



UNIVERSITI PUTRA MALAYSIA

***PERCEPTION OF SAFE TRANSPORTATION AND SAFE MOBILITY
AMONG ELDERLY IN KLANG VALLEY***

GROUP 26

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FPSK1 2021 28**

PERCEPTION OF SAFE TRANSPORTATION AND SAFE MOBILITY AMONG ELDERLY IN KLANG VALLEY

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Background

It is estimated that elderly population will increase to 2 billions by 2050. Therefore there is urge to think about the existence of friendly environment fo elderly. There is also need to tackle issues related to in elderlys transportation and mobility. Many studies found that when transportation mode was investigated, the elderly depend more on private transport (car) as their primary transportation. When there is an increase in age, there is decrease in car use, therefore there is a relation such that the dependence on personal vehicles has long-term effect for elderly. decrease in health wellbeing has caused limitation for elderly to choose another mode of transportation. There is also an increase in crash numbers that involve elderly who need more attention to tackle. This clearly shows a need for a new strategy or plan to improve transportation quality in transportation is essential and crucial.

Objective

Our study aims to determine the perception of safe transportation and safe mobility among the elderly in Klang Valley. Besides, this study also aims to assess the factors (sociodemographic factors) associated with safe transportation and safe mobility among elderly.

Methodology

Study Location is in the Klang Valley. The study design is a cross-sectional study and study duration will be from December 2020 to July 2021. The Sample population is going to be elderly in Klang Valley who use transportation in their daily life and the total of targeted population is 350 elderly. The inclusion criteria will be elderly with the age 60 years old and above living in Klang Valley. The exclusion criteria is going to be elderly with chronic dementia or bedridden elderly and our calculation will include a 20% non response rate. The questionnaires we used are from Colorado Department of Transportation: Statewide Transit Survey of Older Adults and Adults with Disabilities in 2014. Next, for the data analysis, the Statistical Package for Social Sciences (SPSS) version 25 is used to analyze the data collected. For descriptive analysis, categorical data is presented as frequency and percentage. For normally distributed continuous data, mean and standard deviation is used while for non-normally distributed data, the median interquartile range (IQR) will be reported. For inferential statistics, Chi-square test will be used for categorical data to determine the association between the dependent and independent variables.

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CHAPTER 1

INTRODUCTION

1.1 Background

According to the World Health Organization, the world's population of people aged 60 years and older in 2050 will increase to 2 billion from 900 million in 2015 (World Health Organization, 2018). It is estimated that Malaysia's elderly population will be markedly increased to 16.3% of the total population by 2040 (Wen K. J and Labao H. C, 2019). There will be an increase of around 0.3% from 6.7% for the population aged 65 years and above over the same time (Department of Statistics Malaysia, 2020). Growth of aged drivers is estimated to rise more than the ageing community due to demographic changes and the senior population's rise. Hence there will be a rising trend of aged drivers (Yadollah Abolfathi Momtaz et al., 2018). One of the important activities for elderly is driving as it helps in maintaining and enhancing their quality of life simultaneously, however, the driving skill might be affected by decreasing of perceptual, cognitive and motor abilities with Age (Yadollah Abolfathi Momtaz, Reza Kargar, Raziye Hosseiny & Robab Sahaf, 2018).

There is a mixture of evidence of the trends in travel and public transport use in ageing societies, and public transport use has attractive sustainability features for older people (Graham Currie & Alexa Delbose, 2010). Rosenbloom and Waldorf (2001) states that older drivers' absolute numbers are expected to impact our cities from a congestion and environmental pollution viewpoint. A primary concern for society is road safety amongst more senior drivers, whilst in the future, the impacts of driving cessation on life quality is an emerging and growing issue (Golob and Hensher, 2007). Public transport is essential in maintaining elderly's active lifestyle regardless of their disabilities to drive. Older people of the current generation are more active than the previous generation of the same age. Therefore, easy access to public transport to elderly benefits themselves of useful services, employment and other activity (Shresta B. P, 2016).

1.2 Problem Statement

The burden of not having safe transportation and safe mobility in the elderly is an important topic requiring more attention and study.

Many studies found that when transportation mode was investigated, the elderly depend more on private transport (car) as their primary transportation. Dependence on the personal vehicle has long-term effects on the environment and elderly well-being, as stated by Li et al., (2019) as the use of cars decreases with age. This is attributed to the deteriorating health conditions of the elderly that forbid them to drive as they age. Deteriorating health conditions could also limit the elderly's accessibility to other active transportation such as walking, cycling, or public transportation (Saidatulakmal Mohd, Abdul Rais Abdul Latiff & Abdelhak Senadjki, 2019).

In the road traffic safety point of view, with the projected increase in the elderly driving population worldwide, the problem of an increasing number of crashes involving elderly drivers is attracting many researchers and practitioners (Nazlin Hanie Abdullah and Siti Zawiah Md Dawal, 2020).

While on the public transport edge, more for external reasons. Potential safety hazards associated with public transport are injuries related to the infrastructure (e.g., stairs, escalators, platforms, ramps), violent crime (e.g., sexual offences, knife attacks, terrorism, thefts), non-violent crime (e.g., anti-social behaviour, vandalism, drug use, trespassing, drunkenness), or even infections and viruses (Margareta Friman, Katrin Lättman & Lars E. Olsson, 2020). This is because, compared to private transportation, public transport is used by many people. Thus the problem is slightly higher compared to a personal vehicle. Other than that, there is some public transport that is not that friendly to the elderly.

This clearly shows a need for a new strategy or plan to improve transportation quality in transportation is essential and crucial. Besides, providing safe transportation to the elderly helps to continue their daily activities and free them from mobility stress. Therefore there is a need to look at the perception of safe transportation among elderly in Klang Valley.

1.3 Significance of the Study

This study can help determine the perception of safe transportation and safe mobility among the elderly in Klang Valley. This may allow the elderly to express their opinion on safe transportation and safe mobility to other people. Hence, they can use various types of transportation for their mobility comfortably and feeling secure. We can identify the barriers that they are facing so that others may acknowledge those problems and can help to resolve them.

This study can help the researchers learn more about the perception of safe transportation and safe mobility among the elderly, especially elderly living in Klang Valley. We can study the choice of mode for transportation and the characteristics of transportation expressed by the elderly. This study also aims to fill the gaps from previous studies to ensure the safety of the elderly these days.

Lastly, through this study, we hope it can be beneficial to the community as well. The study gives information and creates awareness about safe transportation and safe mobility among the elderly. This indirectly will enhance the usage of facilities for transportation in Malaysia. The country also benefits in transportation industries such as private-public transport companies and helps develop more modern transportation. Hence, this will help ease the elderly to mobile and help in-country development in transportation that is more safe and friendly to the elderly. Besides, this study may help the community resolve any barriers faced by the elderly to achieve safe transportation and safe mobility.

1.4 Research Questions

1. What are the factors associated with safe transportation and safe mobility among the elderly in Klang Valley?
2. What are the barriers associated with safe transportation among elderly?
3. What are the barriers associated with safe mobility among elderly?

1.5 Objective of Study

1.5.1 General Objective

This study aims to determine the perception of safe transportation and safe mobility among the elderly in Klang Valley.

1.5.2 Specific Objectives

1. To determine the perception of safe mobility among the elderly.
2. To determine the perception of safe transportation among the elderly.
3. To determine the sociodemographic factors of the respondents.
4. To determine transportation usage among the elderly.
5. To determine the barriers to safe transportation.
6. To determine the barriers of safe mobility.
7. To determine the association between sociodemographic factors, characteristics of transportation and barriers with safe mobility among the elderly.
8. To determine the association between sociodemographic factors, characteristics of transportation and barriers with safe transportation among the elderly.

1.6 Research Hypothesis

1. There is a significant association between safe mobility and safe transportation among elderly in Klang Valley.
2. There is a significant association between distances travelled and sociodemographic factors towards safe transportation among elderly in Klang Valley.
3. There is a significant association between multimodal patterns of mobility and transportation usage towards safe transportation among elderly in Klang Valley.
4. There is a significant association between transportation usage and characteristics of transportation towards safe transportation among elderly.
5. There is a significant association between barriers of safe transportation and barriers of safe mobility towards safe transportation in elderly.

CHAPTER 2

LITERATURE REVIEW

2.1 Safe Transportation

2.1.1 Definitions

Merriam-Webster Dictionary explains safety as a condition of being free from hurt, injury or loss". According to Szczukowski, M mentioned that Maurice et al., describe safety as a step to avoid the occurrence of risks, hazards, or conditions conducive to human health and the loss of well-being (Szczukowski, M., 2017). According to the Cambridge Dictionary, transportation is defined as: "a system of vehicles, for example, buses, trains, and aircraft, for getting from one place to another". In safe transportation, it includes transportation safety and security. In the planning process, transportation safety is an essential factor and the key partners that make sure the safety are transportation planners (US Department of Transportation, 2016). Zumkeller, Manz, Last and Chlond (2005) stated that multimodal transportation is defined as the use of different transport modes on different routes (cited in Jonuschat, Stephan & Schelewsky, 2015).

2.1.2 Types of Transportation

Types of transportation are divided into two. First is a standard mode of transportation, and second is informal mode transportation. For the formal kind of transportation, it is the government's responsibility. Walking, biking, automobiles, taxis, buses, trucks and others are examples of the standard transportation mode designed for city streets. Meanwhile, for an informal type of transportation. It is also referred to as "paratransit" and "low-cost transport". Usually, it is privately operated, and not in big-scale services. When the government mode of transportation fails to meet the demand, it will fill the gap (Nabil Mohareb & Felix, M., 2016). According to the Ministry of Transportation Malaysia, transportation mode is divided into 4, which are aviation, land, maritime and logistics.

2.1.3 Importance of Safe Transportation

In terms of safe transportation for transit, the Federal Transit Administration (FTA) had made an action plan, USA. This plan aims to maximise the practice level of security and

safety in all modes of transit. This action is essential to make public transit safe and secure for users and transporters. It also reduces the frequencies of death, accidents and trauma by practising the policies and activities. Other than that this will lead to enhancement of the transit infrastructures conditions (Basuki Joewono & Hisashi Kubota, 2006)

2.1.4 Transport Challenges Faced by the Elderly

Some challenges related to transportation, such as the elderly, are limited to mobile due to their health condition or problem in physical accessibility. They also criticise transportation, especially public transport. They face difficulties in public transportation, such as instruction to use and services like public transportation, quite far from their house. Other than that, there are relatively high volumes of vehicles, making it less friendly to elderly with wheelchairs or is not acceptable in a movement where you need to climb something. Besides that, accessibility also plays a significant role. Transportation that has a mild form to access usually makes the elderly feel least comfortable, making them feel nervous and stressed. In their perspective, public transport, for example, feels like it is so crowded with people and has problems adapting to modern technology. These routes sometimes keep changing, and frequencies sometimes change over time or do not follow the exact time (Matthias Fiedler, 2007).

According to a study being held in Australia, seniors' dominant mode of travel is private cars. They also use public transport, followed by a walk. For public transport, the most use is usually bus or tram for countries with that, compared to trains that are not much popular with the elderly. Thus, some places do not provide parking that is enough for the elderly sometimes (Adelaide Seniors Travel Survey, 2012).

2.2 Perception of Safe Transportation among Elderly

2.2.1 Modes of Transportation

In the United States of America, personal vehicles are the most preferred mode of transportation and driving is an essential feature in a good quality of life. Research shows that the ageing population is more dependent on personal vehicles (Newbold & Scott,

2017). Other than that, a study in the rural area of the USA concluded that almost the majority of people aged 65 to 74 years old drive by themselves for any daily activities (Glasgow & Blakely, 2000). More than 80% of the elderly drive short distances more than five times monthly (Shaheen et al., 2016). A research done in the United Kingdom suggested that the elderly aged above 65 years old prefer to park and ride facilities and buses (Clayton, 2014). The study showed that in Australia, the elderly aged above 60 years old use e-bike for leisure trips (Wolf & Seebauer, 2014). Even though personal transportation is the preferable mode of transport among the elderly, public transportation helps those who cannot drive or choose not to drive (Federal Highway Administration, 2001). The elderly prefer automobiles rather than walking and are least likely to ride public transport (Rosenbloom & Waldorf, 2001).

2.2.2 The use of Public Transportation

Elderly prefer to use automobile transportation rather than public transportation in countries like the United States of America, Australia and New Zealand. Still, in congested cities like Hong Kong, Curitiba, Tokyo and Shanghai, they have an advanced public transportation network that provides better service and coverage (Wong et al., 2018). Hong Kong is an illustration of a transit-oriented city. Almost everyone in the city uses public transportation services; in fact, the elderly use them more often than younger individuals (Yang, 2016). Hypothetically, the total of trips taken by those who do not drive is affected by the number of people who drive and by the use of public transportation (Mattson, 2011).

2.2.3 The use of Personal Transportation

Driving is the most preferred mode of transportation in elderly because it is associated with high levels of satisfaction, comfort, less isolation and better control of the travel situation (Organisation for Economic Cooperation and Development, 2001). This is because elderly have more freedom to use it freely. Personal transportation is the dominant choice of transportation by the elderly, and public transportation is the least choice in the United States of America (Collia, 2003). Additionally, in Canada, the elderly prefer their vehicles, and again, public transportation is ranked the least preferable

mode of transportation (Newbold, Scott, Spinney, Kanalogrou & Paez 2005). More than 70% choose personal vehicles in Australia, and less than 10% choose public transportation (Rosenbloom & Morris, 1998).

2.2.4 Distance Travelled by the Elderly

As the percentage of elderly over the globe is increasing, travelling among the elderly has captured many parties' attention (United Nation, 2002). Travel distances are a significant measure of active ageing as it enables the measurement of the ability of the elderly to engage in socioeconomic activities (World Health Organization, 2002). Study shows that men travel longer distances than women, which is supported by the racial difference, residency, workplace, city planning and travel behaviour among the elderly (Chen & McKnight, 2007; Timmermans, 2003). Adding to that, the elderly prefer to travel shorter distances than young people (Rouwendal & Rietveld, 1994). As age increases, the trip distance decreases; however, there is an increase in travel distance for leisure among the elderly until they are 80 years old (Schmocker, 2005). A survey done by the United States National Household Travel Survey (NHTS) in 2001 shows that the elderly travel a shorter distance compared to others, particularly those with health issues (Collia, 2003). Travel distance reaches its peak in individuals aged 50 years old either by personal or public transportation (Johansson & Stenman, 2002). The current statistic shows that the travel distances among the elderly have increased than the previous generation, elderly nowadays tend to drive further distances and refuse to stop driving (Skinner, 2000). In the elderly population, due to the limitation on physical involvement in time and space, the distance travelled allows a stable connection within a community (Mercado, 2009).

2.3 Perception of Safe Mobility among Elderly

2.3.1 The needs for assistance

In the elderly, the capability to travel unassisted and protected from one place to another usually declines (Rantakokko, Mänty & Rantanen, 2013). The Hong Kong government has done initiatives to refine the mobility of the citizens by guiding the shareholders in organising and designing transport facilities that suit everyone including the elderly and disabled individuals to form a more approachable and barrier-free transport facilities like

ramps and wheelchair aids (Wong, Szeto, Yang, Li & Wong, 2018). Safe mobility is an essential component of life and necessary for independence, maintaining well-being and social interaction among the elderly (Kim & Ulfarsson, 2004).

2.3.2 The needs for Walking Tools

Mobility habits can be evaluated from various aspects, including travel, destination, departure time, and mobility mode. This can successfully foresee the travel demands of the elderly (Li, Yang, Shen & Wu, 2018). A study done in Japan shows that more than 60% of the elderly agree that the use of robots may help their daily mobility and help their physical activity (Shiomi, Takamasa, Koji, Chandraprakash & Norihiro, 2015). For the past 20 years, the electric-powered chair (EPW) or the smart wheelchair has been the most common aid mobility for the elderly, disabled people and people with reduced mobility (Kim, 2016).

2.4 Sociodemographic Factors Associated with Safe Transportation and Safe Mobility among Elderly

2.4.1 Age

Transport and mobility requirements for every road user are various and change with an increase in age. Due to the ageing population, the need to acknowledge transportation requirements for the elderly is widely growing (O' Hern, 2015). The ageing population is a widespread and unavoidable trend nowadays due to the increased life period and decreased mortality rate with Japan on top of the world ranking that constitutes about 33% of elderly aged 60 and above (United Nations, 2015). By 2064, the elderly population is predicted to reach up to 38% of the population (Census & Statistics Department, 2015).

2.4.2 Gender

Interaction of men and women with transport systems worldwide is increasingly important in maintaining a good quality of life and society's inclusion (Robert Raeside, 2012). Older people are heavily dependent on car use based on travel patterns in the UK, but in the form of more frequent but shorter journeys than younger people. Same as for

women over 70 years old who, as passengers, are very reliant on males to drive them (Robert Raeside, 2012). Under certain adverse conditions and for elective purposes, females were more likely than men to have stopped or reduced driving (Mary J., 2002). Men usually drive more frequently, and longer distances than women do. And men always drive more aggressively than women (Gallo, Rebok, & Lesikar, 1999; Marottoli et al., 1993). However, female drivers have been reported to be involved in more intersection accidents than male drivers have. (Guerrier et al., 1999). Differences between women and men are found in several dimensions of mobility, and the magnitude of gender differences can shift between dimensions. Gendered travel patterns are different. Women travel more frequently with children and walking, while men usually travel further, with fewer destinations to travel (European Commission, 2007; Kawgan-Kagan, 2015; Darshini and Advani, 2016; Zheng et al., 2016; Basaric et al., 2016). There is a "Gender Socialization Theory" that suggests that "males tend to be socialised towards a masculine identity stressing detachment, control, and mastery in many countries around the world, and females tend to be socialised towards a feminine identity stressing attachment, empathy, and care." (McCright et al., 2016). This shows how stated transport preferences can be gendered, for example, compared to men, women preferring smaller cars, or more fuel-efficient vehicles, or cycling more. (Kronsell et al., 2016; Fan, 2017; Aldred et al., 2017). And also more women value the environmental benefits of electric vehicles compared to men in Sweden (Vassileva and Campillo, 2017). Researcher also found that women subsume responsibility for the private sphere and the household in nurturing and caring roles, which limit their freedom to assume positions of power or participation in the labor market, and reinforcing gender inequality in patterns of mobility (Solá, 2016; Fan, 2017; Scheiner and Holz-Rau, 2012). There is also a study showing women are less likely to own a car than males, in which 70.4% of females own cars but 79.8% of males have their own vehicles. In the aspects of perception of vehicles among gender, women seem inclined to attribute more importance to ease of operation and safety (78.1% of women vs 63.8% of men rank this as very important), cost attributes, the environmental impact of a car and the charging options of vehicles. (Mark Gorman, 2019). As studies have found that women are more likely than men to report safety concerns as constraining their transport, issues of safety, comfort and accessibility

to destinations appear to be more critical to women's overall travel behaviour than men's (Kristiann C,2012).

2.4.3 Household Income

Driving involvement is linked to socioeconomic status via a few studies. It is discovered that individuals in the lower socioeconomic status groups (e.g., those with low incomes) may not be able to afford driving, or even driving long distances (Jette & Branch, 1992; Kington et al., 1994). Moreover, in price-wise, the age group over 65 years old (the retirees) was willing to pay more, which is most of the time, over €30.000. Thus, the elderly group represents an attractive electric mobility market even though they have relatively little electric vehicles experience. Transport infrastructure in many low-income countries is significantly lower than for the "developed" world. In most middle-income countries, transport choices for older people, especially those who rely on public or shared transport services, are extremely limited in many situations (Mark Gorman,2019). Older adults with low income have difficulty to travel and to meet their day-to-day needs. This is because limited disposable income may affect car ownership and afford taxis or even transit. Studies show older adults with low income have a greater reliance on walking as a travel mode (Cao et al., 2010; Frank et al., 2010; Turcotte, 2012). Older adults who typically have lower annual incomes than younger (working) adults may rely on government assistance, and transportation costs may represent a significant component of total expenses (ABS,2012).

2.4.4 Educational Level

Classification of education varies in different countries. Education levels are usually categorised into 'primary school degree', 'secondary school degree', 'college degree or higher. (D. Van Dyck et al. / Health & Place 36,2015). Malaysia Education Blueprint stated that the target should be achieved in quality, equity and access in 13 years. The Malaysian special needs education system can be analysed along five dimensions through three waves: the first wave within 2013-2015 to strengthen the existing foundation. The second wave within 2016-2020 is to scale up the initiative and the third wave within 2021-2025 to evaluate and consolidate initiatives (Ministry of Health 2016; Jopri, 2016).

Based on the statistics given by the Ministry of Education 2016, the number of Special Education Needs (SEN) in Malaysia increased from 56,406 (9.60%) in 2013 to 74,131 (25.50%) in 2016 (Jopri, 2016). Geriatric and rural populations would be more likely to have poor knowledge, attitudes, and preventive practices due to limited access to online health information resources. (Salman et al., 2020). Education can influence perceptions of sustainability, mobility, and electric mobility. Research has hypothesised that those with postgraduate and undergraduate education would place a higher value on protecting the environment or developing more innovative (and lower carbon) energy sources. Elderly with higher educational levels would prefer an environmentally friendly type of transport. This is proven by Baiocchiet al. (2010), examining the relationship between education and total carbon emissions and they are positively correlated (Mouter et al., 2017). In the Netherlands, those with a degree from a higher educational institution have stronger spatial equity preferences and equal access to mobility services than less-educated citizens (Mouter et al., 2017).

2.5 Transportation Usage Among Elderly

Study shows that female elderly more comfortable and frequently become passengers compared to drivers than males. And for male elderly who are around 85 years old and above, generally, they usually not drive but more become passengers or prefer walk and transit mode. And for female elderly above 85 years old, they depend on someone as more percentage shows they usually travel as passengers and they do not use walking and transit as their mode of transportation (Boschmann & Brandy, 2013).

2.6 Multimodal Patterns of Mobility among Elderly

For the elderly to live independently in a community, the accessibility of appropriate transportation is essential (Liu, Dijst & Geetman, 2014). However, the needs of the elderly on the transportation system are often neglected by the authorities and related parties (Buffel & Phillipson, 2016). It is noted that the elderly are less able to travel or make long trips due to their mobility issue (Somenahalli & Shipton, 2013). There is also stated that in the elderly, there is a significant decrease in trip rates as compared to young adults (Zhang, 2007). In contrast, in countries like the United States, Australia and Britain, the elderly make more trips by using

personal transportation as they own driving licenses compared to decades ago (Rosenbloom, 2001). In a small area of living that provides better access to destinations due to their short distances, the elderly prefer walking rather than driving hence obtaining the benefits of doing physical activity (Gauvin, 2012).

2.7 Barriers to Safe Transportation among elderly

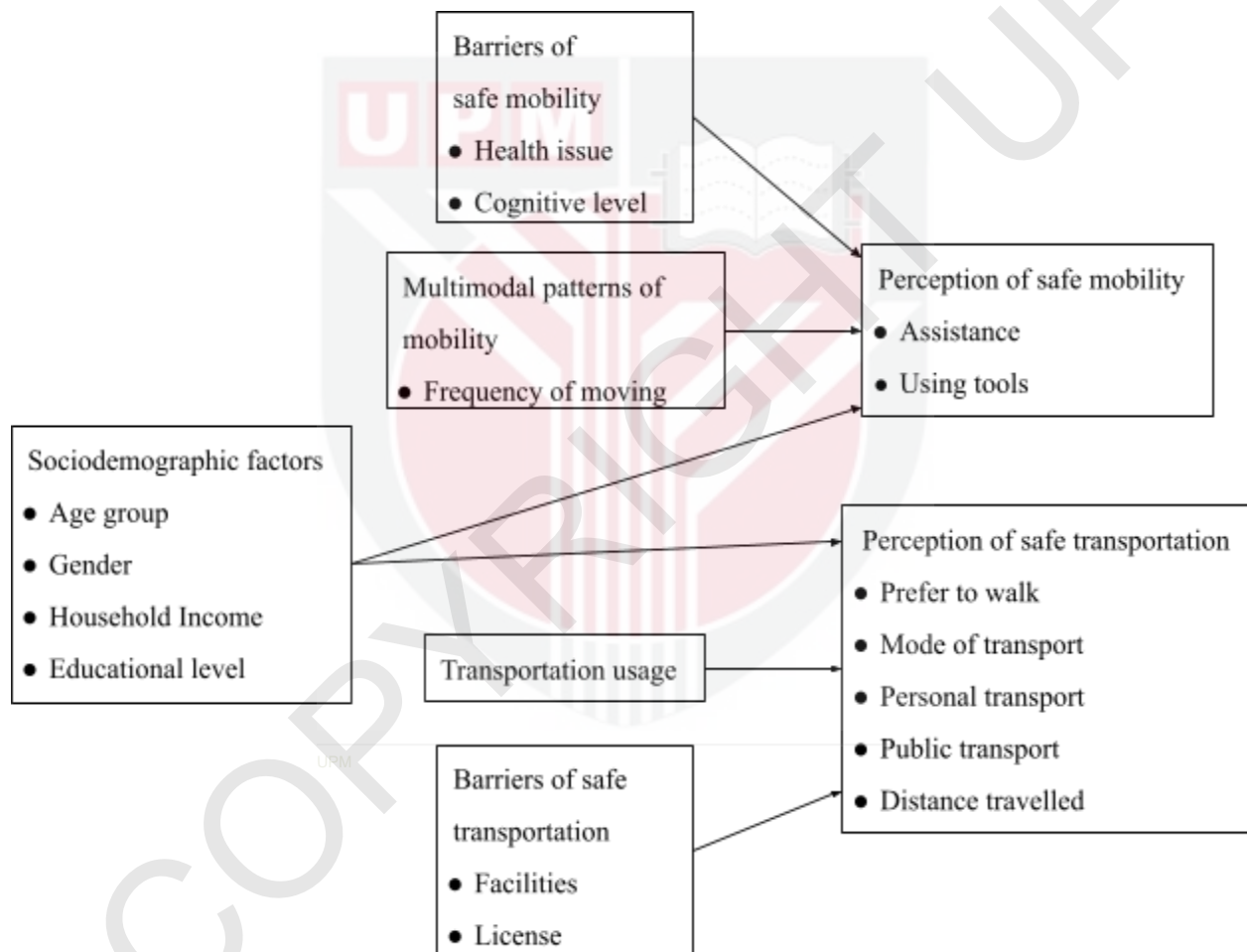
Comparing the data of elderly travel behaviours in China, United States of America, England and Netherlands, it suggested that the low driving license ownership in China is the most likely reason why there is low care share in that country (Hu & Wang, 2013). The adult's mobility is determined by the city planning, land utilisation and transportation system (Handy, 2002). Other than that, the adult's mobility is also associated with the surrounding facilities, including road connectivity and traffic environment that maintains pedestrians' safety (Rosso, 2011). Apart from a symbol of individuality and independence, a driver's license is also a way for the elderly to escape the old age stereotype (Eisenhandler, 1990).

2.8 Barriers to Safe Mobility among elderly

The mobility levels of elderly in London are affected by their race, job status, walking problems and the struggle to understand directions (Schmocker, 2015). Ageing decreases the well-being and increases the predominance and severity of various illness forms in individuals (Brault, 2012). In an ageing population, their mobility either on their own or assisted by instruments or vehicles within a community, is greatly affected (Webber, 2010). Around 4 out of 10 American elderly aged above 65 years encounter mobility problems like walking and stair climbing and need to utilise walking aids like a wheelchair, cane, crutches and walkers (Brault, 2012). Similarly, this issue is faced with 33.33% of the elderly in Canada (Statistics Canada: 2006). Various factors affect elderly mobility, including the environmental, financial, psychosocial, physical and mental status (Webber, 2010). Ageing changes the lifestyle and causes decreased incompetency and power, causing people to drive less or even stop driving (Whelan, 2006). Regular active transportation involvement results in health benefits, such as reducing the risk of obesity, cardiac failure, and other chronic diseases (Organisation for Economic Cooperation and Development, 2001). Changing mental status and decreased physical ability in the ageing population result in the high risk of elderly travelling in a safe environment (Whelan, 2006). Due

to the ageing process, the existence of health issues and the use of prescriptions, they may influence elderly drivers' welfare, confidence and comfort (Lyman, McGwin & Sims, 2001). Life duration, fitness, connectivity, cognitive level, and self-reliance increase when there are increased physical activities done by the elderly (Garrard, 2009).

2.9 Conceptual Framework



CHAPTER 3

METHODOLOGY

3.1 Study Location

This study was conducted in Klang Valley, Malaysia. Klang Valley was centred in Kuala Lumpur and combines with cities and towns in the state of Selangor. It was an urban combination of cities in Malaysia. As of 2018, the population of Klang Valley is reported to be more than 7.5 million, and it was among the fastest-growing regions in Southeast Asia with an increasingly ageing population.

3.2 Study Design

This study design was a cross-sectional study.

3.3 Study Duration

The study was conducted from December 2020 to June 2021.

3.4 Sampling

3.4.1 Study Population

The study population was elderly in Klang Valley who used transportation in their daily life.

3.4.1.1 Inclusion criteria

Elderly with the age 60 years old and above living in Klang Valley.

3.4.1.2 Exclusion criteria

Elderly with chronic dementia or bedridden elderly.

3.4.2 Sampling Frame

A list of elderly obtained from the Myageing database was used as the sampling frame.

3.4.3 Sampling Unit

An elderly who fulfilled the inclusion and exclusion criteria.

3.4.4 Sample Size

The sample size (n) for this study was calculated using the two proportions formula Lwanga Lemeshow, 1991.

$$n = \frac{(Z_{1-\alpha} \sqrt{2\bar{P}(1-\bar{P})} + Z_{1-\beta} \sqrt{P_1(1-P_1) + P_2(1-P_2)})^2}{(P_1 - P_2)^2}$$

N = sample size estimate

Z_{1-α} = standard error associated with 95% confidence interval = 1.96

Z_{1-β} = standard error associated with 80% power = 0.842

In this study, we used the data from the previous study, (Nazlin Hanie Abdullah, 2020). The study will determine the association between perception of safe mobility and factors affecting safe transportation among elderly in Malaysia.

Perception of safe mobility: (Perception-good perception/bad perception)

Factors affect safe transportation: (Cognitive level-high/low)

P₁: Elderly with high cognition having good perception of safe mobility (IJSTR, Siti Jawiah, 2020) : 0.836

P₂: Elderly with low cognition having bad perception of safe mobility (IJSTR, Siti Jawiah, 2020) : 0.742

$$\begin{aligned} \bar{P} &= (P_1 + P_2) / 2 \\ &= (0.836 + 0.742) / 2 \\ &= 0.789 \end{aligned}$$

Hence, put in the formula,

$$n = \{ [z(1-\alpha/2) \sqrt{2\bar{P}(1-\bar{P})}] + [z(1-\beta) \sqrt{P_1(1-P_1) + P_2(1-P_2)}] \}^2 / (P_1 - P_2)^2$$

$$n = \{ 1.96 \sqrt{2(0.789)(1-0.789)} + [0.84 \sqrt{0.556(1-0.836) + 0.742(1-0.742)}] \}^2 / (0.836 - 0.742)^2$$

n = **292 subjects**

Minimum sample size required is 292 participants. Considering 20% non-response rate or drop-out rate, 20% of respondents will be added to the calculated sample size. Therefore,

$$n_{\text{final}} = n + (n \times 20\%)$$

$n_{\text{final}} = 350$ subjects

Table 3.1: Other calculations using different variables

P1	P2	N
0.670	0.330	31
0.883	0.753	135
0.860	0.742	176
0.836	0.742	292

3.4.5 Sampling Method

The sampling method for the study was random sampling involving elderly in Klang Valley. The questionnaire was distributed in Google Form to obtain the response from the respondents, and we sent it via message and called them directly. The list of respondents was obtained from the MyAgeing database. Then we randomly select respondents for us to approach and call to get their response. The list of elderly consists of 568 elderly and we stop call and approach when we have passed our minimum response.

3.5 Variables

3.5.1 Dependent Variables

The dependent variables were perception of safe transportation and safe mobility among the elderly in Klang Valley.

3.5.2 Independent Variables

The independent variables were the perception of safe mobility, perception of safe transportation, distance travelled, sociodemographic factors (Age, gender, income,

educational level), multimodal patterns of mobility, characteristics of transport, barriers on safe transportation and safe mobility among elderly in Klang Valley.

3.6 Data Collection

3.6.1 Instruments of Study

A questionnaire was used for this study. The questionnaire together with written and oral consent forms were distributed as well.

3.6.1.1 Questionnaire

A questionnaire with 5 parts was developed to determine the perception of safe transportation and safe mobility among elderly in Klang Valley. This questionnaire was focused on safe transportation and safe mobility among elderly. This included surveys regarding the barriers that are faced by the elderly in order to achieve safe transport and safe mobility.

Section A was designed to determine the sociodemographic status of the respondents including the age group, gender, ethnicity, educational level, monthly household income, employment status, marital status and living residents.

Section B intended to assess the perception of safe mobility among respondents. It contained 4 questions that must be answered according to the respondents' experiences. This section consisted of items that contributed to the perception of safe mobility. This includes the needs of assistance for mobility, types of assistance needed, frequency of going out and any difficulties that were faced by the respondents following certain activities.

Section C intends to determine the barriers of safe mobility that are faced by the elderly. It also contains 4 questions that must be answered according to the respondents' experiences. This section consisted of items that contributed to the barriers of safe mobility. This includes chronic illness, cognitive impairment and visual impairment.

Section D intends to determine the perception of safe transportation among respondents. It contained 5 questions that must be answered according to the respondents' experiences. This section consisted of items that contributed to the perception of safe transportation. This includes the modes of transportation, time of driving, distance travelled daily, modes of transportation and frequency of dependency.

Section E intended to determine the barriers of safe mobility that are faced by the elderly. It also contains 5 questions that must be answered according to the respondents' experiences. This section consisted of items that contributed to the barriers of safe transportation. This includes driving licenses, difficulties experienced while using public transportation, trouble finding transportation, types of trips that cause problems to find transportation and the frequency of the respondents unable to find transportation.

All of the questions were adapted and modified from the previous study which was done by the Colorado Department of Transportation: Statewide Transit Survey of Older Adults and Adults with Disabilities in 2014.

3.6.2 Data Collection Techniques

An online data collection via google form was distributed to the elderly or their next of kin through Whats app. The respondents were expected to fill the questionnaires in two days and return to the researchers. Consent form was distributed together with the questionnaires. Other than that, since some of our respondents prefer phone calls for the data collection, we limit the call to not exceed 15 minutes to prevent any intrusion to the respondents' daily activities.

3.6.3 Quality Control

3.6.3.1 Validity and Reliability of the Questionnaire

The items in the questionnaire were adapted based on the validated questions from previous studies (Colorado Department of Transportation: Statewide Transit Survey of Older Adults and Adults with Disabilities, 2014).

3.6.3.2 Validity and Reliability of the Instrument

The questionnaire was pretested among 10 percent of the elderly in a community to determine its validity and reliability. After that, we collected and analyzed the pre-questionnaires. We then did some modifications of the questions to make sure the real respondents understood it easily and accurately. This ensured that the data we collected was more accurate.

3.7 Operational Definitions

No.	Terms	Definitions
1.	Perception of safe mobility among elderly	Based on the cognitive impairment of the respondents <ul style="list-style-type: none">• No cognitive impairment: good perception• Have cognitive impairment: bad perception
2.	Perception of safe transportation among elderly	Based on whether the respondent owns driving license <ul style="list-style-type: none">• Has driving license: good perception• No driving license: bad perception
3.	Age	Based on the respondents' age group
4.	Gender	Male, female
5.	Income	Based on high, middle or low income based on the range stated in the questionnaire. The range was determined based on Household Income and Basic Amenities Survey Report 2019 (Department of Statistic

		Malaysia, 2020)
6.	Educational level	No formal education, primary school, secondary school, university or college
7.	Barriers to safe transportation among elderly	No driving license, difficulties with transport facilities
8.	Barriers to safe mobility among elderly	Health issue, cognitive level, visual impairment

3.8 Data Analysis

The participants' collected data were fed into the computer and analysed using IBM Statistical Package for Social Science (SPSS) version 26. These data were used to do a descriptive analysis to determine the frequency and percentage of the sociodemographic characteristics. To compare 2 categorical variables, the Chi-square test was used. The association between safe transportation and safe mobility was then determined.

3.9 Ethical Consideration

1. The approval letter was submitted to the Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia (JKEUPM) to obtain permission for conducting this research. Along with that approval letter, proposal draft and questionnaire are also attached for further reference.
2. Informed written consent and oral consent are also obtained from the participants. The research ethics are strictly followed to make sure the confidentiality of the data of participants are guaranteed and not being misused. A very high respect will be expressed regarding the participants' data as to maintain the data privacy and confidentiality.

CHAPTER 4

RESULT

4.1 Response Rate

Data was collected among the elderly in Klang Valley. All the respondents were selected randomly based on the list of names of elderly living in Klang Valley. The response rate was 85.7%. For this study, the minimum sample size was 350 and we managed to obtain 300 respondents which were less than the minimum required sample size.

4.2 Distribution of Sociodemographic Characteristics among the Respondents

Table 4.2 : Sociodemographic factors among the respondents

Variables	Frequency (n = 300)	Percentage (%)
Age group		
60-70 years old	178	59.3
71-80 years old	95	31.7
More than 80 years old	27	9.0
Gender		
Male	151	50.3
Female	149	49.7
Ethnicity		
Malay	153	51.0
Chinese	62	20.7
Indian	80	26.7
Others	5	1.7

Educational level

No formal education	25	8.3
Primary school	63	21.0
Secondary school	118	39.3
University or college	94	31.3

Monthly household income

Below RM 4850	196	65.3
RM 4850 - RM 10,959	86	28.7
More than RM 10,959	18	6.0

Employment status

Employed	78	26.0
Unemployed	222	74.0

Marital status

Single	21	7.0
Married	200	66.7
Divorced	19	6.3
Widower	60	20.0

Living environment

Single family home	214	71.3
Condominium or apartment	79	26.3
Nursing home	5	1.7
Others	2	0.7

The socio-demographic characteristics of respondents are shown in Table 4.2. Majority of the respondents were 60-70 years old which occupied 59.3% of the total respondents, the majority were males (50.3%), Malays (51.0%), and most of the respondents obtained their highest educational level from high school (39.3%). More than half of the respondents have monthly income of less than RM 4850 (65.3%), mostly were unemployed (74.0%), more than half of the respondents were married (66.7%) and majority of the respondents live in a single family home (71.3%).

4.3 Perception of Safe Mobility among Respondents

Table 4.3 : Association between sociodemographic factors and perception of safe mobility among elderly

Factors	Perception of safe mobility		Pearson Chi-square	Fisher's Exact Test	df	p-value
	Good n (%)	Bad n (%)				
Age						
60-70 years old	172 (96.6)	6 (3.4)	10.406 ^a		2	0.006*
71-80 years old	86 (90.5)	9 (9.5)				
More than 80 years old	22 (81.5)	5 (18.5)				
Gender						
Male	143 (94.7)	8 (5.3)	0.915 ^a		1	0.339
Female	137 (91.9)	12 (8.1)				
Monthly household income						
Below RM 4850	181 (92.3)	15 (7.7)	1.693 ^a		2	0.429
RM 4850 - RM 10,959	81 (94.2)	5 (5.8)				
More than RM 10,959	18 (100)	0 (0)				

Educational level

No formal education	22 (8.8)	3 (1.2)	-	0.226
Formal education	258 (93.8)	17 (6.2)		

Assistance needed

No assistance needed	197 (95.6)	9 (4.4)	5.578 ^a	1	0.018*
Need assistance	83 (88.3)	11 (11.7)			

Living environment

Single family home	196 (91.6)	18 (8.4)	3.651 ^a	1	0.56
Others	84 (97.7)	2 (2.3)			

Frequency going out

Less than 6 times a week	224 (92.6)	18 (7.4)	-	0.385
More than 6 times a week	56 (96.6)	2 (3.4)		

Difficulties

No difficulty	132 (96.4)	5 (3.6)	3.689 ^a	1	0.055
Has difficulty	148 (90.8)	15 (9.2)			

Note (*) significant level (p)<0.05

The association between sociodemographic factors and safe mobility among elderly is presented in table 4.3. Since the p value of the Chi-Square test is less than 0.05, there was a significant association between age and safe mobility. The p= 0.006. Among the 60-70 years old age group, 96.6% (n=172) of them have a good perception of safe mobility. A significant association was found between assistance needed by elderly and safe mobility among elderly because the p value of the Chi-Square test is less than 0.05. The p= 0.018. Elderly who do not need assistance were seen to have the highest good perception with the percentage of 95.6% (n=197).

Based on the Chi-Square test, it was found that there is no significant association between gender and safe mobility. No significant association between monthly household income and safe

mobility. Concerning educational level, no significant association between educational level and safe mobility. There was no association between the living environment and safe mobility of elderly. There was also no significant association between frequency of going out and safe mobility of the elderly. Not even that, no significant association existed between difficulties and safe mobility. So even though some people have difficulties, it did not affect their perception about safe mobility.

4.4 Barriers of Safe Mobility among Respondents

Table 4.4 Association between factors and Barriers of safe mobility among elderly

Factors	Barriers of safe mobility		Pearson Chi-square	Fisher's Exact Test	df	p-value
	Less barriers n (%)	More barriers n (%)				
Health problem						
No chronic illness	128 (95.5)	6 (4.5)	1.865 ^a		1	0.172
Has chronic illness	152 (91.6)	14 (8.4)				
	<ul style="list-style-type: none"> • Hypertension 96 • Diabetes 73 • Heart problems 31 • Osteoporosis 6 • Others 7 					
Cognitive impairment	0 (0)	18 (100)		-		0.000*
Visual impairment	125 (89.3)	15 (10.7)	6.912 ^a		1	0.009*

Note (*) significant level (p)<0.05

Table 4.4 shows the association between factors and barriers of safe mobility among elderly. Regarding health problems, even though elderly are said to have a lot of chronic diseases, there was no significant association between health problems and barriers of safe mobility among elderly in Klang Valley. However, based on the Fisher's Exact test, it was found that there was a highly significant association between cognitive impairment and barriers of safe mobility among

elderly because the p value of the Fisher's Exact test is less than 0.001. The p= 0.000. Elderly with cognitive impairment appeared to have a bad perception of safe mobility with the percentage of 100% (n=18). Not only that, the test showed that there was a significant association between visual impairment and barriers of safe mobility among elderly because the p value of the Chi-Square test is less than 0.05. The p= 0.009. Majority of the elderly with visual impairment still have a good perception of safe mobility with the percentage of 89.3% (n=125). From this aspect, it can be concluded that elderly with cognitive impairment and visual impairment face more barriers of mobility or moving around safely.

4.5 Perception of Safe Transportation among Respondents

Table 4.5: Association between sociodemographic factors and perception of safe transportation among elderly

Factors	Perception of safe transportation		Pearson Chi-square	df	p-value
	Good n(%)	Bad n(%)			
Age					
60-70 years old	138 (77.5)	40 (22.5)	13.944 ^a	2	0.001*
71-80 years old	63 (66.3)	32 (33.7)			
More than 80 years old	12 (44.4)	15 (55.6)			
Gender					
Male	138 (91.4)	13 (8.6)	61.393 ^a	1	<0.001*
Female	75 (50.3)	74 (49.7)			

Monthly household income

Below RM 4850	126 (64.3)	70 (35.7)	12.669 ^a	2	0.002*
RM 4850 - RM 10, 959	71 (82.6)	15 (17.4)			
More than RM 10,959	16 (88.9)	2 (11.1)			

Educational level

No formal education	10 (40)	15 (60)	56.406 ^a	3	<0.001*
Primary school	29 (46)	34 (54)			
Secondary school	85 (72)	33 (28)			
University or college	89 (94.7)	5 (5.3)			

Time of driving

Morning	175 (74.2)	61 (25.8)	5.340 ^a	1	0.021*
Afternoon	97 (86.6)	15 (13.4)	21.143 ^a		
Evening	94 (75.2)	31 (24.8)	1.836 ^a		
Night	32 (100)	0 (0)	14.631 ^a		

Distance travelled

Less than 10 km	162 (66.1)	83 (33.9)	15.028 ^a	4	<0.001*
More than 10 km	50 (92.6)	4 (7.4)			

Modes of transport

Personal vehicles	178 (83.6)	35 (16.4)	64.216 ^a	4	<0.001*
Paid driver or personal assistant	13 (31.7)	28 (68.3)			
Bicycle	0 (0)	2 (100)			
Walk	15 (60)	10 (40)			
Public transportation	7 (36.8)	12 (63.2)			

Frequency of dependency

None of trips	128 (92.1)	11 (7.9)	85.580 ^a	4	<0.001*
Less than half of trips	43 (71.7)	17 (28.3)			
About half of trips	18 (60)	12 (40)			
More than half of trips	11 (55)	9 (45)			
All of trips	13 (25.5)	38 (74.5)			

Note (*) significant level (p)<0.05

Table 4.5 shows association between sociodemographic factors and perception of safe transportation among elderly. Based on the Chi-Square test that has been done, it shows that all sociodemographic factors play significant roles in the perception of safe transportation among elderly. A significant association was discovered between age and perception of safe transportation because the p value is less than 0.001. The p= 0.001. Among the 60-70 years old age group, 77.5% (n=138) of them have a good perception of safe transportation. Also, there was a highly significant association between gender and perception of safe transportation because the p value is less than 0.001. The p= 0.001. The results further described that there was significant association between household income and perception of safe transportation because the p value is less than 0.05. The p= 0.002. A highly significant association was found between educational level and perception of safe transportation because the p value is less than 0.001. The p= 0.001. Elderly who went to university or college were seen to have the highest good perception of safe transportation with the percentage of 94.7% (n=89). Not only that, there was a significant association between time of driving and perception of safe transportation since the p value is also less than 0.05. The p= 0.021. Regarding distance travelled, there was a highly significant association between distance travelled and perception of safe transportation because the p value is less than 0.001. The p= 0.001. Elderly who drive more than 10km daily were found to have a higher percentage of good perception of safe transportation with the percentage of 92.6 (n=50). Concerning mode of transportation, there was a significant association between mode of transportation and perception of safe transportation since the p value was also less than 0.001.

The $p = 0.001$. Lastly, there was a significant association between frequency of dependency and perception of safe transportation with the p value of 0.001.

4.6 Barriers of Safe Transportation among Respondents

Table 4.6: Association between factors and barriers of safe transportation among elderly

Factors	Barriers of safe transportation		Pearson Chi-square	Fisher's Exact Test	df	p-value
	Less barriers n (%)	More barriers n (%)				
Driving license	213 (100)	0 (0)	300.000 ^a		1	<0.001*
Difficulties using public transport						
Climbing stairs	49 (57)	37 (43)	11.515 ^a	1.000	1	0.448
Unable to get seat	53 (75.7)	17 (24.3)	0.986 ^a			
Service not provided	45 (62.5)	27 (37.5)	3.324 ^a			
Information difficult to find	52 (65.8)	27 (34.2)	1.396 ^a			
Unclear how to use public transport	48 (57.1)	36 (42.9)	10.880 ^a			
Cannot easily access bus stop	35 (59.3)	24 (40.7)	4.864 ^a			
Others	1 (100)	0 (0)				
Not related / never use public transport	56 (74.7)	19 (25.3)	0.575 ^a			
Troubles of finding transportation						
Never	86 (75.4)	28 (24.6)	1.759 ^a		1	0.185
Has trouble	127 (68.3)	59 (31.7)				
Types of trips						
Work	40 (97.6)	1 (2.4)	35.146 ^a		6	<0.001*
Visiting family or friends	33 (68.8)	15 (31.2)				
Medical appointment	50 (53.2)	44 (46.8)				
Community events	20 (69)	9 (31)				
Religious services	31 (73.8)	11 (26.2)				
Recreations	26 (78.8)	7 (21.2)				
Others	30 (100)	0 (0)				
Frequency unable to find transportation						
Never	125 (75.3)	41 (24.7)	15.616 ^a		3	0.001*
Once or twice	81 (70.4)	34 (29.6)				
3-6 times	7 (46.7)	8 (53.3)				

7 times or more 0 (0) 4 (100)

Note (*) significant level (p)<0.05

Table 4.6 showed the association between factors and barriers of safe transportation among elderly. Based on the Chi-Square test, since the p value was less than 0.001 ($p= 0.001$), there was a highly significant association between driving license and perception of safe transportation. Elderly with driving licenses faced less barriers for daily transportation with the percentage of 100% ($n=213$). Other than that, there was also a highly significant association between type of trips and perception of safe transportation because the p value is less than 0.001 ($p= 0.001$). A highly significant association was also found between frequency unable to find transportation and barriers of safe transportation because the p value is less than 0.001 ($p= 0.001$). Elderly who never had any trouble finding transportation were shown to face lesser barriers with the percentage of 75.4% ($n=86$).

It is found that there was no significant association between difficulties using public transportation and perception of safe transportation. Other than that, since the p value was more than 0.05, there was also no significant association between troubles of finding transportation and perception of safe transportation. Some of the respondents reported having difficulty finding a seat when they are travelling using public transport while some reported that they are having difficulty climbing up the stairs when using public transportations such as buses. However, this group of respondents who still feel safe using public transportation, thought that public transport was their only choice of transports, because not all elderly are willing to travel by walking or cycling.

4.7 Association between Perception of Safe Mobility and Safe Transportation among Respondents

Table 4.7 Association between Perception of Safe Mobility and Safe Transportation among Respondents

	Perception of Safe Mobility		Pearson Chi-square	df	p-value
	Good n (%)	Bad n (%)			
Perception of Safe Transportation					
Good	204 (68.0)	9 (3.0)	7.035 ^a	1	0.008*
Bad	76 (25.3)	11 (3.7)			

Note (*) significant level (p)<0.05

Based on the Chi-Square test, since the p value was less than 0.05 (p= 0.008), it can be concluded that there was a significant association between perception of safe transportation and safe mobility among elderly. Elderly who have a good perception of safe mobility and good perception of safe transportation have the highest frequency with the percentage of 68.0% (n=204).

CHAPTER 5

DISCUSSION

5.1 Response Rate

300 elderly have participated in our study out of 568 elderly that were in our list, giving us a response rate of 85.7%. Table 4.2 shows the distribution and frequency percentage of our respondents' age group, gender, ethnicity, educational level, monthly household income, employment status, marital status and living environment.

5.2 Sociodemographic Characteristics among the Respondents

5.2.1 Age Group

Majority of the respondents were in the age group of 60-70 years old which accounts for 59.3% (n=178) and the least was the age group of more than 80 years old that made up 9.0% (n=27). The age group of more than 80 years old has the least number of respondents because most of them do not use mobile phones frequently. Based on the study done by Mafauzy (2000), he stated that now, the number of Malaysians aged 60 years and above is estimated to be 1.4 million and is projected to increase to 3.3 million in the year 2020 and this is due to a better healthcare system provided.

5.2.2 Gender

Male and female responses are almost the same, with male having just an extra 0.03%. Male have a response percentage of 50.3% (n=151) and females have response percentage of 49.7% (n=149). The percentage showed male have a slightly higher number compared to females. This is because, the population in the sampling frame consisted of 50% male and females. Hence, this explains our data having almost equal distribution between males and females.

5.2.3 Ethnicity

Majority of the respondents were Malay which accounts for 51% (n=153) while other ethnicities made up the least with the percentage of 1.7% (n=5). High number of Malay respondents is probably due to the majority in the population distribution being Malay. Based on statistics done by the Department of Statistics Malaysia (2011) stated that the

Malaysian citizens consist of the ethnic groups Bumiputera (67.4%), Chinese (24.6%), Indians (7.3%) and Others (0.7%). Hence, that is why our respondents consist on Malay mainly.

5.2.4 Educational Level

For the educational level, people with secondary school have the highest response rate, followed by university or college and primary school respectively. The respondents with no formal education accounted for 8.3 % (n=25), the least. Majority of the respondents are in secondary school. The finding was consistent with a study by R. Hirschman (2021) stating that secondary school education is the highest level of education among Malaysian.

5.2.5 Monthly Household Income

Most of the respondents have a monthly household income of below RM 4850 and the least of respondents was found to have a household income of more than RM 10,959 that made up only 6% . This may be due to the fact that most of our respondents were unemployed, hence they do not have a high monthly household income. And this is identical to results from Department of Statistics Malaysia (2020) that showed most of the Malaysian households are from middle household income and grow from 6.6% in 2016 to 10.5% in 2019 to 6.6% in 2016. This is also supported by Masud, Hamid and Haron (2020) cited that HelpAge International (1999) reported that in most developing countries, old people are constantly among the poorest population groups.

5.2.6 Employment Status

Most of our respondents are not working anymore with a percentage of 74.0% (n=222). This is probably because most of the retirement age in Malaysia is 60 years old, in the government sector. However, there were also respondents who are still working, maybe they felt too bored staying at home. This is supported by the Statistics from the Ministry of Human Resources (2016) for employment and labor in 2015, indicating that 26.1% of total workforce in Malaysia are in the 45 years and above age cohort, with 2.8% comprising the aging workforce 60 years and older.

5.2.7 Marital Status

Out of the total 300 respondents, the majority of the respondents were married and a few of them were divorced. This is probably because our study was done among the elderly, hence, most of them were already married and have their own family.

5.2.8 Living Environment

Majority of respondents lived in a single family home, followed by living in condominiums and apartments. These results have the same finding with the UKEssays (2018) that showed most Malaysians stay in single family homes compared to others type of living environment due to single family homes providing a quality communal living environment contributes towards good society which practices noble values.

5.3 Perception of Safe Mobility among Respondents

5.3.1 Age

Among the 3 age groups, most of the elderly in Klang Valley had good perception on safe mobility, with a highest percentage of 96.6% (n=172) of the 60-70 age group. It can show that elderly in Klang Valley feel they have the ease and capability of moving freely, doing social activities, or going to shoppets near to their living area safely. And as the age increases there is a decrease in good perception of safe mobility. This is supported by Rantakokko et al (2013) stating that increasing age is inversely proportional to mobility, due to underlying disease, genetic vulnerabilities and physiological and sensory impairment. So because of limited capabilities due to ageing, they felt less safe to mobile around.

5.3.2 Gender

Among males and females, although both groups have a high percentage of good perception towards safe mobility, male (94.7%) tend to have a higher percentage than females (91.9%) to show good perception towards safe mobility. It may be because female elderly feel more afraid than men to go outside, driving or using public transportation. Other than that, a study done by Guerrier et al (1999) stated that female drivers are more likely to be involved in interception accidents than male drivers. And

most of the time, females prefer men to drive them to their destination. Besides, men usually have better driving skills than female elderly, so they will have a better perception towards safe mobility compared to female elderly.

5.3.3 Monthly household income

There is no significant association between monthly household income and perception of safe mobility. But this is opposed by a study that discovered that individuals in the lower socioeconomic status groups (e.g., those with low incomes) may not be able to afford driving, or even driving long distances (Jette & Branch, 1992; Kington et al., 1994). Among all respondents, most of the respondents had monthly household income below RM 4850. It may be because most of the elderly have stopped working, so they spend more time staying home. And because of this, they show good perception towards safe mobility since 181 elderly (92.3%) with household income below RM 4859 have good perception towards safe mobility. And surprisingly, 18 out of 18 respondents (100%) with monthly household income more than RM 10,959 have good perception towards safe mobility. It is because elderly with better income have the ability to hire their own driver, or have personal vehicles to bring them to their own destination.

5.3.4 Educational level

In the Netherlands, those with a degree from a higher educational institution have stronger spatial equity preferences and equal access to mobility services than less-educated citizens (Mouter et al., 2017). From our study, most of the elderly received formal education (n=275) and 258 of them have good perception towards safe mobility (93.8%). It can be shown that elderly with higher education have more knowledge towards road safety, because they can understand the road signs, know the direction to certain destinations and also they can read whatever rules on the road. This contributes to the good perception of safe mobility among elderly.

5.3.5 Assistance needed

In the elderly, the capability to travel unassisted and protected from one place to another usually declines (Rantakokko, Mänty & Rantanen, 2013). Based on our study, there is a

significant association between the needs for assistance and the perception of safe mobility. A high proportion of elderly suggest that they do not need assistance throughout their daily movement. Some of them need a wheelchair, cane, walking frame, scooter and other tools for their walking. And also a high percentage of elderly who do not need assistance have good perception towards safe mobility because they can still move around freely, compared to elderly who require assistance to move around. It was because those assistance-needed elderly people thought that they had difficulty moving around like climbing stairs, getting into a car or difficulty in taking public transportation, making them have a bad perception towards safe mobility.

5.3.6 Living environment

There is no significant association between living environment and perception of safe mobility. It does not matter where the elderly live, they still have a good perception towards safe mobility. They feel comfortable moving around due to easy access to their own personal cars or motorcycles. Hence, the living environment does not affect their perception of safe mobility. This finding was consistent with a study by L. Shengxiao (2020) stating that the living environment in a single family home that is more surrounded with neighbours gives the freedom to elderly to freely move and cope with environmental risk successfully.

5.3.7 Frequency going out

Our study found out there was no significant association between frequency of going out and perception of safe mobility. Elderly in Klang Valley go out an average of 1-3 times per week. No matter how many times they go out, those elderly who go out showed good perception towards safe mobility. They can go for social activities, buying daily necessities and looking for friends. However, for elderly who never go out, it showed that most of them had a bad perception towards safe mobility. It can be due to chronic illnesses faced by elderly that makes them unwilling to go out, or the difficulties of moving led them to the choice of staying at home. This is supported by the study that was conducted by Yurie Mikami et al. (2019) where elderly who have poor oral function had low frequency of going out.

5.3.8 Difficulties

There is no significant association between having difficulties and perception of safe mobility. Among elderly with no difficulties at all, the majority of them had a good perception towards safe mobility. Elderly with no difficulties are more willing to move around and the chances of getting injured is less, compared to those having difficulties in talking, seeing, hearing, walking and others. This is supported by the study that was conducted by Yutaka Watanabe et al. (2019) where elderly who have poor oral function and poor psychological factors had low frequency of going out.

5.4 Barriers of Safe Mobility among Respondents

5.4.1 Health problem

Based on our study, there was no significant association between health problems and barriers of safe mobility among them. However, this was contraindicated by Brault (2012) that stated that ageing decreases the well-being and increases the predominance and severity of various illness forms in individuals. Meaning that, even elderly with chronic illness doest feel the burden of barriers to go out. More than half of the elderly in Klang Valley were experiencing chronic illnesses such as hypertension,diabetes mellitus,heart problem, osteoporosis and others. Elderly with no chronic illness (n=134) showed the highest percentage of having lesser barriers in safe mobility. Hence, it showed that even with chronic illness, the elderly were still able to move around more safely because they felt getting sick was not a reason for them not to move around to do what they like.

5.4.2 Cognitive impairment

From the study, it was found out elderly people with cognitive impairment experienced more barriers towards safe mobility,and those elderly were less capable of moving around. Therefore, it made sense that a good cognition was very important for elderly to understand the direction, road signs and for their own balancing. This was supported by the study done by Wheelan, 2006 stating that ageing changes the lifestyle and causes decreased incompetence and power, causing people to drive less or even stop driving (Whelan, 2006).

5.4.3 Visual impairment

There is a significant association between visual impairment and perception of safe mobility. This is further supported by Kimie, et.al (2021) that stated 125 out of 140 elderly with visual impairment claimed that they experienced less barriers towards safe mobility. It can be due to the help of spectacles, walking sticks or any other assistant to help them move around. Besides their visual impairment usually is not loss of sight, but just senile myopia and hyperopia.

5.5 Perception of Safe Transportation among Respondents

5.5.1 Age

For elderly people between 60 to 70 years old, they showed the highest percentage of good perception towards safe transportation. This is portable due to strong physical abilities compared for elderly people aged 60 to 70 years old to other age groups, between 71 to 80 years old and age above 80 years old. Moreover, elderly who are older than 80 years old have the highest percentage for bad perception of safe transportation compared to other age groups probably due to limited physical abilities and health conditions. This probably can be explained by a study conducted by E. D. Anne et al. (2007) showed that elderly or older drivers increased risk of death and serious injury given a motor vehicle crash.

5.5.2 Gender

Majority of the males (91.4%) felt that they are safe to use the transportation system while only half of the females (50.3%) felt that they are safe to use the transportation system. This could be due to the fact that females are always scared to travel by themselves and often depend on others' help. This is supported by the study conducted previously and found that women are more likely than men to report safety concerns as constraining their transport, issues of safety, comfort and accessibility to destinations appear to be more critical to women's overall travel behaviour than men's (Kristiann, 2012).

5.5.3 Monthly household income

People with low economic status had the highest percentage 35.7% of bad perceptions of safe transportation. This is supported by a study where they discovered that individuals in the lower socioeconomic status groups (e.g., those with low incomes) may not be able to afford driving, or even driving long distances (Jette & Branch, 1992; Kington et al., 1994). While people with high monthly household income (more than RM 10,959) have higher perception of safe transportation (88.9%) compared to those low and middle income groups, where respectively 64.3% and 82.6%. This is probably a limitation of money like what was stated by ABS (2012) where older adults who typically have lower annual incomes than youngsters who are working may rely on government assistance, and transportation costs may represent a significant component of total expenses.

5.5.4 Educational level

Elderly who went to university or college have the highest percentage of good perception towards safe transportation with the percentage of 94.7% as compared to elderly who did not receive formal education with only 40% of them having a good perception of safe transportation. This is probably due to elderly with higher education tend to understand the road signs and rules and going out or using transportation. This is supported by previous study done in the Netherlands, that stated those with a degree from a higher educational institution have stronger spatial equity preferences and equal access to mobility services than less-educated citizens (Mouter et al., 2017).

5.5.5 Time of driving

Based on our study, a minority of the elderly prefer to drive at night, but those who prefer to drive at night have the highest percentage of good perception of safe transportation with the percentage of 100% (n=32). This shows that the elderly do not feel in danger to drive even at night. However, this was not supported by a study done by Gilson (2021) stating that night driving has significant differences and challenges compared to driving during the day because the vision will suffer and the depth perception and peripheral vision also become diminished. However, from our study all respondents who usually drive at night have good perception toward safe transportation probably because of the

good facilities such as street lights or they just travel short distances thus they do not feel the burden to travel.

5.5.6 Distance travelled

Elderly who travelled more than 10 kilometers have the highest percentage (92.6%) of good transportation compared to elderly who travelled less than 10 kilometers (66.1%). This is probably due to the elderly nowadays tend to drive further distance and refuse to stop driving (Skinner, 2000). But in terms of number of respondents, 245 of respondents mostly travelled less than 10 kilometers per day, while the balance (54) of respondents travelled more than 10 kilometers per day. This has the same output of conclusion for study being conducted by Schmoeler (2005), who said that as age increases, the trip distance decreases.

5.5.7 Modes of transport

Most of the elderly prefer to travel via personal vehicle with the percentage of 83.6% (n=178). This is supported by the study done in Australia, stating that the seniors' dominant mode of travel is private cars (Adelaide Seniors Travel Survey, 2012). This could be due to the fact that they think that it is safer for them to travel via their personal cars since it is more comfortable for them to make a stop when it is necessary.

5.5.8 Frequency of dependency

Elderly who do not need assistance on any of their trips were observed to have the highest percentage of good perception of safe transportation with the percentage of 92.1% (n=128). This shows that they are confident of travelling alone even without any help and do not feel in danger. This was not consistent with a study done by Shrestha (2017), stating that the ageing process is accompanied by physiological changes which can have significant consequences for transportation among elderly. This is due to the fact that Malaysia has a good healthcare system, hence most of the elderly were in good health allowing them to travel alone by themselves.

5.6 Barriers of Safe Transportation among Respondents

5.6.1 Driving license

Among the elderly who had driving licenses 100% of them had a good perception towards safe transportation. On the other hand, 100% of elderly who do not have a license have a bad perception of safe transportation. This is probably because they have trust or they feel more safe when they drive their own vehicle. So this leads to more trips being made by elderly who have driving licenses via their own personal transportations (Rosenbloom, 2001).

5.6.2 Difficulties using public transport*

There is no significant association between difficulties using public transport and barriers of safe transportation. This shows that even though they are having difficulties while using public transport, that does not mean that they do not feel safe and have to face barriers while travelling using public transportations.. However, this group of respondents who still feel safe using public transportation, thought that public transport was their only choice of transports, because not all elderly are willing to travel by walking or cycling. Besides, difficulties using public transportation were found significantly associated with barriers of safe transportation, possibly due to preferences of transports used by elderly. It was based on a study which found out that calculations of accessibility are mostly based on distance from origin, area of destination, travel time and population. While different accessibility indices have been developed, there is no single best approach to measuring public transport accessibility (Kaniz Fatima, 2020). Basically, difficulties of using public transportation cannot be the core factor contributing to barriers of safe transportation, instead the barriers were more towards other factors of transportation among elderly such as the travel distance and time.

5.6.3 Troubles of finding transportation

There is no significant association between troubles finding transportation and barriers of safe transportation. Even if they are having trouble finding transportation, the majority of the respondents still face less barriers of safe transportation. It may be due to the fact that finding transportation might not be a problem for them to travel safely, because they

might prefer walking or cycling instead of looking for transportation to go out. Besides, it may be because less elderly in Klang Valley used public transportation as their mode of travelling which they refused to use as public transportation would be more troublesome compared to walking, cycling and using own vehicles. This is similar to a study which showed that a typical trip using public transport was difficult for elderly because it involved identifying the right service, walking to the public transport stop, boarding the vehicle, finding a seat, deciding where to alight, coping with interchanges as necessary and completing the journey to the destination (Chris de Gruyter, 2019).

5.6.4 Types of trips

Majority of the elderly have to do trips for medical appointments purposes. This is slightly different from the previous study stating that the majority of elderly travelled for recreational activities (Tayebeh, 2020). However, those who travel for medical purposes have the lowest percentage of less barriers of safe transportation as compared to other purposes. This shows that the majority who travel for medical purposes face more barriers as compared to other travel purposes. On the other hand, those who travel for work purposes have the highest percentage of less barriers of safe transportation that make up 97.6%. This shows that they do not face as many barriers as compared to those who travel for medical purposes.

5.6.5 Frequency unable to find transportation

Elderly who never found troubles in finding transportations for trips they want to make have a good perception of transportation (75.4%), compared to those who found troubles in finding transportations for trips they want to make. This is probably due to some elderly people using their private vehicles to go for trips, so they never found trouble looking for public transportations for their trips. Thus this will make the elderly feel comfortable and feel more safe to make the trips using their choices of transport. This is similar to a study which found that many elderly people prefer driving as a mode of transport, with today's seniors having a higher driving license rate than previous generations. If an older person is unable to drive, it may also affect their trips (Sarah Moridpour, 2020).

5.7 Association of Safe Transportation and Safe Mobility among elderly

Majority of the respondents have a good perception of safe transportation and also have a good perception towards safe mobility. It may be because those elderly were satisfied with their current living and they enjoyed what they were doing now. However, there were also elderly with good perception of transportation but bad perception of mobility and vice versa. This may show some of the elderly were still hoping for some improvement to be made in Klang Valley, especially the facilities, to ease their movement and to ensure their safety. This association suited the fact claimed by Kaniz Fatima in 2020, who said that dominance of private transport in facilitating elderly mobility and its implications for cities experiencing an aging population should be considered.

CHAPTER 6

CONCLUSION

6.1 Conclusion

Our study was done on 300 respondents among elderly living in Klang Valley. Majority of the respondents were aged 60-70 years old, male, Malay, secondary school as their highest educational level, monthly household income below RM 4850, unemployed, married and living in a single family home. Generally, most of the respondents have a good perception towards safe transportation and safe mobility in Klang Valley. Perception of safe mobility found to be significantly associated with age and assistance needed, but not with other sociodemographic factors such as gender, monthly household income, educational level, living environment, frequency of going out and difficulties. Perceptions of safe transportation are significantly associated with age, gender, monthly household income, educational level, time of driving, distance travelled, mode of transport and frequency of dependency. Lastly, a significant association is found between perception of safe transportation and safe mobility among elderly.

6.2 Limitations

There were a few problems that arose during the data collection period. Unable to access smart devices would also arise as one of the limitations as maybe some of the participants have no intelligent devices to connect to the internet. A few types of bias could occur from this study, such as non-response bias and acquiescence bias. Other than that, respondents might intendedly modify their answers on the perception of safe transportation to meet the current proper standard instead of expressing their real opinion.

As the data collection period was only 2 weeks, the researchers were facing problems to reach the respondents and fulfil the minimum sample size required. However, the researchers manage to achieve the minimum sample size required which is 300 respondents with the help of many parties. Other than that, since the study population is involving the elderly, the major challenge arose were their poor internet skills to fill up the questionnaires via google form. Hence, the researchers came out with the idea to call the respondents one by one in order to get direct response from them. The researchers also did a follow up two to three days after distributing the questionnaires to the respondents as a method of reminder. The researchers tried their best to minimize the limitations that arose throughout the research process.

This study only focused on elderly living in Klang Valley, hence the validity of this study is limited only to elderly living in Klang Valley. Then, the outcome of this research cannot be generalised to represent the elderly living in other states in Malaysia. Another limitation that was faced by the researchers was the slight low responses from male respondents. These two factors influence the results obtained in this study as the findings cannot be generalised to represent the public. Other than that, this study was a cross-sectional study, hence this study cannot determine the causal relationship.

6.3 Recommendations

Based on the study, generally the respondents have a good perception of safe transportation and safe mobility. However, there is always room for improvement, especially on the facilities in Klang Valley. For example, a special walking street for elderly, this is to ensure they will not fall while walking, and also to ensure their safe mobility. Apart from that, the usage of public

transportation can be encouraged among elderly so they will not face difficulties driving alone to their destination, especially for those who need assistance moving, and also who have cognitive and visual impairment, to ensure safe mobility and safe transportation is achieved. And of course, a lower ladder for public transportation should be prepared in order for elderly to move in public transportation safely. Lastly, elderly are recommended to be accompanied by family members no matter where they are to minimize the risk of getting injuries while moving around.



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Gantt Chart

No	Activities	December	January	March	May	June	July
1	Preparation, Submission and Presentation of the proposal	█	█	█	█		
2	Preparation for Ethical Approval from JKEUPM		█				
3	Data Collection and Analysis			█			
4	Preparation of Final Report				█	█	
5	Submission of Final Report to Module Coordinator					█	
6	Preparation of Poster and Scientific Article					█	
7	Presentation of Final Report					█	
8	Submission of Poster and Scientific Article						█
9	Submission of Log Book and Hard Bound Copies of Final Report						█

Budget Planning

Item	Cost (RM)
Printing of questionnaires	30.00
Photocopy other materials	30.00
Binding and hardcover	20.00/copy x4=80.00
Total	140.00

APPENDIX C

Hello and good day,

We are from group 26 and the information provided is for elderly living in Klang Valley whom we are inviting to participate in our research titled Perception of Elderly towards Safe Transportation and Safe Mobility. Below are the details of those involved in the research:

Researchers:

1. MUHAMMAD SYAFI ZIKRI BIN SARIZAN 010-324 0862
2. AMELIA YAP QIAO ROU 010-9656869
3. NURUL SYASYA AFRINA BINTI MOHD AZHAR 019- 371 1896

This research is conducted by second-year medical students of Universiti Putra Malaysia (UPM) under the supervision of PROF. MADYA DR. HAYATI KADR@SHAHAR. The focus of this research is the elderly living in Klang Valley.

To fulfil the requirement of this course, we sincerely seek your help to assist us by answering this questionnaire. The information provided by you in this questionnaire will be kept confidential and used for research purposes. It will not be used in any manner which would allow identification of your individual responses.

Participants are required to answer a series of questions in the self-administered questionnaire provided by the researchers. The duration to complete the questionnaire is less than 15 minutes.

Participant must be an elderly living in Klang Valley and please ensure to have a stable internet connection before answering the questionnaire.

Any problems faced with the questionnaire, please do not hesitate to contact the researchers for inquiries. /

APPENDIX D

Assalamualaikum dan salam sejahtera,

Kami dari kumpulan 26 dan maklumat yang diberikan adalah untuk warga tua yang tinggal di Lembah Klang yang kami jemput untuk menyertai dalam penyelidikan kami yang bertajuk Persepsi tentang Pengangkutan yang Selamat dan Pergerakan yang Selamat dalam kalangan Warga Emas di Lembah Klang. Berikut ialah butiran mereka yang terlibat dalam penyelidikan ini:

Penyelidik:

1. MUHAMMAD SYAFI ZIKRI BIN SARIZAN 010-324 0862
2. AMELIA YAP QIAO ROU 010-9656869
3. NURUL SYASYA AFRINA BINTI MOHD AZHAR 019- 371 1896

Penyelidikan ini dilakukan oleh pelajar perubatan tahun dua Universiti Putra Malaysia (UPM), di bawah pengawasan PROF. MADYA DR. HAYATI KADR @ SHAHAR. Fokus penyelidikan ini ialah warga emas yang tinggal di Lembah Klang.

Untuk memenuhi syarat kursus ini, kami dengan tulus meminta bantuan anda untuk membantu kami dengan menjawab soal selidik ini. Maklumat yang anda berikan dalam soal selidik ini akan dirahsiakan dan digunakan untuk tujuan penyelidikan. Ianya tidak akan digunakan dengan cara apa pun yang memungkinkan pengenalan individual anda.

Peserta diminta menjawab serangkaian soalan dalam soal selidik yang disediakan sendiri oleh penyelidik. Tempoh untuk mengisi soal selidik adalah kurang dari 15 minit.

Peserta mestilah warga emas yang tinggal di Lembah Klang dan pastikan anda mempunyai sambungan internet yang stabil sebelum menjawab soal selidik.

Sebarang masalah yang dihadapi dalam soal selidik, jangan ragu untuk menghubungi penyelidik untuk pertanyaan.

Questionnaire – English Version

Code no.				
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Questionnaire

**PERCEPTION OF SAFE TRANSPORTATION AND SAFE MOBILITY AMONG ELDERLY
IN KLANG VALLEY**

RESEARCHERS:

MUHAMMAD SYAFI ZIKRI BIN SARIZAN 200954

AMELIA YAP QIAO ROU 203444

NURUL SYASYA AFRINA BINTI MOHD AZHAR 203783

Supervisor:

**Associate Prof Dr Hayati binti Kadir @ Shahar
Senior Lecturer Department of Community Health UPM**

This questionnaire has 5 pages with 5 sections as below:

A	Sociodemographic status of respondents
B	Perception of Safe Mobility
C	Barriers of Safe Mobility
D	Perception of Safe Transportation
E	Barriers of Safe Transportation

A. SOCIODEMOGRAPHIC STATUS OF ELDERLY

No.	Item
A1.	Age group: <input type="checkbox"/> 60-70 years old <input type="checkbox"/> 71-80 years old <input type="checkbox"/> More than 80 years old
A2.	Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
A3.	Ethnicity: <input type="checkbox"/> Malay <input type="checkbox"/> Chinese <input type="checkbox"/> Indian <input type="checkbox"/> Others
A4.	Educational level: <input type="checkbox"/> No formal <input type="checkbox"/> Primary school <input type="checkbox"/> Secondary school <input type="checkbox"/> University/college
A5.	Household income monthly: <input type="checkbox"/> Below RM 4850 <input type="checkbox"/> RM 4850 - RM 10,959

	<input type="checkbox"/> More than RM 10,959
A6.	Employment status: <input type="checkbox"/> Employed <input type="checkbox"/> Unemployed
A7.	Marital status: <input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Widower/divorce
A8.	Which best describes the building you live in? <input type="checkbox"/> Single family home <input type="checkbox"/> Condominium or apartment <input type="checkbox"/> Nursing home <input type="checkbox"/> Others:

B. PERCEPTION OF SAFE MOBILITY

No.	Item
B1.	Do you need assistance for your mobility? <input type="checkbox"/> Yes. If yes, please answer B2. <input type="checkbox"/> No. If no, please skip B2.
B2.	What types of assistance do you need for your mobility? You may tick more than one answer. <input type="checkbox"/> Wheelchair <input type="checkbox"/> Walking crutcher/frame <input type="checkbox"/> Scooter <input type="checkbox"/> Cane <input type="checkbox"/> Others. Please specify _____
B3.	How frequent do you go out weekly? <input type="checkbox"/> Never <input type="checkbox"/> 1-3 times/week <input type="checkbox"/> 4-6 times/week <input type="checkbox"/> More than 6 times/week

B4.	<p>Please indicate if you have difficulty with any of these activities?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Talking <input type="checkbox"/> Hearing <input type="checkbox"/> Seeing <input type="checkbox"/> Climbing stairs <input type="checkbox"/> Understanding written directions <input type="checkbox"/> Understanding spoken directions <input type="checkbox"/> Walking short distances <input type="checkbox"/> None
-----	---

C. BARRIERS OF SAFE MOBILITY

No.	Item
C1.	<p>Do you have any chronic illness?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes. If yes, please answer C2. <input type="checkbox"/> No. If no, please skip C2.
C2.	<p>What chronic diseases do you have? You may tick more than one answer</p> <ul style="list-style-type: none"> <input type="checkbox"/> Diabetes Mellitus (High Blood Sugar) <input type="checkbox"/> Hypertension (High Blood Pressure) <input type="checkbox"/> Heart Problem <input type="checkbox"/> Osteoporosis <input type="checkbox"/> Others. Please specify _____
C3.	<p>Do you have any cognitive impairment such as dementia?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No
C4.	<p>Do you have any visual impairment?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No

D. PERCEPTIONS OF SAFE TRANSPORTATION

No.	Item
D1.	Mode of transport that you frequently use daily? You may tick more than one answer. <input type="checkbox"/> Private transport <input type="checkbox"/> Personal transport <input type="checkbox"/> Walking <input type="checkbox"/> Others. Please specify _____
D2.	What time do you drive? You may tick more than one answer <input type="checkbox"/> Morning <input type="checkbox"/> Afternoon <input type="checkbox"/> Evening <input type="checkbox"/> Night
D3.	What is the distance you travel daily? <input type="checkbox"/> Less than 10 kilometres <input type="checkbox"/> More than 10 kilometres
D4.	Which modes of transportations do you use the most in a week? <input type="checkbox"/> Personal vehicles <input type="checkbox"/> Driven by a paid driver or personal assistant <input type="checkbox"/> Bicycle <input type="checkbox"/> Walk <input type="checkbox"/> Public transportation
D5.	How frequently do you depend on family, friends or volunteers for transportations? <input type="checkbox"/> None of my trips <input type="checkbox"/> Less than half of my trips <input type="checkbox"/> About half of my trips <input type="checkbox"/> More than half of my trips <input type="checkbox"/> All of my trips

E. BARRIERS OF SAFE TRANSPORTATION

No.	Item
E1.	Do you have a driving license? <input type="checkbox"/> Yes <input type="checkbox"/> No
E2.	What are the difficulties that you experience when using public transportation? You may tick more than one answer <input type="checkbox"/> Climbing stairs <input type="checkbox"/> I am unable to get a seat <input type="checkbox"/> Service is not provided where I live or where I want to go <input type="checkbox"/> Information about fares, schedules and routes is difficult to find <input type="checkbox"/> I am unclear about how to use public transportation <input type="checkbox"/> I cannot easily access bus stop in poor weather <input type="checkbox"/> Other reasons:
E3.	Do you ever have trouble finding transportations for trips you want or need to make? <input type="checkbox"/> Never <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> A lot of times
E4.	For what types of trips do you need transportations but have troubles finding transportations? <input type="checkbox"/> Work <input type="checkbox"/> Visiting families or friends <input type="checkbox"/> Medical appointment <input type="checkbox"/> Community events <input type="checkbox"/> Religious services <input type="checkbox"/> Recreations <input type="checkbox"/> Others:
E5.	How many times in the last months if at all were you unable to get somewhere because you could not find transportations? <input type="checkbox"/> Never <input type="checkbox"/> Once or twice <input type="checkbox"/> 3 - 6 times <input type="checkbox"/> 7 times or more

Borang Soal Selidik – Versi Bahasa Melayu

Code no.				
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**Borang Soal Selidik**

Persepsi tentang Pengangkutan yang Selamat dan Pergerakan yang Selamat dalam kalangan Warga Emas di sekitar Lembah Klang

PENYELIDIK:

MUHAMMAD SYAFI ZIKRI BIN SARIZAN 200954

AMELIA YAP QIAO ROU 203444

NURUL SYASYA AFRINA BINTI MOHD AZHAR 203783

Penyelia:

**Profesor Madya Dr Hayati binti Kadir @ Shahr
Pensyarah Senior Jabatan Kesihatan Komuniti UPM**

Soal selidik ini terdiri daripada 5 muka surat terdiri daripada 3 bahagian seperti berikut:

A	Status sosiodemografi responden
B	Persepsi Pergerakan yang Selamat
C	Halangan terhadap Pergerakan yang Selamat
D	Persepsi Pengangkutan yang Selamat
E	Halangan terhadap Pengangkutan yang Selamat

A. STATUS SOSIODEMOGRAFI RESPONDEN

No.	Item
A1.	Kumpulan umur: <input type="checkbox"/> 60-70 tahun <input type="checkbox"/> 71-80 tahun <input type="checkbox"/> Lebih daripada 80 tahun
A2.	Jantina: <input type="checkbox"/> Lelaki <input type="checkbox"/> Wanita
A3.	Kaum: <input type="checkbox"/> Melayu <input type="checkbox"/> Cina <input type="checkbox"/> India <input type="checkbox"/> Lain-lain
A4.	Tahap pendidikan: <input type="checkbox"/> Tiada pendidikan formal <input type="checkbox"/> Sekolah rendah <input type="checkbox"/> Sekolah menengah <input type="checkbox"/> Universiti / Kolej
A5.	Pendapatan isi rumah sebulan: <input type="checkbox"/> Kurang daripada RM 4850 <input type="checkbox"/> RM 4851 - RM 10,959

	<input type="checkbox"/> Lebih daripada RM 10,959
A6.	Status pekerjaan: <input type="checkbox"/> Bekerja <input type="checkbox"/> Tidak bekerja
A7.	Status perkahwinan: <input type="checkbox"/> Bujang <input type="checkbox"/> Berkahwin <input type="checkbox"/> Sudah bercerai
A8.	Yang manakah menggambarkan bangunan tempat tinggal anda? <input type="checkbox"/> Rumah dengan tanah persendirian <input type="checkbox"/> Kondominium atau pangsapuri <input type="checkbox"/> Rumah penjagaan <input type="checkbox"/> Lain-lain

B. PERSEPSI PERGERAKAN YANG SELAMAT

No.	Item
B1.	Adakah anda memerlukan bantuan untuk bergerak? <input type="checkbox"/> Ya. Jika ya, sila jawab soalan B2. <input type="checkbox"/> Tidak. Jika tidak, sila tinggalkan soalan B2.
B2.	Apakah jenis bantuan yang diperlukan untuk anda bergerak? Anda boleh menanda lebih daripada 1 jawapan. <input type="checkbox"/> Kerusi roda <input type="checkbox"/> Topang <input type="checkbox"/> Skuter <input type="checkbox"/> Tongkat <input type="checkbox"/> Lain-lain. Sila nyatakan: _____
B3.	Berapakah kekerapan anda keluar dalam masa seminggu? <input type="checkbox"/> Tidak pernah <input type="checkbox"/> 1-3 kali/seminggu <input type="checkbox"/> 4-6 kali/seminggu <input type="checkbox"/> Lebih daripada 6 kali/seminggu

B4.	<p>Sila nyatakan sekiranya anda menghadapi sebarang kesukaran seperti berikut:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bercakap <input type="checkbox"/> Mendengar <input type="checkbox"/> Melihat <input type="checkbox"/> Menaiki tangga <input type="checkbox"/> Memahami arahan bertulis <input type="checkbox"/> Memahami arahan yang dituturkan <input type="checkbox"/> Berjalan dengan jarak yang dekat <input type="checkbox"/> Tiada
-----	---

C. HALANGAN TERHADAP PERGERAKAN YANG SELAMAT

No.	Item
C1.	<p>Adakah anda menghidap sebarang penyakit kronik?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Ya. Jika ya, sila jawab soalan C2. <input type="checkbox"/> Tidak. Jika tidak, tinggalkan soalan C2.
C2.	<p>Apakah penyakit kronik yang anda hadapi? Anda boleh menanda lebih daripada 1 jawapan.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Diabetes Mellitus (Kencing Manis) <input type="checkbox"/> Hypertension (Tekanan Darah Tinggi) <input type="checkbox"/> Masalah Jantung <input type="checkbox"/> Tulang rapuh <input type="checkbox"/> Lain-lain. Sila nyatakan: _____
C3.	<p>Adakah anda mempunyai masalah kognitif seperti nyanyuk?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Ya <input type="checkbox"/> Tidak
C4.	<p>Adakah anda mempunyai masalah penglihatan?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Ya <input type="checkbox"/> Tidak

D. PERSEPSI PENGANGKUTAN YANG SELAMAT

No.	Item
D1.	<p>Apakah jenis pengangkutan yang sering digunakan setiap hari? Anda boleh memilih lebih daripada 1 jawapan.</p> <ul style="list-style-type: none"><input type="checkbox"/> Pengangkutan persendirian (teksi, dan lain-lain)<input type="checkbox"/> Pengangkutan sendiri<input type="checkbox"/> Berjalan<input type="checkbox"/> Lain-lain. Sila nyatakan: _____
D2.	<p>Pada waktu bilakah anda memandu? Anda boleh memilih lebih daripada 1 jawapan.</p> <ul style="list-style-type: none"><input type="checkbox"/> Pagi<input type="checkbox"/> Tengahari<input type="checkbox"/> Petang<input type="checkbox"/> Malam
D3.	<p>Berapakah jarak perjalanan anda setiap hari?</p> <ul style="list-style-type: none"><input type="checkbox"/> Kurang daripada 10 kilometer<input type="checkbox"/> Lebih daripada 10 kilometer
D4.	<p>Apakah jenis pengangkutan yang kerap digunakan dalam seminggu?</p> <ul style="list-style-type: none"><input type="checkbox"/> Kenderaan sendiri<input type="checkbox"/> Dipandu oleh pemandu berbayar atau pembantu peribadi<input type="checkbox"/> Basikal<input type="checkbox"/> Berjalan kaki<input type="checkbox"/> Pengangkutan awam
D5.	<p>Berapa kerap anda perlu bergantung dengan keluarga, rakan atau sukarelawan untuk pengangkutan?</p> <ul style="list-style-type: none"><input type="checkbox"/> Tidak perlu<input type="checkbox"/> Kurang daripada separuh jumlah perjalanan saya<input type="checkbox"/> Separuh daripada jumlah perjalanan saya<input type="checkbox"/> Lebih daripada separuh jumlah perjalanan saya<input type="checkbox"/> Semua perjalanan saya

E. HALANGAN TERHADAP PENGANGKUTAN YANG SELAMAT

No.	Item
E1.	Adakah anda mempunyai lesen memandu? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak
E2.	Apakah cabaran yang perlu dirasai ketika menggunakan pengangkutan awam? Anda boleh memilih lebih daripada 1 jawapan. <input type="checkbox"/> Menaiki tangga <input type="checkbox"/> Saya tidak mendapat tempat duduk <input type="checkbox"/> Tiada perkhidmatan yang disediakan di kawasan rumah saya atau kawasan yang saya ingin pergi <input type="checkbox"/> Sukar mendapatkan maklumat mengenai tambang, jadual dan laluan <input type="checkbox"/> Saya tidak pasti cara menggunakan pengangkutan awam <input type="checkbox"/> Saya sukar untuk menggunakan perhentian bas ketika cuaca buruk <input type="checkbox"/> Lain-lain. Sila nyatakan: _____
E3.	Adakah anda pernah menghadapi kesukaran memilih jenis pengangkutan bagi perjalanan yang anda mahu lakukan? <input type="checkbox"/> Tidak pernah <input type="checkbox"/> Jarang <input type="checkbox"/> Kadangkala <input type="checkbox"/> Kerap kali
E4.	Apakah tujuan perjalanan yang anda menghadapi kesukaran untuk mencari pengangkutan? <input type="checkbox"/> Kerja <input type="checkbox"/> Melawat keluarga dan rakan _____ <input type="checkbox"/> Temu janji kesihatan <input type="checkbox"/> Acara komuniti <input type="checkbox"/> Tujuan keagamaan <input type="checkbox"/> Rekreasi <input type="checkbox"/> Lain-lain. Sila nyatakan: _____
E5.	Dalam masa sebulan yang lepas, berapa kerap anda tidak dapat ke sesuatu destinasi kerana tidak berjaya mencari pengangkutan? <input type="checkbox"/> Tidak pernah <input type="checkbox"/> 1 atau 2 kali <input type="checkbox"/> 3 - 6 kali <input type="checkbox"/> 7 kali atau lebih

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(JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA**



**FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED
CONSENT FORM**

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE

Perception of Safe Transportation and Safe Mobility among Elderly in Klang Valley

2. INTRODUCTION:

This study is an undergraduate medical research project that will be conducted from December 2020 till June 2021 among elderly in Klang Valley, Malaysia. It is estimated that Malaysia's elderly population will be markedly increased to 16.3% of the total population by 2040. Hence there will be a rising trend of aged drivers on the road. Therefore there is a need to look at the perception of safe transportation among elderly in Klang Valley. Our study aims to determine the perception of safe transportation and safe mobility among elderly in Klang Valley. Other than that, this study also aims to determine the factors (sociodemographic factors, multimodal patterns of mobility, transportation usage, barriers of safe transportation and mobility) associated with perception of safe transportation and safe mobility among elderly. The estimated number of participants is 350 elderly living in Klang Valley. No funding is received to conduct this study.

3. WHAT WILL YOU HAVE TO DO?

A questionnaire consisting of questions related to perception of safe transportation and safe mobility is prepared and this questionnaire takes about 10 minutes to be completed. Respondents are required to fill in the information and consent form as well as the questionnaire. All questions should be answered honestly as each answer will be taken into consideration.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

This research will be conducted among elderly living in Klang Valley. Hence, anyone who is not in the elderly age category or elderly living outside of study location should not participate in this study.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

1. Allow the elderly to express their opinion on safe transportation and safe mobility.
2. Use various types of transportation for their mobility comfortably and feeling secure.
3. Voice out the barriers that they are facing in transportation and mobility.

(b) TO THE INVESTIGATOR?

1. Learn more about the perception of safe transportation and safe mobility among the elderly.
2. Study the choice of mode for transportation and the characteristics of transportation among elderly.
3. Aims to fill the gaps from previous studies to ensure the safety of the elderly these days.

6. WHAT ARE THE POSSIBLE RISKS?

There is no potential risk, according to this study, as no harmful procedure is required. In terms of participation, it is optional and you can opt out of this research any time you choose without any cost.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

As the findings will be produced as collective results, the information you provide and your identity will remain confidential. There will be no individual information made publicly available. Upon request from the researcher, you can have access to the study results.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

1. Prof. Madya Dr. Hayati Kadr@Shahar: 012-953 3071

Department of Community Health
Faculty of Medicine & Health Sciences
Universiti Putra Malaysia
hayatik@upm.edu.my

2. Muhammad Syafi Zikri Bin Sarizan: 010-324 0862

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Year 2 Medical Student
Faculty of Medicine & Health Sciences
Universiti Putra Malaysia
203783@student.upm.edu.my



Please initial here if you have read and understood the contents of this page_____

9. CONSENT

I Identity Card No.
address.....

.....hereby voluntarily agree to take part in the research stated above *(clinical /drug trial/video recording/ focus group/interview-based/ questionnaire-based).

I have been informed about the nature of the research in terms of methodology, possible adverse effects and complications (as written in the Respondent's Information Sheet). I understand that I have the right to withdraw from this research at any time without giving any reason whatsoever. I also understand that this study is confidential and all information provided with regard to my identity will remain private and confidential.

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me be used in any form of publication or presentation (if applicable)

* delete where necessary

Signature Signature
(Respondent) (Witness)

Date :..... Name :.....
I/C No. :.....

I confirm that I have explained to the respondent the nature and purpose of the above-mentioned research.

Date Signature
(Researcher)

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UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA**



BORANG 2.4: PENERANGAN DAN PERSETUJUAN RESPONDEN

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

1. TAJUK KAJIAN

Persepsi tentang Pengangkutan yang Selamat dan Pergerakan yang Selamat dalam kalangan Warga Emas di Lembah Klang.

2. PENGENALAN

Kajian ini merupakan satu projek penyelidikan yang dijalankan oleh pelajar ijazah sarjana muda doktor perubatan yang akan berlangsung dari Disember 2020 hingga Jun 2021 melibatkan warga emas yang menetap di sekitar Lembah Klang, Malaysia. Dianggarkan bahawa populasi warga emas Malaysia akan meningkat dengan ketara kepada 16.3% dari jumlah keseluruhan penduduk pada tahun 2040. Oleh itu, akan wujud peningkatan corak pemandu berusia di jalan raya. Jelaslah bahawa terdapat keperluan untuk melihat persepsi pengangkutan dan pergerakan yang selamat dalam kalangan warga emas di Lembah Klang. Kajian kami bertujuan untuk menentukan persepsi pengangkutan dan pergerakan yang selamat dalam kalangan warga emas di sekitar Lembah Klang. Selain itu, kajian ini juga bertujuan untuk mengetahui faktor-faktor (faktor sosiodemografi, corak pergerakan multimodal, penggunaan pengangkutan dan halangan pengangkutan dan pergerakan yang selamat) yang berkaitan dengan persepsi pengangkutan dan pergerakan yang selamat dalam kalangan warga emas. Jumlah peserta yang dianggarkan ialah seramai 350 orang warga emas yang menetap di Lembah Klang. Tiada dana yang diterima untuk menjalankan kajian ini.

3. APAKAH YANG PERLU ANDA LAKUKAN?

Borang soal selidik yang mengandungi soalan yang berkaitan dengan persepsi tentang pengangkutan yang selamat dan pergerakan yang selamat telah disiapkan dan masa yang diperlukan untuk menjawab dan melengkapkan borang soal selidik tersebut mengambil masa selama lebih kurang 10 minit. Para responden juga dikehendaki untuk mengisi segala maklumat dan borang persetujuan beserta soalan di dalam borang soal selidik tersebut. Kesemua soalan hendaklah dijawab dengan jujur kerana setiap jawapan akan diambil kira.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

Kajian ini akan dilakukan di kalangan warga emas yang tinggal di kawasan Lembah Klang. Oleh hal yang demikian, sesiapa yang tidak dikategorikan sebagai warga emas atau warga emas yang tinggal di luar daripada kawasan kajian tidak boleh menyertai kajian ini.

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?

1. Membolehkan warga emas untuk menyuarakan atau menzahirkan pandangan mereka tentang pengangkutan yang selamat dan pergerakan yang selamat.
2. Menggunakan pelbagai jenis pengangkutan untuk pergerakan, keselesaan dan perasaan yang selamat untuk warga emas.
3. Untuk menyenaraikan semua halangan yang dihadapi oleh warga emas berkaitan dengan pengangkutan dan pergerakan.

b) KEPADA PENYELIDIK?

1. Mempelajari tentang pengangkutan yang selamat dan pergerakan yang selamat di kalangan warga emas.
2. Mempelajari tentang kepelbagaian pilihan untuk jenis pengangkutan dan ciri-ciri pengangkutan di kalangan warga emas.
3. Bertujuan untuk mengisi jurang atau perkara yang tidak dibincangkan di dalam kajian terdahulu untuk memastikan keselamatan warga emas pada masa kini terjamin.

6. ADAKAH IA BERISIKO?

Kajian ini tidak memerlukan sebarang prosedur yang berbahaya, oleh itu, tiada sebarang risiko yang perlu diambil oleh peserta. Dari segi penyertaan pula, ianya tertakluk kepada peserta dan peserta bebas untuk menarik diri pada bila-bila masa tanpa sebarang risiko.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Oleh kerana data yang diterima akan dihasilkan sebagai hasil kolektif, maklumat dan identiti yang diberikan akan dirahsiakan. Maklumat individu tidak akan disiarkan untuk tatapan umum. Anda hanya boleh mendapatkan akses hasil kajian atas permintaan daripada para penyelidik.

8. SIAPA YANG SAYA PERLU HUBUNGI SEKIRANYA SAYA MEMPUNYAI SOALAN TAMBAHAN SEMASA MENGIKUTI PENYELIDIKAN INI?

1. Prof. Madya Dr. Hayati Kadr@Shahar: 012-9533071
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Sila tandatangan di sini sekiranya anda telah membaca dan memahami kandungan halaman ini _____

9. PERSETUJUAN

Saya..... No Kad Pengenalan.
beralamat.....

.....dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam penyelidikan yang tersebut di atas *(kajian klinikal/percubaan ubat-ubatan/rakaman video/kumpulan sasaran/temuduga/ soal selidik).

Saya telah diberi penjelasan secara menyeluruh mengenai penyelidikan ini dari segi metodologi, risiko dan komplikasi (seperti tertulis pada Helaian Penerangan Responden). Saya memahami bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi sebarang alasan. Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang melibatkan saya.

I setuju/tidak bersetuju untuk imei/gambar/rakaman video/ rakaman suara digunakan dalam apa jua bentuk penerbitan atau pembentangan. (sekiranya berkaitan).

*potong yang tidak berkenaan

Tandatangan Tandatangan
(Responden) (Saksi)

Tarikh : Nama :

No. K/P:

Saya mengesahkan bahawa saya telah menerangkan kepada responden ini sifat dan tujuan penyelidikan yang tersebut di atas.

Tarikh

Tandatangan
(Penyelidik)

Ref. no: UPM/TNCPI/RMC/JKEUPM/1.4.18.2 (JKEUPM)

Date: 25 February 2021

Dear Prof./Dr./Mr./Ms.,

APPLICATION FOR JKEUPM ETHICAL CLEARANCE: APPROVED

With reference to the above, I am pleased to inform you that your application for ethical clearance for the research project entitled 'Perception of Safe Transportation and Safe Mobility among Elderly in Klang Valley' has been approved.

Please note that the official letter of approval will be issued as soon as possible. However, the ethical clearance is considered effective from the date of this email, and you may now proceed with your research.

Kindly remind the ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

Researchers should also complete a Study Final Report upon study completion. The form can be obtained from the Ethics Committee for Research Involving Human Subjects (JKEUPM) website (<http://www.tncpi.upm.edu.my/faildokumen>).

If you have any enquiries, please contact Ms. Nurulhasanah Ishak (03-97691605) or Ms. Nor Ellia Abd Ajis (03-97691244).

Note: Please use this reference number for any transaction.

- JKEUPM-2021-079

Thank you.

Yours faithfully,

Prof. Dr. Zamberi Sekawi
Chair
Ethics Committee for Research Involving Human Subjects
Universiti Putra Malaysia