

## REPORT OF RESEARCH RESULTS

**Title:** Functional status assessment and retirement decision among senior Thai road users

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**Summary:** This descriptive study was intended to assess functional status and retirement decision among senior Thai road users. It is important for older adults to be self-reliant and to encourage their independence and freedom in a positive way. The three most significant restrictions of older adults found in this study were visual problems, eyes and feet coordination to change or hit the pedals and trunk rotation to scan the traffic. Even though they had some limitations in their skill set tested in this study, many drivers and riders were likely to continue using their vehicles in the near future. The findings from this study help researchers to understand the limitations and potential support for older adults to be safe on the roads.

**Aim of Research:** This study aimed to explore the physical and cognitive status and road use retirement decision in Thai older adults who currently drive cars and ride bicycles and motorcycles.

**Method of Research & Progression:** The study was conducted in Phayao province among 267 community-dwelling Thai older adults who are still actively involved in driving and riding. The functional assessment included visual, physical, and cognitive abilities. The basic visual assessment was applied by using a visual acuity test, color blindness, and width and depth visual field tests. The physical assessment included motor speed, balance, coordination, range of motion, and strength of upper extremities was examined. For cognitive skills, the Clock Drawing Test was applied.

**Results of Research:** From 267 older adults, 120 were males (44.9%) and 147 were females (55.1%). Their age ranged from 60-96 years (Mean = 68.56, S.D. =6.54). Forty-six (17.2%) aged

75 or over. One hundred and seventy-eight older adults (66.7%) and 207 (77.5%) were married and had a primary level of education, respectively.

The three most common daily vehicles used were combination of bicycles and motorcycles (41.9%), bicycles only (33.7%), and motorcycles only (13.1%). Twenty-two of them (8.2%) used cars, motorcycles, and bicycles in daily life and only few just used a car only. Sixty-six (24.7%) regularly use their vehicles in the areas which are considered within the radius of two kilometres from their homes while 129 (48.3%) had travelled between two to ten kilometres. Also, 72 (26.9%) had their journey longer than ten kilometres at least three times a week. As such, 108 (40.4%) used vehicles to get around on the road in their villages, whereas 96 (36.05%) and 63 (23.6%) travelled outside their villages via back road and highway, respectively. Twenty-seven (10.1%) had road accidents during the past year and 23 (8.6%) considered they would stop driving or riding the vehicles in next three months.

Regarding health status, 173 of the older adults (64.8%) had co-morbidity such as hypertension, diabetes mellitus, and lung diseases. One hundred and seventy-nine (67.0%) and 48 (18.1%) reported having certain visual and hearing problems, respectively. From the visual acuity test, 266 (99.6%) and 259 (97%) did not have the normal visual acuity at the 20/20 vision on the right and left eyes, respectively. For the colour blindness test, 16 (6.0%) failed to pass the test. Forty-five (16.9%) and 139 (52.1%) did not pass the width and depth vision field test, respectively. Only 57 (21.3%) passed the reaction time test for visual and motor coordination of a foot switch at a traffic light.

The mean of rapid pace walk was 7.02 seconds (range= 4.14-15.49, S.D. = 1.86). Forty-three (16.1%) took longer than the nine seconds cut-off time which indicated an increased risk of a motor vehicle collision (MVC). The average of the range of motion (ROM) in right neck rotation was 59.5 degree (range= 5-85, S.D. = 14.78). The average of the range of motion (ROM)

in left neck rotation was 59.5 degree (range= 15-80, S.D. = 14.58). Ten (3.8%) and 7 (2.6%) had less than 30 degree of the ROM in right and left neck rotation, respectively.

The average of right trunk rotation was 18.03 degree (range= 5-45, S.D. = 7.57) while the average of left trunk rotation was 18.49 degree (range= 5-55, S.D. = 8.65). Two hundred and thirty-seven (88.8%) and 230 (86.1%) had less than 30 degree of right and left trunk rotation, respectively.

The average of right and left hand grip strength in males was 24.19 kilograms (range= 7.7-42.5, S.D. = 6.85) and 24.10 kilograms (range= 6.1-46.6, S.D. = 7.18). Thirteen (4.9%) and 12 (4.5%) of males had less than 16 kilograms of right and left hand grip strength, respectively.

The average of right and left hand grip strength in females were 18.04 kilograms (range= 5.4-28.2, S.D. = 4.86) and 17.52 kilograms (range= 6.1-29.1, S.D. = 4.81). Thirty-seven (13.9%) and 32 (12.0%) of females had less than 14 kilograms of right and left hand grip strength, respectively. Two hundred and fifty-seven (96.3%) had a Clock Drawing Test score greater than five out of ten.

#### **Future areas for study and recommendations:**

1. From many reports, the most dangerous drivers are not seniors. However, there is considerable significance how much senior road users accounted for serious crashes in road accidents in Thailand.
2. Some limitations of the physical status of senior drivers were found such as trunk rotation and neck rotation. Thus, a physical exercise program to improve flexibility of those seniors should be incorporated into additional training.
3. The visual problems of senior drivers are another concern. Perhaps they should be encouraged to change their driving routine to only the day time.

4. Some studies showed that age-related decrease in riding and driving performance such as reaction time is progressive with age. Some participants in this study did not show the expected age-related decrease in their performance.

**Means of Official Announcement of Research Results:** Plan to publish in the International Journal of Vehicle Safety.