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A Pilot Study of Mobility Characteristics of Rural Elderly People to Health Facility

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Abstract

Mobility is very important for most elderly people because they need regular visits to a health facility for proper medical treatment. However, they are facing problems such as limited mobility option to the health facility. The objectives of this pilot study are to determine the mobility characteristics of rural elderly people on health facilities and to identity the most preferred mode of transport among them. The study employed a quantitative method based on a case study approach. By using online questionnaire survey forms, data were collected from 40 rural elderlies of Kampung Kota Aur which is located at Penaga, Seberang Perai Utara District, Penang, Malaysia. This village was selected due to mobility problems such as difficulty for rural elderly people to reach the health facility and lack of mode of transport. The data were analysed using the frequency and cross-tabulation tests as provided in the IBM SPSS Statistics software. The major findings of this pilot study are the mobility characteristics of rural elderly people were dominated by high dependency on private vehicle, moderate risk of driving and less visit to health facility. Furthermore, paratransit was the most preferred mode of transport among them. The findings from this pilot study carry good and early inputs to relevant agencies in considering better mobility service for rural elderly people in the future. Further research should be done to investigate the mobility characteristics of rural elderly people to health facility. The sample size of respondents could be improved according to population of elderlies at the real study area.

Keywords: Pilot Study, Mobility, Rural, Elderly People, Health Facility

Introduction

Apparently, the global population is ageing rapidly. Both United Nations (2019) and World Assembly on Ageing (1982) stated that aged people are those aged 60 years and over. There are several terms which referred to aged people such as elderly people, older people, and senior citizens. United Nations (2019) estimated about 962 million people aged 60 and over worldwide in 2017, which comprised 13 percent of world population. Moreover, the number of elderly people is expected to rise more than double from 962 million in 2017 to 2.1 billion

by 2050 (United Nations, 2017). Interestingly, the trend toward population ageing is most advanced in developing countries (Papalia et al., 2002).

Basically, Malaysia's population is moving toward ageing nation. Department of Statistics, Malaysia (2017) reported that, there were nearly 2.25 million elderly people or 7.87 percent of Malaysia's population in 2010. Based on United Nation's projection, Malaysia is expected to become an ageing nation in 2030 when her population contains 15 percent of elderlies (Jabatan Kebajikan Masyarakat, 2017). In responding to the alarming situation, proper preparation should be done including research about the elderlies.

Recently, researchers have shown an increased interest in studying the issues and problems of elderly people. Research on elderly people in the urban area has been previously conducted by Khalid et al (2020); Kamar (2019), as well as Sanmargaraja and Seow (2009). Nevertheless, very little attention has been paid to the issues and problems of elderly people in the rural area. Thus, this pilot study attempts to focus on issues of elderly people in rural areas especially regarding mobility problems between home and health facility which is the health clinic. This is because trips to access health services are among the most frequently made by rural elderly (Ahern & Hine, 2012).

Mobility means a person's ability to move from one place to another (Plazinic & Jovic, 2018). Mobility has been defined as the ability to move oneself (either independently or by using assistive devices or transportation) within environments that expand from one's home to the neighbourhood and to regions beyond (Webber et al., 2010). For overall freedom, mobility is necessary in order to maintain good health and quality of life. Hence, elderly people mobility can be understood as the ability of the elderlies to move from one place to another (either independently or by using assistive devices or transportation) within environments that expand from one's home to the neighbourhood and to regions beyond in order to get goods or services. It is closely related to the ability of elderlies to use transport such as car, bus and others.

Mobility is important to rural elderly people because they need to visit the health facility regularly for medical treatment. Unfortunately, it is challenging for rural elderlies because they are facing the problems of mobility. Hence, the objectives of this pilot study are to determine the mobility characteristics of rural elderly people to health facility and identify the most preferred mode of transport among them. Besides, this pilot study aims to train the researchers to manage the actual future research.

Literature Review of Mobility Characteristic of Rural Elderly People to Health Facility

A considerable amount of literature has been published on mobility characteristics of rural elderly people to health facility. Among the characteristics are high dependency on private vehicle (Giuliano, 2004), high risk of elderly driving (Broderick, 2018), less visit to health facility (Fernandez-Mayoralas et al., 2000), low rate of daily mobility as well as longer trip distance (Plazinic & Jovic, 2018).

High dependency on private vehicle

Mobility in rural area is more focused on private vehicle due to limited mode of transport. Giuliano (2004) found that elderly people who live in rural area rely more on personal vehicle such as car or motorcycle in order to move or enjoy their social life than their urban counterparts. The same finding was found in Glasgow and Blakely's study (2000) where about 90 percent of the trips taken by rural seniors were using private vehicles. Besides, Titheridge et al (2003) found that elderlies who are key household car drivers make 50 percent more trips than those who have access to a car only rarely, and 80 percent more trips than those who do not have access to a car.

High Risk of Elderly Driving

Elderly drivers are facing safety risk due to decrease in physical and mental abilities. Elderly driving ability tends to decline as people age, particularly after 75 years (Broderick, 2018). By choice or necessity, many older Americans adjust their routines and rely increasingly on alternative transportation options (Litman, 2017). Besides, an older adult who cannot drive is immediately at increased risk for reduced activities that places them at a greater risk for adverse health outcomes (Broderick, 2018). This situation affects the social life of the elderly people.

Less Visit to Health Facility

A critically important part on the use of health facility is access to transportation, where the distance is far and the access to alternative mode of transport is limited. It will affect the mobility of rural elderlies to health facility. For instance, Fernandez-Mayoralas et al (2000) reported that rural elderlies in Spain use health services almost three times less frequently than their urban counterparts because of transport problems. Furthermore, Ahern and Hine (2012) indicated that health centres are not well served by public transport lines, so rural elderlies have to spend more energy, money and time to get there often relying on family and friends.

Low Rate of Daily Mobility

Plazinic and Jovic (2018) analysed the mobility characteristics of rural elderly people in Serbia to several basic facilities namely food shops, health centres, post offices and banks. Based on the analysis, they found that the daily mobility of rural elderly population was generally low. According to the survey, the average daily mobility of rural elderly population in Serbia was 0.88 trips per day (Plazinic & Jovic, 2018).

Longer trip distance

Longer trip distance occurs when the location of rural houses is far away from basic facilities. This situation is very risky to elderlies because their driving ability tends to decline as their age increases. Starting at the age of 75, fatal crash rates increase per mile travelled, primarily due to an individual's increased susceptibility to injury and medical complications (Goodman, 2017).

Methodology

Basically, the research methodology was crafted to achieve the objectives of this pilot study which were to determine the mobility characteristics of rural elderly people to health facility and identify the most preferred mode of transport among them. Hence, a village called Kampung Kota Aur which is located at Penaga, Seberang Perai Utara District, Penang, Malaysia was selected as a study area. It was selected due to mobility problems such as difficulties of rural elderly people to access health facility and lack of transportation options.

The method of data collection was by using online questionnaire survey. The online questionnaire was chosen as it was considerably a safer mode for both participants and research team members to avoid face-to-face contact and reduce risk of infection during COVID-19 pandemic (Wang et al., 2021). Moreover, during prolonged COVID-19 pandemic crisis and the implementation of Movement Control Order in Malaysia, cross border movement between different districts and states were prohibited. This situation had limited the movement of researchers to the study area to conduct face-to-face questionnaire survey and site appreciation.

Online questionnaire survey was done through social media which are Facebook and WhatsApp. It was challenging because not all rural elderlies were familiar in using the social media. Nonetheless, the online survey was succeeded with the assistance from their younger family members. It was conducted from 10th January 2021 until 17th January 2021.

The population of the chosen study area is 555 people, most of whom are elderlies. Hence, it is a suitable choice of a study area to conduct a pilot study here. Previous researchers suggested several sample sizes for the purpose of conducting a pilot study. For example, Hertzog (2008) suggested the sample size is between 10 to 40 respondents. Ibrahim (n.d.) proposed the ideal, reasonable and acceptable sample size is between 30 to 50 respondents. Hence, this pilot study decided to get 40 respondents as a sample at the study area. It is strongly believed that the number of samples was considered sufficient without compromising the quality of the results obtained for the purpose of conducting a pilot study.

Furthermore, the data management and analysis were performed by using the frequency and cross-tabulation tests as provided in the IBM SPSS Statistics Version 23 software. Besides, the purposes of the analysis were to determine the mobility characteristic of rural elderly people to health facility and identify the most preferred mode of transport among them to that facility.

Results

This pilot study discusses the results which consist of demographic profile of respondents, mobility characteristics of rural elderly people to health facility as well as the most preferred mode of transport among them to that premises.

Demographic Profile of Respondents

Table 1 shows the demographic profile of respondents. Majority of respondents (72.5%) are females. More than two-third of them (67.5%) are between 60 to 64-year age group. 80 percent of respondents are married. Majority of respondents (32.5%) are unemployed. Nevertheless, most of the respondents (70.0%) still have a monthly income between

RM951.00 and RM3860.00. Majority of the respondents (75.0%) do not have chronic illness. Besides, 60 percent of the respondents perceived their overall health condition as moderate.

Table 1
Demographic profile of respondents

Gender	Number of Respondents	%
Male	11	27.5
Female	29	72.5

Monthly Household Income (RM)	Number of Respondents	%
950.00 and below	11	27.5
951.00 - 3860.00	28	70.0
3861.00 - 8319.00	1	2.5

Table 1
Demographic profile of respondents (continued)

Age Group (Years Old)	Number of Respondents	%
60 - 64	27	67.5
65 - 69	11	27.5
70 - 74	1	2.5
75 and above	1	2.5

Chronic Illness	Number of Respondents	%
Yes	10	25.0
No	30	75.0

Marital Status	Number of Respondents	%
Single	6	15.0
Married	32	80.0
Divorce	2	5.0

Overall Health Condition	Number of Respondents	%
Good	13	32.5
Moderate	24	60.0
Weak	3	7.5

Occupation	Number of Respondents	%
Government Pensioner	9	22.5
Private Retiree	8	20.0
Business	10	25.0
Unemployed	13	32.5

Mobility Characteristics of Rural Elderly People to Health Facility

High Dependency on Private Vehicle

As shown in Table 2, it was found that high dependency on private vehicle (95.0%) occurred among the rural elderly people during trips to health facility. This percentage was the combination of two modes of transport which were driving independently (52.5%) and getting rides from faily members or friends (42.5%). The percentage was quite balance between both categories. Merely 5 percent of respondents went to health facility by public transport, particularly bus.

Table 2
Cross-tabulation between age groups and modes of transport among rural elderly to health facility

Age Group (Years Old)	Modes of Transport			Total (%)
	Driving Independently (%)	Getting Rides from Family Members / Friends (%)	Bus (%)	
60 - 64	14	11	2	27 (67.5)
65 - 69	6	5	0	11 (27.5)
70 - 74	0	1	0	1 (2.5)
75 and above	1	0	0	1 (2.5)
Total (%)	21 (52.5)	17 (42.5)	2 (5.0)	40 (100.0)

In terms of age group, majority of the respondents (67.5%) were between 60 to 64 years old. This age bracket was the youngest old among other respondents. Hence, this analysis shows high dependency on private vehicle among the rural elderly people (especially aged between 60 to 64 years old) when they made trips to health facility.

Furthermore, Table 3 presents the frequency of trip to health facility according to age group of rural elderly people. Majority of the respondents (75.0%) especially aged between 60 to 64 years old made their trips to health facility once a month. It was followed by those who seldom made the trip (15.0%) and those who made the trip once a week (10%). Thus, this analysis revealed that most rural elderlies made the trip between home and health facility once a month.

Table 3
Cross-tabulation between age groups and frequency of trip among rural elderly to health facility

Age Group (Years Old)	Frequency of Trip to Health Facility			Total (%)
	Once a Month (%)	Once a Week (%)	Seldom (%)	
60 - 64	23	2	2	27 (67.5)
65 - 69	6	2	3	11 (27.5)
70 - 74	1	0	0	1 (2.5)
75 and above	0	0	1	1 (2.5)
Total (%)	30 (75.0)	4 (10.0)	6 (15.0)	40 (100.0)

Moderate Risks of Elderly Driving

Table 4 shows that majority of the respondents (60.0%) were in moderate health status. It was followed by good health status (32.5%). In terms of modes of transport, driving independently to health facility was dominant, especially in moderate health status category. Due to moderate health status, driving independently was not advisable for their safety. In short, this analysis shows the moderate risk of elderly people driving to health facility at the study area.

Table 4
Cross-tabulation between mode of transport and overall health status among rural elderly

Modes of Transport	Overall Health Status			Total
	Good (%)	Moderate (%)	Weak (%)	(%)
Driving Independently	8	13	0	21 (67.5)
Getting Rides from Family Members / Friend	4	10	3	17 (27.5)
Bus	1	1	0	2 (2.5)
Total (%)	13 (32.5)	24 (60.0)	3 (7.5)	40 (100.0)

Less Visit to Health Facility

Table 5 revealed that many respondents experienced less visit to health facility. Majority of the respondents (55.0%) missed the trips to health facility at least once. Many of them were between 60 to 64-year age group. This analysis shows less visit to health facility among the rural elderlies occurred at the study area.

Table 5
Cross-tabulation between age groups and missed trip among rural elderly to health facility

Age Group (Years Old)	Missed Trip to Health Facility				Total (%)
	Never (%)	1 - 2 Times (%)	3 - 5 Times (%)	6 Times and Above (%)	
60 - 64	4	15	6	2	27 (67.5)
65 - 69	3	6	1	1	11 (27.5)
70 - 74	0	1	0	0	1 (2.5)
75 and above	0	0	1	0	1 (2.5)
Total (%)	7 (17.5)	22 (55.0)	8 (20.0)	3 (7.5)	40 (100.0)

Most preferred mode of transport among rural elderly people to health facility

Table 6 shows majority of the respondents (47.5%) especially aged between 60 to 64 years old chose paratransit as the most preferred mode of transport between home and health facility. It shows this youngest old group was more comfortable with paratransit service compared to other mode of transport.

Table 6
Cross-tabulation between age groups and preferred mode of transport among rural elderly to health facility

Age Group (Years Old)	Preferred Mode of Transport				Total (%)
	Bus (%)	Taxi (%)	Paratransit (%)	Others (%)	
60 - 64	9	3	14	1	27 (67.5)
65 - 69	6	1	4	0	11 (27.5)
70 - 74	0	0	1	0	1 (2.5)
75 and above	1	0	0	0	1 (2.5)
Total (%)	16 (40.0)	4 (10.0)	19 (47.5)	1 (2.5)	40 (100.0)

Discussion and Conclusion

Generally, this pilot study has answered the research questions and fulfilled the research objectives. In terms of mobility characteristics of rural elderly people to health facility, this pilot study had discovered three aspects. Firstly, there was a high dependency on private vehicle. It involved 95 percent of rural elderlies (especially aged between 60 to 64 years old) when they made trips to health facility. This percentage was the combination of two modes of transport which were driving independently (52.5%) and getting rides from family members or friends (42.5%).

This finding was consistent with that of (Giuliano's, 2004; Glasgow and Blakely's, 2000). However, the percentage of dependency on private vehicle at the study area (95.0%) was slightly higher than reported by Glasgow and Blakely (2000) which was 90 percent. This situation shows that the elderlies at the study area were facing serious limited public transport and had to rely more on private vehicles. However, most of the trips (75.0%) were only made once a month.

Secondly, this pilot study revealed that the risk of elderly people driving was at moderate level. It was based on majority of the respondents (60.0%) who perceived themselves as having moderate health status. This finding is somewhat contradictory to the finding reported by Broderick (2018); Goodman (2017) because their study revealed the high risk of elderlies driving. This situation was probably due to the fact that most respondents (97.5%) were considered as young-old (60 - 74 years old).

Thirdly, this pilot study also disclosed that many of the respondents experienced less visit to health facility. More than half of the respondents (55.0%) missed the trip to health facility at least once. This analysis shows they were facing less visit to health facility due to transportation problem, which supports the finding reported by Fernandez-Mayoralas et al. (2000). Besides, majority of the respondents (47.5%) chose paratransit as the most preferred mode of transport to health facility. It shows they were more comfortable with paratransit compared to other options.

This research contributes to both new knowledge and practice. In terms of new knowledge, it shows the mobility characteristics of rural elderly people to health facility consists of three aspects which are high dependency on private vehicle, moderate risk of elderly people driving and less visit to health facility. Furthermore, paratransit has been identified as the most preferred mode of transport to health facility. In terms of practice, all these early findings carry good inputs to relevant agencies in providing better mobility service to rural elderly people in the future (such as providing paratransit service).

Further research should be done to investigate the mobility characteristics of rural elderly people to health facility. The sample size of respondents could be improved according to population of elderlies at the real study area. Hopefully, based on this pilot study experience, the research at the actual study area can be done smoothly. As a conclusion, relevant agencies should wisely consider the need to improve mobility service for rural elderlies, especially to health facility. This is seen as paramount to preserve their well-being and health condition as a whole.

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References

Ahern, A., & Hine, J. (2012). Rural transport - valuing the mobility of older people. *Research in Transportation Economics*, *34*(1), 27-34.

Broderick, A. (2018). *The future of rural transportation and mobility for older adults: Current trends and future directions in technology-enabled solutions*. Berkeley, United States of America: CITRIS and the Banatao Institute.

Department of Statistics, Malaysia. (2017). *Population quick info*. Retrieved August 15, 2021 from http://www. dosm.gov.my.

Fernandez-Mayoralas, G., Rodriguez, V., & Rojo, F. (2000). Health services accessibility among Spanish elderly. *Social Science and Medicine*, *50*(1), 17-26.

Giuliano, G. (2004). Land use and travel patterns among the elderly. In. *Transportation in an aging society: A decade of experience. Technical Papers and Reports from a Conference, November 7-9,* 1999, (192-210). http://onlinepubs.trb.org/onlinepubs/conf/reports/cp27. pdf

Glasgow, N., & Blakely, R. M. (2000). Older nonmetropolitan residents' evaluations of their transportation arrangements. *The Journal of Applied Gerontology*, *19*(1), 95-116.

Goodman, D. (2017, Autumn). Getting around town. *Public Roads, 81*(3). https://highways.dot.gov/public-roads/autumn-2017/getting-around-town

Hertzog, M. A. (2008). Considerations in determining sample size for pilot studies. *Research in Nursing and Health. 31*(2), 180-191.

Ibrahim, M. Y. (n.d.). *Sembang metodologi 19: Bilangan sampel kajian rintis. Akademia pro hub.* [Facebook page]. Retrieved August 14, 2021 from https://www.facebook.com/ academiaprohub/posts/sembang-metodologi-19-bilangan-sampel-kajian-rintisoleh-dr-mohd-yusri-ibrahimkaj/8067332…

Jabatan Kebajikan Masyarakat. (2017). *Dasar warga emas negara*. Retrieved August 15, 2021 from http://www.jkm.gov.my.

Kamar, M. A. A. (2019). A preliminary study of the need of medical care facilities for older people among local authority areas. *ESTEEM Journal of Social Sciences and Humanities*, *3* (November 2019), 88-98.

Khalid, H. A., Leh, O. L. H., Jalil, N. I. R., Marzukhi, M. A., & Nasrudin, N. (2020). An analysis of the needs of elderly-friendly neighbourhood in Malaysia: Perspectives of older and younger groups. *Planning Malaysia Journal of the Malaysian Institute of Planners, 18*(4), 144-157.

Litman, T. (2017). *Public transit's impact on rural and small towns: A vital mobility link.* Washington, D. C., United States of America: Transportation Research Board.

Papalia, D. E., Sterns, H. L., Feldman, R. D., & Camp, C. J. (2002). *Adult development and aging - second edition*. Boston, United States of America: McGraw-Hill.

Plazinic, R. B., & Jovis, J. (2018). Mobility and transport potential of elderly in differently accessible rural areas. *Journal of Transport Geography*, *68* (March), 169-180.

Sanmargaraja, S., & Seow, T. W. (2009). Pandangan warga tua di rumah warga tua: Kajian kes di bandaraya Ipoh dan Johor Bahru. *Prosiding Persidangan Kebangsaan Geografi dan Alam Sekitar Kali Keempat, Universiti Pendidikan Sultan Idris,* 143-151.

Titheridge, H., Achuthan, K., Mackett, R., & Solomon, J. (2003). Assessing the extent of transport social exclusion among the elderly**.** *Journal of Transport and Land Use, 2*(2), 31-48.

United Nations. (2017). *World population prospects the 2017 revision - key findings and advance tables*. New York, United States of America: United Nations.

United Nations. (2019). *Ageing*. Retrieved August 15, 2021 from http://www.un.org/en/sections/issues-depth/ageing/

Wang, K., Wong, E. L., Ho, K., Cheung, A. W., Yau, P. S., Dong, D., Wong, S. Y., & Yeoh, E. (2021). Change of willingness to accept COVID-19 vaccine and reasons of vaccine hesitancy of working people at different waves of local epidemic in Hong Kong, China: Repeated cross-sectional surveys, *Vaccines, 9*(62), 1-15.

Webber, S. C., Porter, M. M., & Menec, V. H. (2010). Mobility in older adults: A comprehensive framework. *The Gerontologist*, *50*(4), 443-450.

World Assembly on Ageing. (1982). Report on the world assembly on ageing - Vienna 1982. *Australian Journal on Ageing, 1*(4), 13-14.