

Healthcare utilisation among elderly in Malaysia: The mediating role of health literacy

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ABSTRACT

Background: The relationship between the socio-demographic characteristics of the older persons and healthcare utilisation is well established. However, the process underlying this relationship is poorly understood particularly in the Malaysian context.

Materials and Methods: A cross-sectional study was conducted from February to April in 2016 to examine the mediating effect of health literacy on the relationship between age and healthcare utilisation. A total of 452 older persons were recruited from 14 public hospitals in Malaysia.

Results: The average age of the respondents was 66.69 years old, with an age range between 60 to 105 years. The findings reveal that the relationship between age and healthcare utilisation was mediated by health literacy.

Conclusion: The results help to improve the understanding of healthcare utilisation among the older persons in Malaysia, which is beneficial to the healthcare provider and policymakers.

KEYWORDS:

healthcare utilisation; health literacy; older persons

INTRODUCTION

The world population is ageing rapidly. In Malaysia, older persons are defined as those who are 60 years old and above, the cut-off age adopted by the United Nations (UN). The older persons account for 2.83 million (9.13 per cent) of Malaysia's total population of 31 million.¹ Malaysia will become an ageing nation in 2030, where 15 per cent of its population will consist of older persons.² The increasing number of older persons is contributed by lower fertility rate, longer life expectancy, and excellent public healthcare. This phenomenon brings a major impact on the social and economic health of Malaysia. Ageing is a matter of great challenge for the health sector as the ageing population will lead to the increase in demand for healthcare and social support, which may consume a large portion of fund allocation for healthcare services.³ This issue will subsequently be a significant challenge for the Malaysian healthcare system.⁴ The average outpatient visit by older persons is 5.92 visits per-year compared to only 4.1 visits per year for the rest.

Moreover, older persons have more hospital admissions (157 admissions per 1000 compared to 86 admissions per 1000 for the average population), and a longer length of stay than any other age groups.^{5,6} It is projected that about 40 per cent of the total healthcare expenditure is utilised by older persons, which amounts up to 9.32 billion a year.⁷ This led to an increase in complexity in the health services, as well as the increment of expenditure.

The significance of healthcare utilisation among older persons leads to the realisation of the importance of understanding the nature of healthcare utilisation. As population ageing is inevitable, study on the healthcare utilisation needs to be emphasised. However, healthcare utilisation among the older persons has not been sufficiently examined and adequately understood in Malaysia to grant justified explanation for healthcare providers and policymakers to plan appropriate strategies in overcoming issues related to the utilisation of healthcare resources. Although the study of healthcare utilisation has been of interest over the past decades, most researchers have paid a substantial amount of attention towards understanding the determinants of healthcare utilisation from individual's characteristics namely predisposing, enabling and need for care. Thus, there is a lack of empirical evidence in this area of study, and there is the need to close this gap by conducting further research in this subject. Apart from that, a growing body of literature linking health literacy to healthcare utilisation is available.

Health literacy is a recent concept that refers to how individuals with limited health literacy may find it challenging to utilise health services. This concept was explicitly mentioned as an area that has to take prioritised action for World Health Organization (WHO), European Commission's Health Strategy 2008-2013, and Ministry of Health Malaysia (Country Health Plan 2011-2015). For example, the enhancement of health literacy among Malaysian has become one of the focus of National Key Result Area (NKRA) in the health sector, which include the promotion of health literacy programmes for the population.⁸ Health literacy can be defined as personal, cognitive and social skills which determine the ability of individuals to gain access, to understand and use the information to promote and maintain good health.⁹ It emphasises on individual skills that are necessary to obtain, process, and understand health information and services in assisting individuals to make appropriate health decisions. Given the notion that health

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literacy may influence the utilisation of healthcare services this argument needs to be further validated.¹⁰ The effects of health literacy on health status and utilisation are suggested to be indirect, which possibly happen through conditions such as knowledge of diseases.^{11,12} Thus, it is expected that health literacy may demonstrate significant determinants of healthcare utilisation.

With 2030 looming closer, this phenomenon is not being given enough attention where the rapid increase is not in tandem with the resources required to cater to the care needs and services for older persons. Thus, a timely need for comprehensive research to be conducted. This study intends to fill the gaps in preceding healthcare utilisation studies. Based on the synthesis of available literature, the mediating variable of health literacy on the relationship between age and healthcare utilisation was examined.

MATERIALS AND METHODS

Design, Sample and Setting

A positivist approach was used to explore the relationship between variables. The study was primarily conducted via a survey among the older outpatients who were 60 years old and above in 14 public hospitals in Peninsular Malaysia. Upon approval from the Malaysia Research Ethics Committee (MREC) and the hospital directors, questionnaires were distributed to 500 respondents from 14 public hospitals in Johor, Negeri Sembilan, Kuala Lumpur, Selangor, Perak, Pahang, and Kelantan. One state hospital, one district hospital, one minor specialist hospital and one non-specialist hospital were randomly selected from each region. Nine out of 14 hospitals provide outpatient facilities within the hospital compound under the administration of the hospitals. However, five hospitals, specifically major specialist hospitals, did not have outpatient facilities as the patient must go to the health clinic, which is under the authority of the health state department for their medical treatment. The researcher was instructed by Clinical Research Centre (CRC) of the hospitals to conduct the research in outpatient specialist clinics such as general medicine department, general surgery department or respiratory medicine department in their hospitals. Purposive sampling was used in selecting the respondents. This process is based on the availability and agreement of respondents to participate in the survey without the need to choose the respondents systematically.

Data Collection Procedure

A few screening questions were asked to ensure that the respondents fulfilled the inclusion criteria. The following screening questions were asked before the respondents were given the questionnaires: 1) How old are you? 2) Do you live at home or in a care home/institution? Once the respondents satisfied all the above-mentioned criteria, only then the enumerators started the interview process. The whole structure of the study was explained to the respondents by providing an information leaflet with an invitation to participate in the study. They were further informed that their participation in this study is voluntary, and they can withdraw at any time. Other than that, they were also assured of the confidentiality, and that the findings will be presented anonymously. Those who agreed to participate

were asked to sign a consent form and complete the questionnaire. The administered survey which took 10 to 15 minutes was carried out in the waiting area while the patients waited to be called for consultation with their doctors. A total of 500 questionnaires were distributed to the respondents, and there were only 477 questionnaires that were returned to the researcher, which yielded 95.4% of the response rate. Out of 477 responses, the researcher had to discard 25 questionnaires. As a result, this study only used 452 responses in generating the profile summary and data reduction procedure.

Development of Instrument

The development of the research instrument for this study was based on the extensive review of literature by combining the existing validated measurement. The questionnaire, which consisted of three sections measuring demographic data, health literacy, as well as healthcare utilisation, was used to collect data. The participants were requested to complete the questions relating to their demographic backgrounds, such as age, gender, ethnicity, education level, income level, and accessibility to healthcare facilities. Health Literacy Management Scale (HeLMS) developed by Jordan and colleagues was used to operationalise health literacy.¹³ The HeLMS was designed to assess individuals' abilities as well as their broader social and environmental contexts to determine the overall capacity to seek, understand, and utilise health information within the healthcare settings. The study adopted five dimensions of health literacy, namely the knowledge to gain access to health information (I know where the doctor can be contacted, and I know how to get doctor's appointment), verbal communication (I ask the doctor questions to help me understand health information and I get the information I need when seeing a doctor), the need to be proactive (I change to a different doctor to get better care, and I get a second opinion about my health from a health professional) literacy skills (I read written information, e.g., leaflets given to me by a doctor, I read health information brochures found in hospitals or at a doctor's clinic), and skills to manage health (I use health information from doctor to make decisions about my health, and I follow instructions that a doctor gives me). The instrument consisted of 10 items with a five-point-Likert scale response ranging from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's alpha was calculated to examine the measurement reliability with the result of Cronbach's alpha is 0.82, suggesting that the measures were highly reliable.

In measuring healthcare utilisation, the respondents were required to recall the frequency of their healthcare utilisation in the earlier three months. One open-ended question which was "In total, how many times did you receive healthcare or consultation in the last three months?" was constructed by the researcher as it was stated that an open-ended scale that collects counts is the most flexible and allows for the count data model.¹⁴ The questionnaire was translated to the Malay language using a guideline for a cross-cultural adaptation and translation of a questionnaire.¹⁵

A pilot test was conducted among 30 older persons to test all the variables of the study after completing the instrument to ensure the individuals in the sample can understand the questions and capable of meeting the survey. The results and

Table I: Demographic profile of the respondents

	Frequency	Percentage	Mean	SD
Age				
60-74 years old (Younger Old)	400	89.5	66.69	6.078
75 years old and above (Older-old)	47	10.5		
Gender				
Male	210	47.0		
Female	237	53.0		
Ethnicity				
Malay	332	74.3		
Chinese	57	12.8		
Indian	58	13.0		
Education level				
No formal education	104	23.3		
Primary school	149	33.3		
Secondary school	152	34.0		
College/University	42	9.4		
Personal Income per month				
Less than RM1000	257	58.4		
RM 1001- RM2000	115	26.1		
RM 2001 and above	68	15.5		
Distance from the closest health facility				
Less than 10km	254	56.8		
11 to 20km	106	23.7		
More than 20km	87	19.5		
Healthcare Utilisation in the Last Three Month			1.96	1.41

Table II: Descriptive analysis of Health Literacy

	Mean	SD
Health Literacy	3.49	0.71
Knowledge where to access health	3.62	0.76
Application to manage health	3.38	0.79

Table III: t-Test results for association between Age group and Health Literacy

	Mean (SD)	t	p- value
60-74 years old (Younger old)	3.51 (0.72)	2.15	0.03
75 years old and above (Older-old)	3.28 (0.61)		

Table IV: Summary of mediating role of Health Literacy on the relationship between Age and Healthcare Utilisation

	Without Mediator	With Mediator	Conclusion
Age	-0.13**	-0.12*	Partial Mediator
Health Literacy		-0.14**	
R	0.13	0.19	
Adjusted R	0.02	0.04	
R square change	0.018	0.019	
F change	7.78	8.44	
Sig. F change	0.00	0.00	
Durbin Watson		1.75	

** Significant at the 0.01 level, * Significant at the 0.05 level

modification based on the pre-test and pilot test were used to generate the final version of the instrument for this study. Several concerns related to administration (time to complete the survey), organisation of the survey (the flow and order of the questions), and content of the questions (redundancy of item, confusing item, technical language, and jargon) managed to be identified during the pilot study.

RESULTS

Data were analysed using SPSS version 22.0. The hierarchical regression analysis was conducted to examine the mediating

effects of health literacy on the relationship between age and healthcare utilisation. Table I presents the demographic profile of the respondents. Based on the findings, the average age of the respondents was 66.69 years old (Standard Deviation, SD 6.08). With regards to the healthcare utilisation, the results revealed that older outpatients have an average of 1.96 visits to their healthcare providers in the last three months.

The factors measured by this scale are knowledge to access health and application to manage health. The HeLMS was computed, and the findings in this study revealed that the

respondents have a high level of health literacy. All items, when collapsed to form a single variable for health literacy, have a mean score of (Mean 3.49, SD 0.71). This indicates that the respondents have a high level of health literacy. As depicted in the table, knowledge to access health domain (Mean 3.62, SD 0.76) had a higher score compared to the application to manage health (Mean 3.38, SD 0.79). Table II presents the descriptive analysis of health literacy.

An independent sample t-test was computed to compare health literacy scores for respondents aged between two groups. The result of t-test as shown in Table III indicates that there was a significant difference in scores for the older persons age from 60-74 years old (mean 3.51, SD 0.72) and more than 75 years old group (mean 3.28, SD 0.61); $t(444) = 2.15$, $p=0.03$ which indicates that younger older persons experienced a higher degree of health literacy than the older group. The magnitude of the difference in the means (mean difference 0.235, 95% confidence interval 95%CI: 0.06, 0.19) was large (eta squared = 0.10).

Finally, Hierarchical Regression analysis was carried out to look into the mediating effects of health literacy on the relationship between age and healthcare utilisation.¹⁶ The first step indicates that age is a significant predictor of healthcare utilisation ($\beta = (-0.13)$, $p<0.01$). In Model one, the model was significant when age and healthcare utilisation were entered $F[(1,436) = 7.78, p<0.01]$, which explained 1.8% variance in healthcare utilisation scores.

Next, after entering health literacy at step 2, the total variance explained by the model was 3.2% $F[(1,435) = 8.44, p<0.01]$ and the introduction of health literacy explained an additional 1.4% variance in healthcare utilisation. The inclusion of health literacy as the mediator variable revealed that it was a partial mediator between age and health care utilisation ($\beta = (-0.132)$, $p<0.01$) where the beta value of age was reduced but still significant. Therefore, it is summarised that health literacy partially mediates the relationship between age and healthcare utilisation. Table IV exhibits the result of regression analysis.

DISCUSSION

This study aimed to identify the mediating effect of health literacy on the relationship between age and healthcare utilisation. Health literacy is a significant lever to help individuals assume responsibility for their health. The findings indicated that health literacy mediated the relationship between age and healthcare utilisation. The result showed that the older persons score higher on knowledge to access health compared to the application to manage health. This signifies that the older persons know how to access healthcare services. Even though they know how to access healthcare, they are nevertheless less likely to apply the knowledge in managing their health. In relation to age, the finding reveals that younger older persons experienced a higher degree of health literacy compared to the older-old group. This finding is supported by results from previous studies on health literacy.¹⁷⁻²⁰ This may be explained by the fact that older adults had fewer opportunities for education in the past. However, this trend has improved dramatically over the years. Nowadays, younger older persons are better educated and more likely to possess

different knowledge and ideas about old age than their predecessors.

In understanding the role of health literacy in healthcare utilisation, this study examined the relationship between health literacy and healthcare with those of previous studies, which found that health literacy is correlated with healthcare utilisation.²¹⁻²³ A previous study found that health literacy associates with outpatient visits and hospitalisation. The low level of health literacy increases difficulties in taking medications and interpreting medication labels and health information, which may reflect in higher hospitalisations.²⁴⁻²⁶ Besides, people with low health literacy are more likely to have more inferior health status and higher mortality rates which lead to greater use of healthcare services such as consultations, outpatient visits, and hospitalisation.^{24,27-29} Moreover, individuals with low health literacy are less likely to participate in preventive services as well as poorer medication adherence.^{28,30}

The mediating role of health literacy was evidenced between age and healthcare utilisation. Consistent with the published reports on the association between age and healthcare utilisation.³¹⁻³⁴ The result of this study confirms that age is a predictor of healthcare utilisation. Also, in accordance with the literature the present study confirms that age is associated with health literacy.³⁵⁻³⁷ This study also finds that health literacy is associated with healthcare utilisation, which is in line with past research.³⁸ The mediation analysis reveals that health literacy partially mediates the relationship between age and healthcare utilisation.

CONCLUSIONS

The escalation of healthcare costs due to an ageing population is becoming a major concern. However, few research on healthcare utilisation among older persons in Malaysia. In response to this scenario, the present study has investigated the determinants of healthcare utilisation among older persons in Malaysia. Drawing on the context of health literacy, the findings of this study shed further light on the importance of psychological aspects that predicts healthcare utilisation. Moreover, this study has confirmed that health literacy is a predictor to healthcare utilisation among older persons.

This study has limitations in several aspects. The generalizability of the results focuses only on the older persons in peninsular Malaysia without considering the older persons in the states of Sabah and Sarawak. Therefore, future study should bridge the gap of this limitation. The research approach was deductive, which begins with a theory, developing hypotheses from that theory, followed by collecting and analysing the data to test the hypotheses. This approach restricted the researcher to understand what is going on, or what is perceived to be going on, in the health care setting.

The findings of this study can assist healthcare providers in planning strategies and programmes to encourage older persons to utilise healthcare services. Besides, the results will help the health planner to establish the provision of specific facilities to ensure the care and protection of older persons.

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