The Covid Impact to Public Healthcare Utilization Among Urban Low-Income Subsidized Community in Klang Valley Malaysia

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Abstract

Background: Appropriate level of healthcare utilization is one of the aims in translating health system inputs into improving the outcome of population health. Healthcare utilization services in Malaysia remains relatively low as compared to the rate in most high-income countries and some gaps exist across socioeconomic status. After the financial handouts deemed Household Living Aid (HLA) to low-income earners, Malaysia has recently implemented a financial health protection scheme toward for low-income group known as PeKa B40 to improve their access for healthcare services. This study aims to determine the healthcare utilization among the low-income population living in urban Klang Valley, and to explore the relationship between healthcare utilization with the demographic characteristics of this population.

Material and Methods: A cross-sectional study using face to face structured questionnaire. All 447 respondents included were low-income earners enrolled in the HLA. Chi-square analysis and multiple logistic regression were used to examine association between the risk factors and healthcare utilization.

Results: The response rate was 93.5%. The healthcare utilization among the respondents during the partial lockdown period was 19.5% and 33.1% during the recovery lockdown period. Enrollment in the PeKa B40 scheme among the 7.6% respondents was not associated with healthcare utilization. After controlling for the variables, those aged 60 years and above [AOR: 1.87; 95% (CI): (1.07; 3.27)], self-rated poor health status [AOR: 2.16; 95% (CI): (1.07; 4.34)], having NCDs [AOR: 4.21; 95% (CI): (2.23; 7.94)], and being hospitalized in the past 12 months [AOR: 3.54; 95% (CI): (1.46; 8.62)], were more likely to utilize healthcare services as compared to their counterparts.

Conclusion: The results from this study is valuable for policy recommendations to improve on the coverage of the PeKa B40 scheme and healthcare access for the low-income population especially during the pandemic.

Keywords
community health, access to care, health outcomes, low-income population, healthcare utilization

Introduction

Healthcare utilization describes the use of services by people for the purpose of preventing and curing health problems.[1] It is primarily determined by the need for service, the availability of services, and the resources available in providing the services. Health service utilization is one of the health outcome indicators that influence the outcomes of population's health status.[2] Health policy makers have an important role to ensure equal access to the healthcare system. Malaysia has continuously emphasized to ensure access to quality healthcare services

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across all communities. Presently, rising healthcare costs faced by most developing countries has put more constraints on the public sector. Therefore, increasing the gap of inequity between the rich and the poor groups. Poverty and low-income status have been associated with a variety of adverse health outcomes as they have restricted access to healthy food and quality living environment.[3] The low-income community has higher need for healthcare services especially with the rising prevalence of chronic illnesses and non-communicable diseases (NCDs). Utilization of health services in Malaysia remains relatively low compared to the rate of utilization seen in most high-income countries.[4] The prevalence of outpatient healthcare utilization in Klang Valley was rather low at 6.2% as compared to the national level at 8.1%.[5] The area of Klang Valley has shown a significant inequality in term of public and private healthcare utilization. The government healthcare facilities were in favor for the low income community, while the private healthcare facilities were in favor for the higher income groups.[6]

On top of rising prevalence of NCDs, Malaysia like other countries worldwide also faced the pandemic of a novel coronavirus disease (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) since December 2019. People of all ages can be infected by the new coronavirus and the risk of becoming severely ill with the virus appears to increase on older people aged 60 years and above. It was also reported that people with pre-existing NCDs were more vulnerable to becoming severely ill with the virus. A systematic review on the prevalence of comorbidities in the SARS-CoV-2 infected patients shown that the most prevalent comorbidities were hypertension and diabetes followed by cardiovascular disease and respiratory system disease.[7]

In order to control the severity of COVID-19 infection in Malaysia, the Movement Control Order (MCO) was implemented by the Prime Minister from 18 March 2020 till May 2020.[8] It was later extended into the several different phases including recovery phase from June until the end of December 2020. The MCO or often referred to as partial lockdown, signifies a major step taken by the Malaysia Government to contain the pandemic. Businesses were closed except for those providing essential services. The order also restricted cross district and state travel, limited business hours, complete prohibition of large gathering across country, and 14-days quarantine for those returning to Malaysia.[9] The MCO implementation was reviewed on a regular basis and adjustments were made in phases in accordance to pandemic progress. Only 2 persons from the same household allowed to travel for groceries and essentials within 10 km radius. Schools and non-essential business were closed to break the chain of COVID-19 infection and to flatten the epidemiology curve.[10] The police, armed forces, civil defense force, and the paramilitary civil volunteer corps were mobilized to enforce the MCO and to help with the supply logistics of medicine and medical equipment.[11] During the recovery MCO period, the 10 km travel restriction, and limitation of 2 persons per household to go out were lifted. Business and other economic activities started to function with

adherence to procedures under strict monitoring by the authorities.[12] It seems difficult for the government to lift up the recovery MCO anytime soon due shortages of screening test, numbers of healthcare personnel and the ability to detect close contact of COVID-19 in the community.[13] Small and medium-size enterprizes were heavily affected as many need to be retrenched and many workers were terminated.[14] Social distancing measures, fear of contracting the disease as well as economic hardship during the MCO and recovery MCO COVID-19 pandemic might lead to some people having difficulties in accessing healthcare services either for treatment or follow up appointment. The difficulties were more amplified on those older people and low socioeconomic status.

In Malaysia, measuring household income is used as a dimension for socioeconomic status. In 2019, the Bottom 40 percent (B40) group comprising of 2.91 million households from total of 6.4 million household in Malaysia explained as those by the growth rate in the welfare aggregate of bottom 40 percent.[15] In this study, the B40 group has been categorized as the lowest household income group in which they are measured as a unit that earn a household income of less than MYR 4,850 (with currency rate of USD 1,177.18, exchange rate of 1 USD = MYR 4.12 in the year of 2019) per month.[15] The rapid growth of economy in Malaysia with increasing cost of living is believed to have an impact especially among the B40 group. Currently, Malaysia is no longer just dealing with absolute poverty, but also with relative poverty, pockets of persistent poverty, the traditional rural poverty and urban poverty, and increasing inequalities.[16] Socioeconomic problems, health and food insecurity continue to be the problems for the low income or B40 group. This group of population has been the main target group by the government in helping them to increase their economy, income, and health status.[17] Household Living Aid (HLA) is an aid given in cash semiannually from the Government intended for the B40 receivers. In addition, the B40 households also received electric rebate, public transportation passes, and back to school aids.[18] To provide health equity and equal access to healthcare for the B40 group, the government has implemented a subsidiary financial protection plan known as PeKa B40. This plan benefited B40 group aged 40 years and above by enabling them undergoing health screening for non-communicable diseases, cancer treatment, and providing incentives for medical equipment up to MYR 20,000 (USD 4,854. 37). PeKa B40 was started as a pioneer project with MYR 100 million (approximately USD 25 million) and estimated to sustain 800, 000 recipients from the B40 group.[19] Since this was a new incentive by the government, there is therefore a limited statistical evidence of the association between the government plan enrollment and healthcare utilization. An important related issue is whether enrollment in the plan provides adequate financial protection and increases utilization of healthcare services among the low-income households. In this paper, we aim to determine the percentage of healthcare utilization among the low-income population (B40 group) aged 40 years and above living in urban area in Klang Valley, the use of PeKa B40 among the intended population, and to explore the

relationship between healthcare utilization with the demographic characteristics of this population.

Methods

Study Design and Data Collection

This was a cross-sectional study, using a face to face structured questionnaire conducted from August until November 2020 in Klang Valley. Geographically, Klang Valley is an urban area in Malaysia that is centered in Kuala Lumpur and towns in Selangor. In 2011, the out of pocket per capita health expenditure in Kuala Lumpur and Selangor was at MYR 1,132.84 (USD 274.96) which was higher than the national level at MYR 606.92 (USD 147.31).[20] Respondents living in Klang Valley aged 40 years and above from the B40 group were selected by convenience sampling as they are entitled for the HLA and the subsidiary health protection scheme by the government, PeKa B40. All available respondents were approached until we achieve the total sample size during the data collection period. The sample size was calculated by using a single proportion formula prevalence estimation. The sample calculation was based on variance of the variable of interest, confidence interval of 95% and 5% precision level. Based on the data from the National Health and Morbidity Survey (NHMS) 2015,[21] the rate of healthcare utilization by the B40 group was at 45.5 percent. A minimum of 382 respondents were required. After adjusting with 20% non-response rate, the calculated sample size was 478.

Materials and Study Tools

The questionnaire was adopted for the recent National Health and Morbidity Survey (NHMS) 2019. Information sheet and consent form were given to the respondents prior to the interview. The questionnaire asked the respondents if they have had an outpatient visit for treatment or follow up checkup with a public doctor in either a health clinic or hospital during the 3 months of lockdown MCO period in March to May 2020, and the latest 3 months during the recovery MCO period starting from June 2020. The respondents were asked to recall the healthcare service utilization and the frequency of their visit to the healthcare facilities in the last 3 months from the time of interview to ensure that a reasonable amount of time was present for an individual to recall one's health status and to allow for collection of an adequate amount of healthcare utilization data in accordance to Desikan et al., 2002.[22] The outcome variable of interest of this study was the utilization of outpatient or emergency department, or follow-up visit, or checkup to any health clinics or hospitals. If the respondent had used any of the services, they were categorized as "utilize healthcare services." Respondents who did not use any of the services was coded as "non-utilize healthcare services." In this study, the need factors include self-rated health status, NCDs status (Diabetes, Hypertension, Heart Disease, Cancer, Mental Health, others) smoking status (Yes and No), and hospitalization (Yes and No)

within the past 12 months. The question used to determine self-rated health status was "*In general, how was your health during the MCO period?*" and the response categories were "good," and "poor." Respondents were asked if they have any NCDs diagnosed by a doctor. For smoking status, the question used was "*Do you smoke either cigarette, e-cigarette, or both?*" For hospitalization within the past year, the question was "*In the last 12 months, have you had overnight stay for treatment?*"

The enabling factors refer to the means to obtain healthcare services such as household income, health insurance, and distance to healthcare facilities. The respondents were asked about their working status, and to estimate their distance from health facilities, monthly income, monthly expenditure, and health financial protection plan status. Several types of health financial protection plan were available for the B40 group including government guarantee letter or pension card, government specific health funds, employer-sponsored health insurance, Social Security Organization (SOCSO) funds, and personal health insurance.[5] Respondents were asked if they have any of the plans. In this study, we also analyzed those who received PeKa B40 as the main exposure of interest. The respondents were also asked about their accessibility to healthcare facilities during the MCO COVID-19 period. The question asked was "*How would you rate the access to clinic/ hospital for your treatment or follow-up during the MCO period?*" The responses were ordinal in nature and in Likert format, i.e. "very good," "good," "fair," "poor," and "very poor." For analysis, the responses were categorized into "good," and "poor."

Predisposing factors include age, sex, marital status, and education level. Age in years were later categorized into "40-59" and "$\geq$ 60" for analysis. Marital status categories were "married," and "single/divorced/ widowed." Education level was categorized into "no formal education," "primary education," and "secondary or higher education."

Statistical Analysis

The distribution of each variable was examined to gain an understanding of the study population characteristics. Data normality was tested using Shapiro-Wilk test. Descriptive analysis of continuous and categorical variables was estimated using means and proportions respectively. Bivariate analysis of respondent characteristics and the use of healthcare services was conducted by using Pearson Chi-square test. However, because differences in the measure of utilization of healthcare services may be affected by variables other than PeKa B40 scheme, multivariable analysis was conducted. The multivariable analysis was based on Binary Logistic Regression Model to control for the potential confounding effects of the need factors, enabling factors, and predisposing factors deemed as potential confounders from literature. Since the main objective was to provide a valid measure of effect between the government health plan, PeKa B40 (main exposure variable) and the outcome variable adjusted for several independent variables, we did not assess interaction effects of these variables. From simple logistic regression analysis, variable name "own at least

1 type of financial health protection scheme," "sex," "age," "marital status," "education level," "working status," "monthly household expenditure," "self-rated health status," "NCDs status" and "hospitalized in the past 12 months" (p-value < 0.25) were included for further multiple logistic regression analysis. Method of forward LR logistic regression was performed prior to final model analysis. Variables with p-value < 0.05 were included into the final model and multiple logistic regression as performed by using the Enter Method. Then, model fitness was checked by using Hosmer-Lemeshow Goodness-Of-Fit test. Adjusted odds ratio was used to determine the strength of association between the dependent and independent variables. Multicollinearity of this data was tested by using 2 methods which are the variance inflation factor (VIF) and the correlation matrix. All analysis was done by using SPSS Statistical Software version 26 with p-value of < 0.05 is considered as statistically significant and were discussed.

In checking for errors, the distribution of each variables was checked. For categorical variables, we checked that all observations relate to allowed categories, and that the frequencies in each category make sense. For numerical variables, histograms were used to check for outliers that look extreme relative to the rest of data.

Results

Total of 447 respondents from 478 were successfully interviewed giving the overall response rate of 93.5%. Table 1 shows the frequency distribution among the B40 aged 40 year and above in Klang Valley. Results shown that a total of 19.5% of the respondents utilized healthcare services during the MCO COVID-19 period and 80.5% of the respondents non-utilized healthcare services. Meanwhile, a total of 33.1% of the respondents utilized healthcare services after the MCO period and 66.9% non-utilized healthcare services. In term of direct healthcare expenditure, the average spending for healthcare during the 3 months of MCO period was lower at MYR 47.63 $\pm$ 76.81 (USD 11.56 $\pm$ 18.64) as compared to the average spending for healthcare in the past 3 months after MCO period that was at MYR 83.82 $\pm$ 155.50 (USD 20.34 $\pm$ 37.74). A total of 45.4% of the respondents have at least 1 type of financial health protection scheme. Only 13.6% of the respondents were covered by the government health plan and among them only 7.6% were covered under the PeKa B40 scheme. 27.3% of the respondents were covered under the employer insurance scheme, 9.8% under the SOCSO fund, and 13.6% were covered under the personal health insurance.

The proportion of male to female respondents was 52.3% and 47.7% respectively. The mean age of the respondents was 55.8 $\pm$ 9.9 years old. In term of ethnicity, the predominant ethic group was Malays (91.9%); the other 8.1% consisted of Indian, Chinese, and Others. Most respondents (76.7%) have secondary or higher education level. About 53.0% of the respondents were unemployed and 47.0% were employed during the MCO and post MCO period. The average monthly household income of

Table 1. Characteristics of the Respondents (HLA Recipients) in Klang Valley.

Variable (n = 447)	n	%
Sex		
Male	234	52.3
Female	213	47.7
Age (years)		
40-59	301	67.3
≥ 60	146	32.7
Marital status		
Married	365	81.7
Single/ Divorced/ Widowed	82	18.3
Race		
Malay	411	91.9
Others	36	8.1
Education level		
No formal education	10	2.2
Primary	94	21.0
Secondary or higher	343	76.7
Working status		
Unemployed	237	53.0
Employed	210	47.0
Monthly household income (USD)		
≤ 606.80	371	83.0
606.80-1,177.18	76	17.0
Monthly household expenditure (USD)		
≤ 121.36	248	55.5
>121.36	199	44.5
Distance from health facilities (km)		
≤ 10	366	81.9
≥ 11	81	18.1
Accessibility to healthcare facilities		
Poor	26	5.8
Good	421	94.2
Own at least 1 type of financial health protection scheme[1]		
No	244	54.6
Yes	203	45.4
PeKa B40 health scheme		
No	413	92.4
Yes	34	7.6
Self-rated health status		
Poor	46	10.3
Good	401	89.7
NCDs status		
None	246	55.0
Yes	201	45.0
Smoking Status		
No	300	67.1
Yes	147	32.9
Hospitalized in the past 12 months		
No	421	94.2
Yes	26	5.8

[1]This include government guarantee letter/ pension card, government specific health funds, employer sponsored plan, SOCSO, and personal health insurance. Details as in Figure 1.

the respondents was MYR 1,883.63 $\pm$ 1,316.27 (USD 457.19 $\pm$ 319.48). The average monthly household expenditure for the respondents was MYR 643.42 $\pm$ 425.88 (USD 156.17 $\pm$ 103.37). Around 94.2% of the respondents rated to
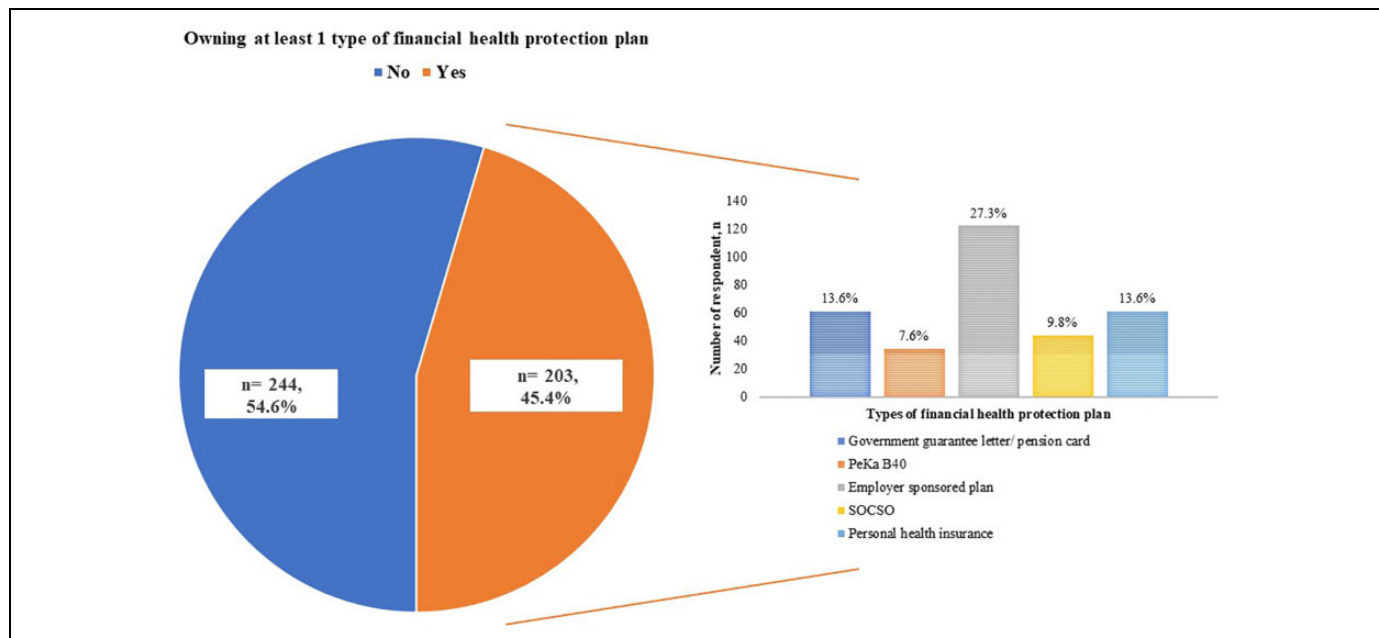
Figure 1. Details of types of financial health protection plan among the respondents.

have good accessibility to healthcare facilities while only 5.8% rated to have poor accessibility in term of transportation, cost, and facilities' location.

In general, the data showed a generally healthy population. 89.7% of the older adults and elderlies rated their health status as good and 10.3% rated poor health status. Almost half, 45.0% of the respondents have at least 1 type of non-communicable diseases that include hypertension, diabetes, cardiovascular disease, mental health, cancer, and other NCDs and 55.0% of them did not have any NCDs. In addition, 32.9% of the respondents were smokers either cigarette, e-cigarette/ vape or both. In term of inpatient treatment, 5.8% of the respondents have had overnight stay for treatment in the past 12 months and 94.2% of them did not have any overnight treatment for the past 12 months.

Table 2 shows the results of bivariate analysis of respondent characteristics and the use of healthcare services by using Pearson Chi-square test. From the analysis, having at least 1 type of financial health protection scheme has shown association with healthcare utilization. In general, female, aged 60 years old and above, single/ divorced/ widowed, lower educational level, not working, poor health status, non-smoking, and being hospitalized in the past 12 months were associated with the use of healthcare services.

Table 3 shows the results of the multivariable logistic regression. Crude odds ratio, adjusted odds ratio and 95% confidence intervals are presented as in the table. Based on the simple logistic regression analysis, there was no significant association between PeKa B40 enrollment and utilize healthcare services. Thus, the variable was not included for multiple logistic regression analysis. Based on the final model for multiple logistic regression analysis, the factors associated with healthcare utilization among the B40 group aged 40 years and above in Klang Valley were age, self-rated health status, NCDs, status, and inpatient treatment status in the past 12 months. After controlling for the variables, those aged 60 years and above [AOR: 1.87; 95% (CI): (1.07; 3.27)] were more likely to utilize healthcare services as compared to those aged 40-59 years old. Those who self-rated poor health status [AOR: 2.16; 95% (CI): (1.07; 4.34)], having NCDs [AOR: 4.21; 95% (CI): (2.23; 7.94)], and being hospitalized in the past 12 months [AOR: 3.54; 95% (CI): (1.46; 8.62)], were more likely to utilize healthcare services as compared to their counterparts. This model showed a good fit and had a pseudo R^2 of 0.26.

Discussion

To the best of our knowledge, this is the first study to investigate the healthcare utilization among the HLA recipients of the B40 population in Klang Valley and its associated factors during the MCO COVID-19 period. On the national level, according to the National Health and Morbidity Survey (NHMS) 2019, 8.1% of B40 household in Malaysia had received outpatient healthcare in the last 2 weeks prior to the interview for the NHMS. [5] Based on our study, 19.5% of the respondents had utilized healthcare services during the MCO COVID-19 period and 80.5% non-utilized healthcare services. This is somewhat lower as compared to recovery MCO period where 33.1% of the respondents utilized healthcare services. Overall healthcare utilization was still low after the MCO period. This itself must be further research as low utilization of existing healthcare facilities would bring about profound health consequences. Based on our findings, 34.8% of the respondents who have at least 1 type of NCDs diagnosed by doctor and need for routine checkup or treatment utilized the healthcare services during the MCO period. Meanwhile, 57.7% of the respondents with NCDs

Table 2. Cross-Tabulation of Respondent Characteristics and Healthcare Utilization Among the B40 Group Aged 40 Years and Above in Klang Valley Based on Chi-Square Test.

Variables	Total respondent	Respondents utilize healthcare services		Respondents non-utilize healthcare services		X^2 (df)	p-value
		n	%	N	%		
Sex							
Male	234	35	15.0	199	85.0	6.36 (1)	0.012*
Female	213	52	24.4	161	75.6		
Age (years)							
40-59	301	36	12.0	265	88.0	33.10 (1)	<0.001*
≥ 60	146	51	34.9	95	65.1		
Marital Status							
Married	365	63	17.3	302	82.7	6.16 (1)	0.013*
Single/ Divorced/ Widowed	82	24	29.3	58	70.7		
Race							
Malay	411	81	19.7	330	80.3	0.20 (1)	0.659
Others	36	6	16.7	30	83.3		
Education level							
No formal education	10	3	30.0	7	70.0	7.62 (2)	0.022*
Primary	94	27	28.7	67	71.3		
Secondary or higher	343	57	16.6	286	83.4		
Working status							
Unemployed	237	63	26.6	174	73.4	16.31 (1)	<0.001*
Employed	210	24	11.4	186	88.6		
Monthly household income (USD)							
≤ 606.80	371	72	19.4	299	80.6	0.00 (1)	0.947
606.80-1,177.18	76	15	19.7	61	80.3		
Monthly household expenditure (USD)							
≤121.36	248	55	22.2	193	77.8	2.62 (1)	0.106
>121.36	199	32	16.1	167	83.9		
Distance from healthcare facilities (km)							
≤10	366	71	19.4	295	80.6	0.01 (1)	0.942
≥11	81	16	19.8	65	80.2		
Accessibility to healthcare facilities							
Poor	26	4	15.4	22	84.6	0.29 (1)	0.588
Good	421	83	19.7	338	80.3		
Own at least 1 type of financial health protection scheme							
No	244	56	23.0	188	77.0	4.17 (1)	0.041*
Yes	203	31	15.3	172	84.7		
Utilized PeKa B40 scheme							
No	413	80	19.4	333	80.6	0.03 (1)	0.863
Yes	34	7	20.6	27	79.4		
Self-rated health status							
Poor	46	22	47.8	24	52.2	26.32 (1)	<0.001*
Good	401	65	16.2	336	83.8		
NCDs status							
None	246	17	6.9	229	93.1	54.99 (1)	<0.001*
Yes	201	70	34.8	131	65.2		
Smoking Status							
No	300	68	22.7	232	77.3	5.97 (1)	0.015*
Yes	147	19	12.9	128	87.1		
Hospitalized status in the past 12 months							
No	421	71	16.9	350	83.1	31.18 (1)	<0.001*
Yes	26	16	61.5	10	38.5		

* p-value < 0.05.

utilized the healthcare services post MCO period. This shown that the movement control order has somewhat restricted the access to healthcare facilities among the B40 group aged 40 years and above in Klang Valley. Other countries such as Singapore [23,24] and Hong Kong [25] have shown similar findings where the healthcare utilization were lower during the pandemic COVID-19. Study in US populations also shown that patients significantly reduced use of preventive and elective

Table 3. Comparing Differences Between Crude Analysis (Simple Logistic Regression) and Adjusted Analysis (Multiple Logistic Regression) on Factors Associated With Healthcare Utilization Among the Respondents.

Variable	Crude OR	Adjusted OR	P-value	95% CI
Age	3.95	1.87	0.029	(1.07; 3.27)
Self-rated health status	4.73	2.16	0.031	(1.07; 4.34)
NCDs status	7.20	4.21	<0.001	(2.23; 7.94)
Hospitalized in the past 12 months	2.07	3.54	0.005	(1.46; 8.62)

Pseudo R^2—0.26.

care and increased used of telemedicine.[26] Policy makers should explore the possibility of online consultations or expending the coverage of mobile clinics to ensure access to healthcare services for the population during the pandemic. In addition, study has shown that the online clinical consultation in China met the increased demand of the relevant clinical services and reduced the overwhelming hospital presentations. [27]

All our study respondents are recipients for the HLA, a financial assistance by the government aimed to reduce the financial burden of the B40 group in Malaysia. Technically, according to the policy, all respondents are entitled for the PeKa B40 health protection scheme as well.[19] However, based on our data, only 7.6% of the respondents were currently enrolled in PeKa B40 scheme. A total of 45.4% of the respondents were covered by at least 1 type of financial health protection scheme that includes the government guarantee letter/pension card, employer-sponsored insurance, SOCSO medical fund, or personal health insurance. This study has provided important information regarding the coverage of the PeKa B40 scheme. The low number of PeKa B40 enrollments might be due to the strict administrative procedure of the plan, limited awareness, and limited understanding about the scheme among the respondents. Although the Ministry of Health has several programs to promote the plan, they were probably insufficient and do not meet the target planned. Further study needs to be done to determine the factors associated with the low number of coverages among the B40 groups to ensure maximum coverage, optimizing the benefit packages of PeKa B40 scheme, and to help the poor population in overcoming financial difficulties in accessing healthcare services and the unexpected event of critical illness. Financial difficulties in accessing healthcare services especially among the B40 group could expose the household to catastrophic health expenditure. Catastrophic expenditure occurs in the form of high out-of-pocket spending on healthcare and could be contributed by poverty, type of illness, and lack of health insurance. [28] A study conducted among Ministry of Health hospitals, public university hospital, and private hospitals shown that cancer patients may not fully protected against financial hardship, even in settings with universal health coverage mainly contributed by nonmedical costs as important driver of financial toxicity in these settings. [29]

Based on the results, the age was significantly associated with healthcare utilization. This shows as the person gets older, the probability of utilization increases. Based on morbidity patterns and healthcare utilization among older people in Malaysia, increasing trends of health problems and healthcare utilization were observed since 1996 to 2015. The study also noted increasing trends in the prevalence of diabetes, hypertension, hypercholesterolemia, and obesity. [30] This condition may be caused by various factors, such as developing chronic diseases, comorbidities, or other health needs associated with aging such as fall and dementia. Prevalence of chronic pain increased with advancing age. [31,32] Study conducted among elderly population in Malaysia in 2006 showed that the prevalence of chronic pain among elderly Malaysian was 15.2% and was significantly associated with the increased frequency of hospitalization.[33] This is consistent with other study that shown elderly patients in Malaysia have higher healthcare utilization as compared to younger age groups.[34] The result suggested that the policymakers should plan for appropriate resources to meet the challenges of an aging population in Malaysia and focusing on improving geriatric care services, and access to quality healthcare for the elderly groups.

The effect of smoking was not significantly associated with healthcare utilization. In this study, smoking status were a proxy for health-seeking behavior. We presumed that those who are smoking have negative attitude toward healthcare consumption and hence underutilize the healthcare services. In this study, we have found that the other need factors which were NCDs status, self-rated health status, and inpatient status were significantly associated with healthcare utilization. In general, those rated poor health status were more likely to utilize healthcare services as compared to those with good health status. Consistent with other studies, older adults and elderlies with a worse self-rated health status, higher number of chronic conditions, and were admitted for inpatient treatment were more likely to utilize healthcare services. [6,35-38] The presence of chronic conditions usually associated with decrease body function, was the most common predictor of healthcare utilization among the older adults and elderlies. To deal with the increasing prevalence of NCDs among the older adults and elderlies, the Ministry of Health Malaysia has initiated programs to improve the health status of the general population focusing on healthy diet and physical activities, enhancing primary healthcare care, and community empowerment by the KOSPEN program that provides health screening and health promotion by the local communities. Community health workers interventions have shown to improve health outcomes of patients from underserved communities.[39] Healthcare

providers with greater cultural competence and preparedness serve as patient advocates, bridging cultural and social gaps between patients and healthcare providers have more positive expectations to reduce healthcare disparities.

Strength and Limitation

In this study, convenience sampling was used for data collection. All eligible B40 aged 40 years and above that were available during the data collection period were approached for interview. Hence, the generalizability of research finding ought to be interpreted accordingly. For future study and improvement of this study, random sampling could be done by obtaining the list of names of HLA recipients from the relevant ministry as the study sampling frame. The sample was predominantly from a single race, Malays. More comprehensive sampling would be required for future studies. More research is needed to understand factors associated with healthcare utilization particularly among the low-income household.

Conclusion

Understanding factors that affect healthcare utilization by the low-income population is important for the health system to be more responsive in providing care. The factors identified as being significantly associated with healthcare utilization among the B40 aged 40 years and above in Klang Valley included age, self-rated health status, NCDs status, and inpatient status. This information will guide policy intervention and the population which will benefit from the health packages. Collaboration across government and non-government agencies and public and private healthcare providers should be encouraged to ensure the optimization of human resources, as well as ensuring the coverage for healthcare services for the B40 population.

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