



12th AMER International Conference on Quality of Life
The Magellan Sutra Resort, Kota Kinabalu, Malaysia, 26-28 Jan 2024

Driving Requirements for Older People in Malaysia: A thematic analysis

Nurani Nordin¹, Mohamad Ghazali Masuri^{1*}, Akehsan Dahlan¹, Ninik Nurhidayah²

**Corresponding Author*

¹Occupational Therapy Department, Faculty of Health Sciences, Universiti Teknologi MARA, Malaysia

²Department of Occupational Therapy, School of Health Polytechnics, Surakarta, Indonesia

nuraninordin97@gmail.com , mghazali@uitm.edu.my , akehsan@uitm.edu.my , niniknurhidayah@gmail.com
Tel: +6013-227 1874

Abstract

Driving has been recognised as the primary form of personal transportation across the adult lifespan. This study explores the requirements needed for older people to drive in Malaysia. In-depth interviews were conducted with six participants. The interviews were digitally audio-recorded, transcribed verbatim, and analysed using the six steps of thematic analysis. Three main themes emerged from the data: "Good health," "Driving-specific skills," and "Positive driving style." To conclude, this study conveys a crucial subject matter to policymakers and healthcare professionals in highlighting the requirement older people need to drive safely and thus improve our country's elderly workforce.

Keywords: Driving; Older people; Senior driver; Thematic analysis

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DOI: <https://doi.org/10.21834/e-bpj.v9i27.5607>

1.0 Introduction

The entire world is currently experiencing a global phenomenon of an ageing population. Globally, there were 703 million persons aged 65 years or over in 2019; by 2050, this number is projected to double to 1.5 billion (United Nations, 2019). Following this growing trend, Malaysia is most likely to reach the status of an ageing nation by 2030. The Department of Statistics Malaysia (2021) has revealed that the percentage of older adults aged 60 years and above has increased from 10.7 per cent in 2020 to 11.2 per cent in 2021. This percentage has also contributed to the increasing number of older drivers on the road. Like many other nations, Malaysia is witnessing a substantial increase in its elderly population. With this demographic shift comes an imperative to understand and address the unique requirements needed by older individuals, particularly concerning their ability to drive safely and independently.

Older drivers have become the current public health issue in our country. This is because many road injuries and fatalities currently involve older drivers. The consequences of a road traffic accident can result in either fatal or non-fatal injuries, potentially leading to disabilities. Such accidents impose a financial burden on the country as the government is compelled to allocate funds for the treatment and rehabilitation expenses incurred by the injured individuals (Masuri et al., 2016). In Malaysia, transport accidents were determined to be the fourth principal cause of death in 2019 (Department of Statistics Malaysia, 2020), whereby 2,288 cases, or 32 per cent of the accident rate, involved older drivers aged 50 years and above in 2016 (Royal Malaysian Police 2016, as cited in Rosli et al., 2020). Collisions on the road among older drivers have been associated with visual, cognitive, and mobility impairment. In particular, slower

driver reactions have been identified as the most typical cause of collisions in road accidents involving older drivers (Rolison et al., 2018). Another leading cause of collisions among older drivers is driver factors, which include driver errors at intersections, failure to yield the right of way, or noticing stop signs, signals, or unseen objects (Ahn et al., 2019). There is no denying that driving ability is indeed declining with age. However, chronological age cannot solely be counted as a factor in determining driving competency, as the ageing process may affect people differently (Alonso et al., 2016). Although so, medical conditions can impair sensory, cognitive, or sensory function and thus will subsequently affect an individual's driving ability (Skyving et al., 2021). As well known, many medical conditions are more familiar with increasing age and thus associated with a high risk of road crashes. A certain number of medical conditions may become red flags to healthcare professionals in determining the driving fitness of older drivers (Marshall, 2008).

Driving activity is classified as a part of the Instrumental Activities of Daily Living (IADLs) in the Occupational Therapy Practice Framework: Domain and Process (4th Edition), and it is vital for the community mobility of an individual (American Occupational Therapy Association (AOTA), 2020). Driving may enhance the quality of life among older adults through active and independent mobility (Karthaus & Falkenstein, 2016). However, age-related functional decline among older adults may increase their risk of road traffic accidents (Staplin et al., 2017). Hence, the objective of this study is to identify the requirements needed for older people to drive in Malaysia in order to promote safe and independent driving. This study aspires to provide a comprehensive understanding of their driving requirements. Such insights are crucial to serve as a foundation for practical strategies to enhance the well-being and independence of older drivers in the Malaysian context.

2.0 Methodology

The qualitative design was chosen to achieve the objectives of the study. Researchers using this approach often seek to establish a phenomenon's meaning from the participants' perspectives (Creswell, 2009).

2.1 Participants and Research Setting

The purposive sampling method was employed to recruit participants and elicit their lived experiences. This sampling method facilitates an in-depth understanding and focuses on individuals with a relevant phenomenon of interest (Starks & Trinidad, 2007). Accordingly, participants were selected based on the appropriateness and richness of their characteristics and experiences, as detailed in Table 1. The sample size for qualitative studies is often smaller than in quantitative studies, as it does not aim to make generalisations about a population or rely on something other than hypothesis testing (Dworkin, 2012). A small sample size should be considered manageable, as it provides close-up and in-depth insights into the phenomena. Data collection continued until data saturation was achieved. Data saturation occurs when no new themes emerge in the collected data (Francis et al., 2010) or further sampling becomes redundant (Busetto et al., 2020).

Table 1. Inclusion and exclusion criteria

Sample	Inclusion Criteria	Exclusion Criteria
Occupational therapist	<ul style="list-style-type: none"> OT in Malaysia who have been in service for at least one year. Conducting driving rehabilitation for at least three months. Currently working with older adults. Able to speak and understand Malay and English language. 	<ul style="list-style-type: none"> OT, who was never involved in driving rehabilitation. OT who did not have at least one older adult on their caseload.
Representative from the Road Transport Department (JPJ)	<ul style="list-style-type: none"> Experienced with older drivers. Able to speak and understand either Malay or English language. 	
Driving instructor	<ul style="list-style-type: none"> Driving instructor in Malaysia who has been in service for at least one year. Currently working with older adults. Able to speak and understand either Malay or English language. 	<ul style="list-style-type: none"> Driving instructors who did not have at least one older adult on their caseload.
Representatives from the Malaysian Institute of Road Safety Research (MIROS)	<ul style="list-style-type: none"> Experienced in road traffic research for at least one year. Able to speak and understand either Malay or English language. 	

In general, this study was conducted across Peninsular Malaysia, with the location of the sample of respondents determining the specific regions. For the sample of occupational therapists, the targeted locations were public hospitals around Peninsular Malaysia. For driving instructors, JPJ, and MIROS representatives, the sample was collected around Selangor. Selangor was chosen as the primary state for data collection because this state recorded the highest number of road traffic accidents in 2020, with 123,230 cases, followed by Johor (58,207 cases) and Kuala Lumpur (50,215 cases) (Department of Statistics Malaysia, 2021b).

2.2 Data Collection

The researcher conducted semi-structured face-to-face interviews with a total of six participants. Three occupational therapists, one driving instructor, one representative from JPJ and one representative from MIROS. Each interview took around 30 to 45 minutes for

each participant. The researcher acted as a listener and asked participants to provide accounts of their experiences with the phenomenon. Probing questions were asked to encourage participants to elaborate on the details to achieve clarity and stay close to the lived experience (Starks & Trinidad, 2007). The questions for the interview guide were designed explicitly for this study, and both English and Malay versions are available to suit the participants' communication preferences.

2.3 Data Analysis

The NVivo software program assisted in the analysis process. The interviews were digitally audio-recorded, transcribed verbatim, and analysed using thematic analysis. Thematic analysis is a well-known method that involves identifying, analysing, and interpreting patterns (themes) within qualitative data (Clarke & Braun, 2017). In relation to the research question, a theme portrays something significant about the data and represents some level of patterned response or meaning within the dataset (Braun & Clarke, 2006). Braun and Clarke (2006) documented that the analysis method consists of six steps. The quotes and themes developed will be translated into English using forward translation.

Several methods were used to ensure the trustworthiness of this study. For example, the researcher used the member checks method, whereby the interview transcripts were sent to the study participants for feedback (Korstjens & Moser, 2018; Lincoln & Guba, 1985) to verify the data or interpretation (Kaminski & Pitney, 2004). Another method to check the credibility of the study is the triangulation method. There are several modes of triangulation, but this study adopted the mode of investigator triangulation. Investigator triangulation involves research team members addressing the data analysis process (Korstjens & Moser, 2018). This investigator triangulation aims to ensure that a correct and precise understanding of a phenomenon is acquired by cross-checking the information or findings (Kaminski & Pitney, 2004).

3.0 Findings

Six participants contributed to the findings of this study. Three of them are occupational therapists, one driving instructor, one representative from JPJ, and one from MIROS. The findings revealed three main themes: (1) "Good health," (2) "Driving specific skills," and (3) "Positive driving style." The main themes and sub-themes that emerged are summarised in Table 2.

Table 2. Main themes and sub-themes emerged from the findings of this study.

Main theme	Sub-themes
Good health	Physically fit Intact cognitive Intact sensory function
Driving specific skills	Planning Manoeuvring Controlling
Positive driving style	Individual factor Technological factor

3.1 Main theme 1: Good health

This theme highlighted the need for older people to be in good health in order for them to drive safely on the road. This theme is underpinned by three sub-themes: physically fit, intact cognitive function, and intact sensory function.

3.1.1 Subtheme- Physically fit

Mr. Amin, a driving instructor in Selangor, illustrates this subtheme. He highlighted that an older driver needs to stay healthy and have enough energy to drive independently.

"We need to have enough energy to drive, and maybe in terms of health, you need good health. So, that is all to ensure safe driving on the road," said Mr. Amin.

This is supported by Mrs Aishah, an occupational therapist specialising in driving rehabilitation. She explained that older people need physical strength to manoeuvre the car.

"Driving is complex (task). Anyone, not only the elderly, you needs strength. You also need strength to turn the steering wheel, right? And to reach the steering wheel, you also need endurance," said Mrs. Aishah.

3.1.2 Subtheme- Intact cognitive

All of the participants shared that older people need to have good cognitive skills to drive safely. Mrs Aishah claimed that driving requires good attention skills, and issues in attention may lead to driving impairment.

"Attention span, right? Driving requires good attention. If you have issues in divided attention, you will have problems in driving activity."- Mrs. Aishah.

Like Mrs Fatimah, a senior occupational therapist who is an expert in driving rehabilitation. She stated that older people need to have

fast thinking skills when driving a car.

"Hmm, and then your thinking process, your cognitive. You cannot be slow." - Mrs. Fatimah.

Similarly, Mr Amin mentioned that older people must process all of the information independently and act accordingly while driving.

"A safe driver should be responsible with his driving. He needs to observe himself and not depend on others to help. He must also process all the information and act based on his observations. Moreover, he must drive the car alone," said Mr. Amin.

3.1.3 Subtheme- Intact sensory function

This subtheme highlighted that in order to drive, older people need to have intact sensory functions such as visual and hearing. Mrs Fatimah explained that older people should have a good visual function to drive without any problems.

"Malaysia's standard in 120 degrees (visual field). Our visual field is around 190 degrees. However, here in Malaysia, 120 degrees is the minimum. However, if there is a problem with one eye, it is not going to be 120 degrees anymore," said Mrs. Fatimah.

Mr. Amin, on the other hand, stated that good hearing skills is also needed to avoid danger.

"When we drive, we have to listen to the noise around us (...). For example, while we are driving, there may be someone honking to warn us of a danger. If we did not notice, maybe we won't take action." - Mr. Amin

3.2 Main theme 2: Driving specific skills

This theme highlighted the need for older people to have specific driving skills to execute driving tasks successfully. This theme is underpinned by three subthemes, which are planning, manoeuvring and controlling.

3.2.1 Subtheme- Planning

Mrs. Aishah illustrates this subtheme. She highlighted that an older driver must have the skills to plan their driving journey.

"My concern is on their judgment and planning. Planning on what time to go out and which routes to use. Because nowadays, the routes have changed a lot, unlike before." - Mrs Aishah

3.2.2 Subtheme- Maneuvering

This subtheme is described by most of the participants. For example, Mr Chua, a Road Transport Department (JPJ) representative, explained that older people should be able to respond accordingly in the traffic environment.

"Sometimes you have to judge when you see the red light, or all the (...) you know (...) the environment in front of you whether there is any blockage or not. I mean, we called it "obstacles", dangerous. Yeah. So, that is the thing that we might consider." - Mr. Chua.

Another participant, Mrs Aishah, also said that many traffic environments require drivers to make sound judgments.

"Sometimes it's a skill; you want to park at the parking lot, you need to judge. Or when you want to cross at the intersection. That's considered as problem solving or judgment." - Mrs. Aishah.

3.2.3 Subtheme- Controlling

This subtheme elaborated that older people should have basic driving skills to control their vehicles. Mrs Hawa, an occupational therapist, describes that an older adult should be well-versed in every vehicle component.

"So, you need to know every vehicle component. Yes, how to adjust the blinking, gear, and everything." - Mrs. Hawa

Mrs. Aishah also mentions another essential driving skill.

"Which lane to use and all. How about the speed? Which speed should be proper for them to drive?" - Mrs. Aishah

3.3 Main theme 3: Positive driving style

Every participant illustrates this theme. They described many ways to encourage a positive driving style among older people. This theme is underpinned by two subthemes: individual factors and technological factors.

3.3.1 Subtheme- Individual factor

This subtheme is highlighted by Mr Amin, who explained that older people should possess good self-control while driving. He stated that:

"On the road, we have to be calm, relaxed and don't easily get angry." - Mr Amin

Mr Chua further added that older people need to know when to have short rest during long hours of driving.

"Especially when you drive a very long hours journey. Yeah, that will actually affect people who are at an advanced age. Yes, they need to stop for a while before they move on to another location," said Mr. Chua.

On the other hand, Mr Ahmad, a representative from the Malaysian Institute of Road Safety Research (MIROS), mentioned that older people with more driving experience are, indeed, more skilful.

"But if he rarely drives, he (...) always uses a driver, that may be in question. But usually, if people have been driving for a long time, their skills will improve, they will be more patient, and so on." -Mr. Ahmad

3.3.2 Subtheme- Technological factor

This subtheme is illustrated by Mr Chua and Mr Ahmad, who described that technological factors, such as the type of car used, may affect older people's driving style.

So, (...) most of them, of course, at this age, they drive automatic cars. Hmm, I think a manual car is something like already phased out. Maybe in the future, they use autonomous driving, that means that 'driverless driving'." – Mr. Chua

Mr. Ahmad, on the other hand, mentioned that:

"If he is really old, he is old-school, and if he has experience in driving a manual car, he won't mind driving a manual car. They are used to it." -Mr. Ahmad

Mr. Amin further added that:

"I recommend for them to use auto." –Mr. Amin

4.0 Discussion

The findings from this qualitative study provide information on the requirements needed for older people to drive safely. The study identified three main themes: "Good Health," "Driving-Specific Skills," and "Positive Driving Style." These themes generally emphasise that older people must maintain good health, possess driving-specific skills, and adopt a positive driving style.

Maintaining good health is crucial for older people to drive safely and independently on the road. A previous study indicated that good health status among elderly drivers positively relates to greater confidence in driving skills. As long as their health status remains intact, their driving skills remain unchanged (Donorfio et al., 2008). However, a recent study has shown that many elderly drivers continue to drive despite deteriorating their health, leading to accidents (Jeong et al., 2023) and a higher risk of fatal crash involvement (Pitta et al., 2021). Changes in physical and cognitive abilities are critical aspects of healthy ageing that may directly affect older adults' driving performance (Toups et al., 2022). Anstey et al. (2005) previously described that physical function, sensory function, and cognition are enabling factors that can predict driving safety among older adults. Shen et al. (2020) added that these factors should be included in fitness-to-drive assessments for older adults.

The theme of "Driving-Specific Skills" emphasises the need for elderly drivers to be equipped with skills to execute driving tasks successfully. A study found that most older adults reported that their driving-related skills remained unchanged over time (Siren & Meng, 2013). These skills can be described according to hierarchical levels representing different aspects of driving tasks, including planning, manoeuvring, and controlling (Michon, 1985). At the strategic level, drivers make pre-trip decisions involving planning the overall driving trip, considering goals, routes, and potential costs and risks (Michon, 1985). At the tactical level, drivers need to manoeuvre the vehicle safely in actual traffic environments, requiring cognitive-perceptual skills to react appropriately to immediate traffic situations (Cammarata et al., 2017). Lastly, at the operational level, drivers should be able to control the vehicle with basic driving skills such as steering, braking, accelerating, and responding to environmental and sensory information (Unsworth et al., 2005).

The final theme describes various ways to encourage a positive driving style among older people, reflecting a patient and careful approach to driving (Sun et al., 2021). Both individual and technological factors can influence this positive driving style. Regarding individual factors, a study in Malaysia revealed that longer driving experiences may shape more careful drivers on the road (Karjanto et al., 2016). A careful driver pays full attention to traffic, demonstrating patience, courtesy, and calmness on the road, and adheres to traffic rules (Sun et al., 2021). Failure to do so may lead to dangerous driving behaviours such as tailgating, improper lane changing, and running red lights (Bernstein et al., 2022). Technological factors, such as the type of car used, may also affect older people's driving styles. A previous study discussed that automatic transmission cars could improve older adults' driving behaviour by promoting safer speed adjustment, lane position, and better manoeuvring skills (Selander et al., 2012). This further supports the recommendation for them to switch from manual to automatic transmission cars for a safer driving experience.

5.0 Conclusion and Recommendation

To conclude, the findings from this study emphasise the essential requirements for older people to drive safely and independently:

"Good Health," "Driving-Specific Skills," and "Positive Driving Style". The findings of the qualitative study may be specific to the Malaysian context, and caution should be exercised when generalising the results to other cultural or geographical settings. Addressing these issues as the ageing population grows becomes critical to ensure the safety, independence, and well-being of older drivers on the road. Moreover, this study conveys a crucial subject matter to policymakers and healthcare professionals, highlighting the requirements older people need to drive safely, thus improving our country's elderly workforce. Future studies should raise awareness about the importance of safe driving among the elderly. Together, as a nation, societies can work towards creating environments that prioritise safety and empower older people to maintain their mobility and independence on the road.

Acknowledgement

The authors want to acknowledge the Faculty of Health Science, Universiti Teknologi MARA (UiTM) and Research Management Institute (RMI), UiTM. The authors also wish to thank all participants who have participated in this research project. This research was financially supported by UiTM under the grant scheme Geran Penyelidikan Inovasi Sosial (GIS), Project code: 600-RMC/GIS 5/3 (008/2023).

Paper Contribution to Related Field of Study

This paper significantly contributes to the field of study by providing comprehensive insights into the requirements for older individuals to drive safely. The findings have the potential to inform policies and enhance the overall safety and well-being of older people facing the challenges of driving in an ageing world.

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