terms of policy development, this study highlights the importance of understanding both the short-term and the long-term value of test results in identifying high-risk older drivers.

Beyond relicensing policies, licensing entities have attempted other means to limit the driving of high-risk drivers. In Canada, many people with medical conditions are offered the option of restricted or conditional licensing. Marshall et al. (2002) Level II study investigated the outcomes of a restricted license program by comparing the rates of crashes and traffic violations among restricted drivers to those among the general driving population. The investigators also compared crash and traffic violation rates before and after driver restrictions were imposed. The analyses revealed that restricted license holders had a lower adjusted risk of traffic violations but a higher adjusted risk of at-fault crashes than the general population (Marshall et al., 2002). When licensing restrictions were implemented for medically at-risk drivers, the drivers demonstrated lower crash and violation rates (Marshall et al., 2002). Analysis of weekly traffic violation rates 4 years before and after imposition of restrictions revealed that a combination of driving and license restrictions significantly decreased traffic violations by 0.2 per 1,000 drivers after the restrictions were imposed (95% CI = 0.08–0.31; Marshall et al., 2002). Ultimately, restricted driving and restricted licensing resulted in decreased traffic violations and crashes.

**Community Mobility**

Regardless of state licensure policies, third-party payment for driving services or preferred modes of community mobility, the need for community mobility resources among older adults exists. In a Level II study, Freund (2002) developed and described an innovative transportation program called the Independent Transportation Network (ITN). The program was designed to meet the community mobility needs of older adults by capitalizing on the interdependence between multiple stakeholders, including those seniors needing transportation, family members concerned about aging relatives, and businesses that derive revenue from consumers. The older adults themselves were involved in the system through participation and payment. Adult children were given the opportunity to provide transportation for their aging parents while not investing their personal time. Finally, community merchants were involved because they benefited financially when older adults frequented their businesses. ITN used both program employees and volunteers as drivers and a centralized dispatching system. The study included ITN’s Ride & Shop program using merchant and rider accounts with both riders and merchants contributing to the financial support of the service. Results revealed that of 130 total rides in the experimental group, a greater number of riders traveled to participating merchants ($\chi^2 = 3.84, df = 1, p = .05$; Freund, 2002). A follow-up survey revealed that merchants and older study participants were satisfied overall with the Ride & Shop program. It is not known whether this program is cost-effective because a cost–benefit analysis was not conducted, and the program’s overall effectiveness as examined in the presented study design is unknown. Additionally, one limitation of the study is lack of exclusivity between the control and experimental groups to avoid contamination when study participants are involved in both groups.

Establishment of new, innovative community mobility programs may be necessary in some instances, but evaluation of existing services is important to describe their potential for meeting older adults’ community mobility needs. Koffman and Salstrom’s (2001) Level III study demonstrated how customer satisfaction surveys can be used as an efficient, effective mechanism to identify specific program elements that will have the greatest impact on customer satisfaction. The results of this program evaluation can be used to set priorities for improving fixed-route transportation services.

**Discussion and Implications for Practice**

The evidence revealed that relicensure policies requiring in-person renewal (Grabowski et al., 2004) and vision testing (Shipp, 1998) can reduce traffic-related fatalities and that licensing and driving restrictions (Marshall et al., 2002) can decrease crashes and traffic violations. These studies demonstrate that, although states can achieve a goal of limiting incidents for drivers, neglecting to consider the continued community mobility needs of older adults can result in increasing fatalities among seniors using other modes of community mobility (Hakamies-Blomqvist et al., 1996). These findings suggest a role for occupational therapists and occupational therapy assistants to assist in policy development and community mobility programming to promote engagement in occupation to support participation.

The literature suggests a growing need for occupational therapy practitioners’ awareness of the impact of policy and the logistics of community mobility resources. This awareness combined with occupational therapy expertise should
be used to bring the perspective of enabling participation to the policy development process and community mobility resources. The presence and role of occupational therapy should increase in federal, state, and local policymaking agencies and in transportation companies to facilitate attention to older adult participation through engagement in community mobility. Introduction of the notion that policy and programming should enable participation in addition to preserving safety will yield results that are beneficial to the agencies and to older adult consumers.

During the policy development phase, occupational therapists and occupational therapy assistants should educate policymakers about the implications of proposed policies and their subsequent impact on health, emotional well-being, and economic consequences to business. Occupational therapy practitioners can use existing creative and adaptive strategy skills to assist in policy development that supports safety and participation. Supplemental policies and programs should also be suggested to sustain community mobility when licensing policies become more restrictive. When testing policies are proposed, occupational therapy practitioners should educate policymakers about the heterogeneity of the aging process across the population and about the limitations of some driving-based assessments to definitively identify high-risk older drivers. This education will ensure that older drivers can be fairly evaluated in their individual driving performance within the context of their performance.

Once policies have been implemented, more roles for occupational therapy emerge. First, if older adults are choosing to forfeit their licenses for fear of their not being renewed, occupational therapy services will be sought to identify transportation alternatives, provide travel training for new alternate transportation users, and generate a plan to continue occupational engagement without access to a private automobile. Second, if state licensing agencies increase the monitoring of drivers through in-person renewal, there is a twofold role for occupational therapy. Occupational therapy practitioners can be involved on the state planning level in designing screening programs and training licensing personnel to observe drivers for high-risk behaviors. Policies related to licensing restrictions call for periodic physical examination, road testing, and cognitive testing or vision assessment. For jurisdictions that impose licensing restrictions, more professionals will be needed to provide these services. This increased need will increase the demand for occupational therapy practitioners to provide driving rehabilitation services so the most appropriate restrictions can be imposed. In addition, as the number of older drivers identified as needing evaluations increases, the number of occupational therapists specializing in driving rehabilitation will increase proportionally. Considering the aging of the population and the existing shortage of occupational therapists in this specialty area, there may be a significant demand for occupational therapy personnel to enter this practice area.

The research findings have practice implications specific to community mobility and meeting the occupational needs of the older adult population. Occupational therapists and occupational therapy assistants working in general practice and driving rehabilitation settings need to fully understand community mobility options as well as the application process, operation, and limitations of area programs when making recommendations for specific clients. An efficient referral pathway should be established to expedite transition to driving cessation without gaps in community mobility and community engagement.

Practice opportunities exist for occupational therapy within community mobility programs, including consultation services. Practitioners are needed to work with transit agencies in the modification of program for clients with dementia and other cognitive deficits who need a more structured, supervised use of the system. Additionally, agency staff, ranging from schedulers to drivers, require training and orientation in the areas of sensitivity training, transfer training, driver safety, and use of vehicle safety features among drivers and passengers for injury prevention.

The evidence (Hakamies-Blomqvist et al., 1996) shows that people continue their occupational engagement and need for mobility in the community, resulting in the need for more comprehensive pedestrian safety, bicycle safety, and roadway design programs. Compelling evidence (Hakamies-Blomqvist et al., 1996) supports prevention and intervention programs for multimodal transportation when seniors can no longer drive safely. Occupational therapy can play a key role in supporting engagement in meaningful community-based occupations by facilitating safe use of alternative community mobility.

Conclusions

Occupational therapists and occupational therapy assistants must recognize the influence of the cultural context, which includes the laws and policies of society (AOTA, 2002) because this context affects how older adults retain their driver’s licenses and thus influences occupational therapy practice. Likewise, occupational therapists and occupational therapy assistants need to consider the physical context, which includes the community environment and modes of transportation within the community (AOTA, 2002) because this context affects how easily clients can move within the community. Finally, practitioners must take the social context into account, which includes the expectations of the members of society (AOTA, 2002) because this
context dictates how people view and accept transportation alternatives and shapes older adult use of transit. The issues of policy and community mobility directly reflect the context in which occupational therapy practitioners work and can either hinder or foster the therapeutic agenda. Practice opportunities abound for occupational therapy as the population ages and continues to require community access for successful engagement and participation. However, the profession must seize the opportunities and advocate for the role of the profession in meeting society’s needs. Occupational therapy must participate in discussions when policy decisions are being made so that policy supports community mobility for enhanced older adult participation and engagement. Practitioners must also work to meet necessary program needs in the area of community development and improvement. One size does not fit all when transportation alternatives are concerned, and principles of occupational analysis combined with an understanding of adaptations and environmental modifications can maximize services to meet the needs of an aging population.

Although the findings of the studies included in this review are very informative, they are inconclusive and suggest a need for further research. In the area of policies related to driver licensing, additional research with a more inclusive outcome measures is needed. The majority of the research on policy issues used crash or fatality databases as outcomes. Such databases are helpful in providing a summary of driving in the region, but they do not capture a complete picture of the outcome. The FARS database is a widely used, well-respected national database, but it includes only fatalities occurring within 30 days of the crash. Particularly for older adults, the immediate result of a crash may only be injury, but death may ensue after a long and difficult recovery from related conditions. In those cases, the official cause of death would not be the traffic crash and would not be included in the database.

Crash databases are incomplete as well. Many motor vehicle incidents indicative of poor performance are not reported because of lack of law enforcement jurisdiction, property damage to the driver’s own property, arrangements between drivers at the scene, or law enforcement leniency with older adults. One study in the review used a state crash database requiring a tow-away for reporting to the database. Incidents occurring in parking lots; involving the driver’s own property, such as a garage door, mailbox, or garbage can; or simply not reported because the driver left the scene will never be represented in the national or state databases. Therefore, the prevalence of crashes is likely higher than data obtained from the existing databases would suggest. From an occupational therapy perspective, the outcome of concern is occupational performance, not merely a negative event such as a crash or fatality. In an effort to generate results more applicable to occupational therapy practice, studies measuring occupational engagement in the community through the use of alternative transportation as an outcome are necessary. These studies should measure quality of life, frequency of access to community occupations such as medical care, shopping, leisure interests, and social participation to determine whether community mobility alternatives are effective in improving participation among older adults.

In the area of community mobility, research applicable to occupational therapy is lacking. Specific to intervention, studies are needed to examine the effectiveness of travel training programs and mobility management on limiting depressive symptoms following driving cessation. In terms of programming, research on different forms of community mobility is needed to examine the effect on older adult ridership, the capability of meeting all older adult community needs, and cost–benefit analyses of different programs.

The work mentioned here and the research included in this review begin to inform the profession about available options for licensure policies and transportation alternatives. The literature reports the crash and fatality impact of licensure guidelines but does not explore the impact on occupational engagement and participation in the community among older adults. Likewise, the literature on transportation alternatives discusses the options and preferences but does not investigate the influence on occupational engagement. This evidence-based review is informative for occupational therapy practice; however, it does not reveal the association between policy and community mobility interventions and improved engagement and participation, likely because the literature comes from outside occupational therapy.

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