Transportation problems for the older adults

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Mobility and quality of life in old age

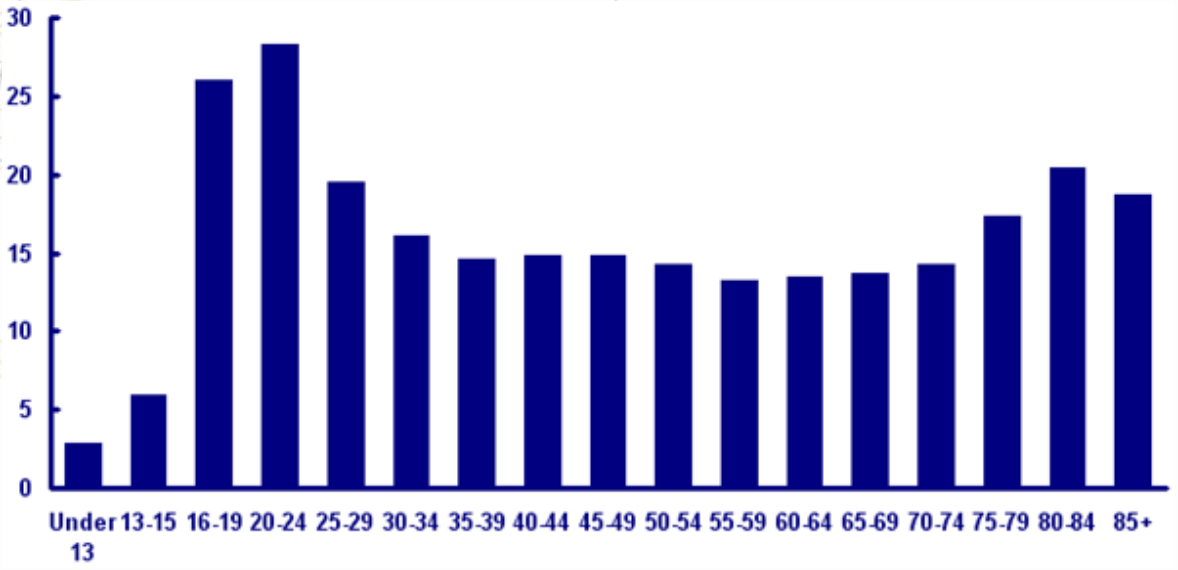
- ✓ To enjoy a high quality of life in later years, older adults must be able to access needed goods and services and participate in desired social and leisure activities.
- ✓ Research has shown that mobility and the ability to leave home are among the essential components of quality of life of older persons.
- ✓ The **"mobility"** of an older adult refers to not only the physical ability to move around, but also the ability of the older adult to get wherever he/she needs to go.
- ✓ In 2000, the Mobilate Project funded by European Commission studied 3950 men and women in middle and late adulthood (55 or older) in Germany, Finland, Italy, Hungry, and Netherland. This study found that, those with reduced mobility reported a lower level of life satisfaction and a desire to be more active and participate in leisure activities.

Older adults' reliance on automobile(1/2)

- ✓ In many developed countries, the private automobile is essential for an older person's mobility.
- ✓ We can expect to see continued and increased reliance on the automobile as the primary means of transportation for the elderly, because it is the private automobile that provides them with independence.
- ✓ We will see a greater proportion of the elder population continuing to be licensed drivers, increasing from 12.6% of total drivers in 2000 to 20% in 2030 in the United States. This trend also holds true in other developed nations [OECD, 2001].
- ✓ The most common mode of travel, other than driving an automobile, is riding as a passenger.

Older adults' reliance on automobile(2/2)

- ✓ Health changes associated with aging may affect the ability to perform the tasks necessary to operate an automobile.
- ✓ Due to their relatively frail physical condition, the older adults suffer a higher death rate in car accidents than other age group.
- ✓ Retirement from driving ?!



Number of fatal accidents per 100,000 population by age (NHTSA, 2006)

Michon's conceptual framework of driving [1985]

- ✓ The tasks of driving are viewed as a hierarchical activity.
- ✓ **Strategic level tasks:** cognition plays the dominant role and one's personal values affect driving decisions.
  - "Pre-driving" activities include decisions made before getting into the car, such as whether to drive a car, what time to leave, which route to take, etc.
  - "While-driving" activities associated with the strategic level include change in choice of route, which lane to drive in, how much of safety margin is required etc.
- ✓ **Tactic level tasks** are also highly cognitive.
  - The tactical level is associated with the performance of specific traffic maneuvers include when to change lanes, speed up, slow down, or pass another car.
- ✓ **Operational level tasks**
  - The operational level deals with perceiving the driving environment and controlling the vehicle's speed, direction, and position.

How does aging affect the abilities of elderly drivers?

- ✓ Safe elderly drivers require the complex coordination of many different skills. The physical and mental changes that accompany aging can diminish the abilities of elderly drivers. These include:
  - A slowdown in response time
  - A loss of clarity in vision and hearing
  - A loss of muscle strength and flexibility
  - Drowsiness due to medications
  - A reduction in the ability to focus or concentrate
  - Lower tolerance for alcohol

A checklist for elderly drivers (1/2)

- Drive at inappropriate speeds, either too fast or too slow?
- Ask passengers to help check if it is clear to pass or turn?
- Respond slowly to or not notice pedestrians, bicyclists and other drivers?
- Ignore, disobey or misinterpret street signs and traffic lights?
- Fail to yield to other cars or pedestrians who have the right-of-way?
- Fail to judge distances between cars correctly?
- Become easily frustrated and angry?
- Appear drowsy, confused or frightened?
- Have one or more near accidents or near misses?
- Drift across lane markings or bump into curbs?
- Forget to turn on headlights after dusk?

A checklist for elderly drivers (2/2)

- Have difficulty with glare from oncoming headlights, streetlights, or other bright or shiny objects, especially at dawn, dusk and at night?
- Have difficulty turning their head, neck, shoulders or body while driving or parking?
- Ignore signs of mechanical problems, including underinflated tires? (one in 4 cars has at least one tire that is underinflated by 8 pounds or more; low tire pressure is a major cause of accidents.)
- Have too little strength to turn the wheel quickly in an emergency such as a tire failure, a child darting into traffic, etc.?
- Get lost repeatedly, even in familiar areas?
- If the answer to one or more of these questions is "yes," you should explore whether medical issues are affecting their driving skills.

Retirement from driving

✓ You can do a number of things to plan ahead for your 'retirement' from driving. These include:

- Become familiar with public transport
- Try to live close to public transport
- Live near family, social networks and medical services
- Look into community transport services
- Share the driving
- Changing driving patterns
- Holiday travel - take a bus, a train or fly
- Travel with friends to share the driving.

Alternative to driving

- ✓ Even if forced to give up driving, alternatives to the car are often inadequate for the older population.
- ✓ In the United States, most elders who forfeited their license continued to travel in personal vehicles, but as passengers. Walking is the second-most utilized method of transportation behind the private car. In fact, excluding personal vehicle use and waling, all other means of transportation accounted for approximately 2% of daily travel [Collia, et al., 2003].
- ✓ The "MOBILATE" Project found that, in Europe, for elders over 75 years old, walking is the primary mode of transportation. Additionally, there is a higher usage rate of public transport in Europe, ranging from 8% to 18%.

Maintaining mobility

- ✓ Myth: reducing the numbers of older drivers will be for the good ofsociety, even though it might cause older people some inconveniences.
- ✓ Fact: In the decades to come, society will be unable to afford immobile older people.

- ✓ Keep elders driving safely and longer.
- ✓ Reduce the need to drive through improved land planning and development of pedestrian-friendly communities.
- ✓ Development of acceptable alternatives for older adults' transportation,

Technological applications for driving safely

- ✓ Most of the technologies introduced in vehicles through the 1980s were focused on enhancing the capabilities of the vehicle. Whereas new technologies are aimed at enhancing the capabilities of the driver.
- ✓ Many technological devices have promising potential to enable older drivers to keep driving safely:
  - GPS (Global Positioning System)
  - Parking guidance system, night vision system, heads-up displaye
  - In-vehicle telematics (telecommunication + informatics) refers to a wide variety of safety, entertainment, diagnostic, office, and traffic information technologies for automobiles.
- ✓ To encourage the older drivers to use these in-vehicle technologies, the devices must be adequately designed to meet their sensory and perceptual changes.
- ✓ Automobiles are usually not designed for elderly drivers.

Technologies used with public transportation

- ✓ Difficulties for the older adults in using public transportation
- ✓ Technologies used with public transportation
  - Proper environmental design
  - Providing proper information
- ✓ **Intelligent Transportation System** (ITS) improves transportation safety and mobility and enhances productivity through the use of advanced information and communications technologies.
- ✓ The term intelligent transportation system refers to efforts to add information and communications technology to transport infrastructure and vehicles in an effort to manage factors that typically are at odds with each other, such as vehicles, loads, and routes to improve safety and reduce vehicle wear, transportation times, and fuel consumption.

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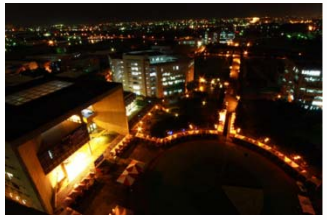

Thank You

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