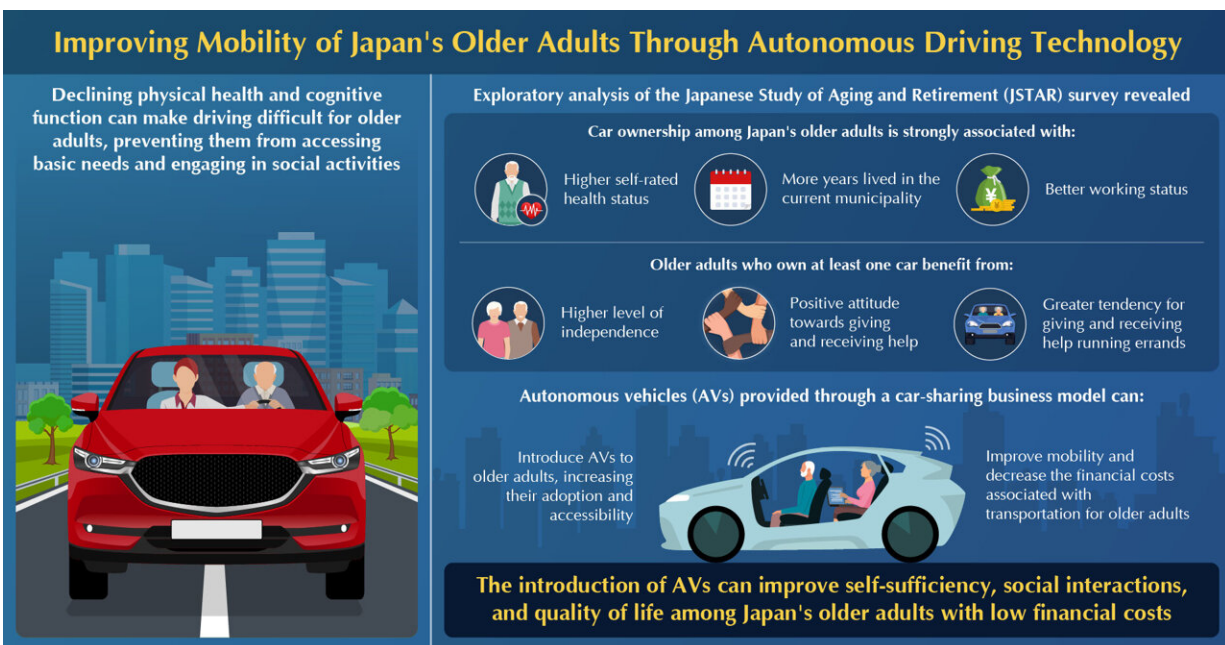


Ability to drive a car influences quality of life of older adults in Japan, research shows

September 19 2023



Improving Mobility of Japan's Older Adults Through Autonomous Driving Technology

Declining physical health and cognitive function can make driving difficult for older adults, preventing them from accessing basic needs and engaging in social activities

Exploratory analysis of the Japanese Study of Aging and Retirement (JSTAR) survey revealed

Car ownership among Japan's older adults is strongly associated with:

- Higher self-rated health status
- More years lived in the current municipality
- Better working status

Older adults who own at least one car benefit from:

- Higher level of independence
- Positive attitude towards giving and receiving help
- Greater tendency for giving and receiving help running errands

Autonomous vehicles (AVs) provided through a car-sharing business model can:

- Introduce AVs to older adults, increasing their adoption and accessibility
- Improve mobility and decrease the financial costs associated with transportation for older adults

The introduction of AVs can improve self-sufficiency, social interactions, and quality of life among Japan's older adults with low financial costs

Exploring Japan's Older Adults Mobility Challenges and the Potential Role of Autonomous Vehicles
 Pandyaswargo et al. (2023) | *Transportation Research Part A: Policy and Practice* | DOI: 10.1016/j.tra.2023.103818



Study suggests that shared autonomous vehicles can address mobility issues among older adults in Japan. Credit: Andante Hadi Pandyaswargo from Waseda University

Physical health and cognitive function declines as we age. Aging impacts people's ability to perform routine tasks, which affects their well-being and sense of independence. One such routine activity that is frequently affected is driving. For older adults, the inability to drive themselves can

mean that they become unable to access basic needs or engage in social activities.

In a recent study [published in *Transportation Research*](#), researchers from Waseda University, Japan looked at the mobility challenges faced by [older adults](#) in the country. They analyzed data from the Japanese Study of Aging and Retirement (JSTAR) survey, using exploratory analysis methods.

The study found that [car ownership](#) among older adults in Japan is strongly related to several positive indicators of well-being. For example, car ownership was associated with higher self-rated health status, greater number of years lived in the current municipality, and better working status. Older adults who owned at least one car experienced a higher level of independence and a greater positive attitude towards giving and receiving help, including running errands, compared to those who did not own a car.

Countries around the world are grappling with challenges caused by an aging population due to falling birth rates. Although the phenomenon is especially acute in Japan, research suggests that other countries will soon follow suit. Therefore, there is an urgent need to develop technologies to improve the quality of life of an aging population and mitigate the impacts of population aging.

As Associate Professor Andante Hadi Pandyaswargo from the Environmental Research Institute of Waseda University, the lead researcher in the study, notes, "The rate of population aging and life expectancy in Japan has been increasing. Other countries, including the developing countries, will follow the trend. In fact, the doubling time of the ratio of older adults in the population of some developing countries is faster than that in Japan."

"The United Nations World Population Prospects 2022 projected that by 2050, the global population of people older than 64 will be more than twice that of children under five. Therefore, countries with an [aging population](#) must quickly adapt and accommodate the changes caused by the growing number of older persons."

In addition to Pandyaswargo, researchers Tifani Husna Siregar, former Assistant Professor at the School of Political Science and Economics at Waseda University and Hiroshi Onoda, a Professor at the Graduate School of Environment and Energy Engineering at Waseda University, were involved in the study.

Analyzing the findings of this study, the researchers suggest that autonomous driving may play a key role in solving the mobility crisis among older adults. Giving older adults access to autonomous vehicles (AVs) via a car-sharing business model can have several benefits. For instance, it can improve mobility in older adults, reducing the financial costs associated with their transportation. In the long term, introducing the technology to a greater section of the population is likely to increase its adoption.

"Our study found that providing better access and safer mobility, like shared AVs, for older adults in the countryside has the potential to alleviate some mobility concerns that push older adults to relocate to denser cities. Our study also showed that mobility independence relates to self-perceived health and willingness to help others. We hope that nurturing these factors will allow us to halt the unnecessary shrinking of communities and mitigate the mobility challenges of older adults, thereby ensuring their well-being," explains Pandyaswargo.

Shared AVs are a fitting technological solution to the mobility issues facing older Japanese adults, because Japan is a world leader in automobile technology. "The [automotive industry](#) is one of Japan's core

industries. Therefore, Japan has the potential to set a global example of how automotive technologies can evolve to support the mobility of older adults," Pandyaswargo concludes.

Aging being a reality for all living beings, it is imperative that the challenges we face in our old age are probed for solutions armed with new and emerging technologies. This study attests to this need and shines the light on possible answers to one inescapable question that aging presents.

More information: Andante Hadi Pandyaswargo et al, Exploring Japan's older adults mobility challenges and the potential role of autonomous vehicles, *Transportation Research Part A: Policy and Practice* (2023). [DOI: 10.1016/j.tra.2023.103818](https://doi.org/10.1016/j.tra.2023.103818)

Provided by Waseda University

Citation: Ability to drive a car influences quality of life of older adults in Japan, research shows (2023, September 19) retrieved 2 May 2024 from <https://medicalxpress.com/news/2023-09-ability-car-quality-life-older.html>

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