

DEMOGRAPHIC AND SOCIOECONOMIC FACTORS ASSOCIATED WITH ACCESS TO PUBLIC CLINICS

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Abstract

Introduction: Providing adequate and equal access to healthcare is a key goal towards achieving universal health coverage. However, social and demographic inequalities in accessing health care services exist in both developed and developing countries. This study examined the demographic and socio-economic factors associated with the lack of access to public clinics in the Greater Kuala Lumpur area.

Materials and Methods: The study employed a survey involving 1032 participants. Data were collected using self-administered questionnaires distributed between October and December 2015 in the Greater Kuala Lumpur area.

Results: Of the 1032 participants, 535 were public clinic users. A quarter (25.8%) of the users stated that they did not have access to public clinics in their residential area. A multiple logistic analysis showed that the elderly, the women, those from ethnic minority groups, those of lower family income, and the private sector workers were more likely not to have access to public clinics than their counterparts.

Conclusions: The existing level of accessibility to public clinics could be improved by increasing the number of clinics. Clinics should be established to focus more on reaching the elderly, the women, the ethnic minority groups, the poorer families, and the private sector employees.

Keywords: *Logistic regression, Malaysia, methods, policy, women*

Introduction

Malaysia has an estimated population of 31.7 million (1), with an annual per-capita GDP of 10,876 USD in 2015 (2). The country is ranked among the rapidly developing economies and is expected to become a member of the developed world. Along with the economic development,

the health indicators have also markedly improved during the past few decades. Life expectancy at birth has increased from 59.5 years in 1960 to 74.8 years in 2015 (2) (see Figure 1). Despite these advances, however, the Malaysian healthcare system and health outcomes remain in need of improvement (3–5).

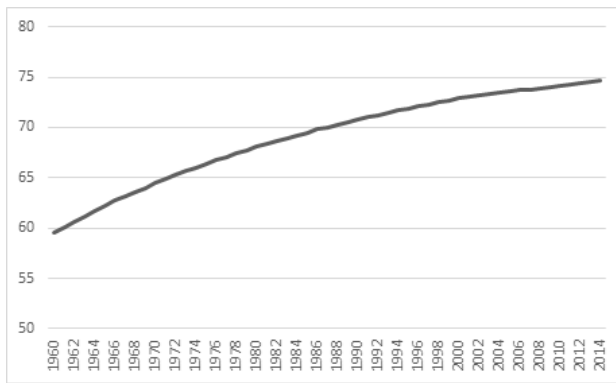


Figure 1: Life expectancy of Malaysians at birth, 1960-2014 (Data was retrieved from World Development Indicators, World Bank)

In Malaysia, both the public and the private sectors provide healthcare services. The public clinics are fully funded by the government, while the provision of services at private clinics is on a fee-for-service basis. There were about 6675 private clinics and 1025 public clinics-in Malaysia in 2012 (6) (see Figure 2).

The public sector was the focal healthcare provider in Malaysia before 1995. This changed with the implementation of the private healthcare policies in the mid-1990s, aimed at improving the efficiency of the Malaysian healthcare system. The share of public healthcare expenditure declined from about 80–90% in the 1980s and early 1990s to stabilise at around 55% between 1997 and 2014 (3,5). Although there was significant participation of the private sector in the provision of healthcare during the past two decades, public healthcare remained the prime provider, especially for the low- and low-to-middle-income groups.

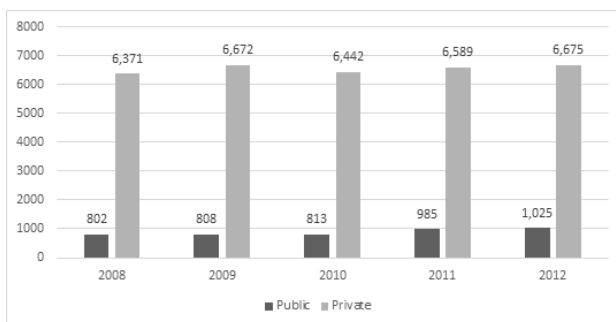


Figure 2: Number of public and private clinics in Malaysia, 2008-2012 (Department of Statistics, Malaysia)

Primary healthcare aims to provide care where the service is needed (7). It should be provided equally for all. However, there are social and locational disparities in access to primary health care in both developed and developing countries (7). The lack of access to primary health care directly affects health outcomes by increasing morbidity; and the lack of access to primary care leads to poor access to secondary care, increasing mortality rates (7). Studies

have revealed that demographic and socio-economic factors of age, gender, ethnicity, economic status, social status, and employment, influence access to health care (7–14). These studies found that the elderly, the women, those of lower income, as well as the ethnic minority groups had less access to care than their counterparts. This study surveyed the demographic and socio-economic characteristics that influence accessibility to public clinics among users living in the Greater Kuala Lumpur area.

Materials and Methods

To achieve the objectives of the study, a survey was conducted between October and December 2015 in the Greater Kuala Lumpur area of Kuala Lumpur and its suburbs. A month before the survey, 50 questionnaires were distributed in a pilot study. The final version of the self-administered questionnaire was then printed and distributed to participants by convenience sampling, a method of random data collection. Participants were approached in residential areas and public clinics.

The sample size was calculated with the expectation that 50% of respondents would be public clinic users and that 50% of these users would have access to public clinics in their residential areas. For a confidence interval of 95% and a 5% precision level, a minimum of 768 respondents with 384 public clinic users was required to meet the objectives of the study (15). Although a larger sample was preferable, the time and cost needed for data collection were key factors in determining the sample size (15). With the available resources, 1200 questionnaires were distributed, of which 1032 were completed and returned, yielding a response rate of 86%. The questionnaire first asked the respondents to fill in their demographic and socio-economic particulars. Next, to distinguish public clinic users from non-users, respondents were asked about their frequency of using public clinics during the past five years. Respondents who had used public clinics during the past five years were considered to be users, whereas those who had not were tagged as non-users. To assess the accessibility of public clinic subjectively, the respondents were asked the following question: ‘Do you have access to any public clinic nearby your residential area?’ This provided the outcome variable of the study. Of the 1032 participants, 535 (51.8%) were found to be public clinic users. The data from these 535 public clinic users were then analysed. Hence, in this paper, the term ‘respondents’ referred only to these public clinic users.

Statistical analyses were performed by using SPSS 22.0. In a bivariate analysis, the association between ‘public clinic accessibility’, the dependent variable, and the several demographic, and socio-economic variables, the independent variables, were tested using the Chi-square test of independence. All the independent variables were included in a multiple logistic regression analysis. Through the stepwise procedure, only the variables that revealed a significant association with public clinic accessibility were retained in the final model. A 5% significance level was used

as the rejection criterion. The dummy dependent variable was assigned a value of 1 in cases where respondents stated that they did not have access to public clinics in their residential area and a value of 0 was assigned if they did have access.

To avoid over-fitting the estimates, one of the subgroups of the independent variables was regrouped to assure a minimum of 10 outcome events per predictor variable (16,17). Therefore, the 'government sector employee' group of respondents (n=97) was merged with the 'unemployed and other' (n=147) to form a group named 'non-private sector employee' (n=246).

The study was reviewed by, and ethical clearance obtained from, the University of Malaya Research Ethics Committee (Reference Number: UM.TNC2/RC/H&E/UMREC-76). All respondents gave their informed consent before their inclusion in the study.

Results

Table 1 illustrated the demographic and socio-economic characteristics of the public clinic users. The majority of respondents were Malays (64.5%), women (69.3%), married (80.0%), and private sector employees (54.0%). The largest proportion of respondents (39.2%) were 18–30 years old, while 28.8% and 32.0% of them were 31–40 and above 40 years old, respectively. An approximately equal proportion of respondents had reached secondary (47.7%) and post-secondary (46.3%) education, while only 6% had achieved a primary education. 47.9% of the respondents had a family with four to five members, while about 26% had more than six family members. The remaining 26.1% of respondents had one to three family members.

Table 1: Public clinic users' profile

Variable	Prevalence	
	No.	(%)
Age		
18–30	210	(39.2)
31–40	154	(28.8)
41 and above	171	(32.0)
Gender		
Male	164	(30.7)
Female	371	(69.3)
Ethnicity		
Malay	345	(64.5)
Chinese	65	(12.1)
Indian and other	125	(23.4)
Family monthly income		
≤3000 MYR*	210	(39.2)
3001–4000 MYR	133	(24.9)
>4000 MYR	192	(35.9)

Personal monthly income		
≤1000 MYR	111	(20.7)
1001–2000 MYR	209	(39.1)
>2000 MYR	215	(40.2)
Education		
Primary	32	(6.0)
Secondary	255	(47.7)
Post-secondary	248	(46.3)
Marital status		
Single	107	(20.0)
Married/divorced/widow	428	(80.0)
Number of family members		
1–3	140	(26.1)
4–5	256	(47.9)
6 and above	139	(26.0)
Occupation		
Private sector employee	289	(54.0)
Gov. sector employee	97	(18.1)
Unemployed and other	149	(27.9)
Total	535	(100.0)

*MYR=Malaysian Ringgit (1 MYR=0.23 USD on 1st November 2015)

35.9% of respondents stated that their family monthly income was above 4000 MYR compared to 39.2% with a monthly income below 3000 MYR. About two-fifths (40.2%) were personally earning more than 2000 MYR monthly, while the other two-fifths (39.1%) were earning between 1000 and 2000 MYR a month. The remaining one-fifth of respondents (20.7%) were earning less than 1000 MYR monthly (Table 1).

Table 2: Accessibility of public clinics in respondents' residential areas; bivariate analysis

Variable	Have access to public clinics		Don't have access to public clinics		P-Value of the Chi-square test
	No.	(%)	No.	(%)	
Age					
18–30	171	(81.4)	39	(18.6)	0.000
31–40	118	(76.6)	36	(23.4)	
41 and above	108	(63.2)	63	(36.8)	
Gender					
Male	133	(81.1)	31	(18.9)	0.018
Female	264	(71.2)	107	(28.8)	
Ethnicity					
Malay	277	(80.3)	68	(19.7)	0.000
Chinese	46	(70.8)	19	(29.2)	
Indian and other	74	(59.2)	51	(40.8)	

Family monthly income					0.000
≤3000 MYR*	134	(63.8)	76	(36.2)	
3001–4000 MYR	89	(66.9)	44	(33.1)	
>4000 MYR	174	(90.6)	18	(9.4)	
Personal monthly income					0.000
≤1000 MYR	69	(62.2)	42	(37.8)	
1001–2000 MYR	140	(67.0)	69	(33.0)	
>2000 MYR	188	(87.4)	27	(12.6)	
Education					0.000
Primary	19	(59.4)	13	(40.6)	
Secondary	171	(67.1)	84	(32.9)	
Post-secondary	207	(83.5)	41	(16.5)	
Marital status					0.036
Single	88	(82.2)	19	(17.8)	
Married/divorced/widow	309	(72.2)	119	(27.8)	
Number of family members					0.001
1–3	119	(85.0)	21	(15.0)	
4–5	186	(72.7)	70	(27.3)	
6 and above	92	(66.2)	47	(33.8)	
Occupation	397	(74.2)	138	(25.8)	0.000
Private sector employee	196	(67.8)	93	(32.2)	
Non-private sector employee	201	(81.7)	45	(18.3)	
Total	397	(74.2)	138	(25.8)	

*MYR=Malaysian Ringgit (1 MYR=0.23 USD on 1st November 2015)

Of the 535 respondents, 25.8% stated that they did not have access to public clinics in their residential areas. The bivariate analysis (Table 2) revealed that all demographic and socio-economic factors were significantly associated with the lack of accessible public clinics in residential areas of the respondents. The lack of accessible public clinics was higher among respondents who were female (P=0.018), married (P=0.036), of ethnic minority groups (Chinese, Indians, and other) (P=0.000), and older (P=0.000) as well as those who had lower personal and family income (P=0.000), a lower level of education (P=0.000), and larger family size (P<0.001) than their counterparts.

The multiple logistic regression (Table 3) showed that the lack of accessible public clinics was 2.6 times higher among respondents aged 41 years and above, than respondents aged 18–30 years old (adjusted odds ratio [AOR]=2.672, P=0.000). Women were 2.2 times more likely to have no access to public clinics in their residential areas than men (AOR=2.271, P=0.001). Having no access to public clinics was 2.1 times higher among respondents who were of Indian and other ethnicities than the Malay ethnic group (AOR=2.114, P=0.003). Respondents with middle [3001–

4000 MYR] and lower [≤3000 MYR] family income were 4.7 (AOR=4.72, P=0.000) and 4.6 (AOR=4.652, P=0.000) times, respectively, more likely to have no access to public clinics in their residential areas than respondents with a family income above 4000 MYR. The lack of accessibility to public clinics was twice as high among private sector employees than their counterparts (AOR=2.026, P=0.003). The logistic regression revealed that personal monthly income, education, marital status, and some family members were not significant predictors of public clinic accessibility.

Table 3: Demographic and socio-economic factors associated with poor access to public clinics; multiple logistic regression

Variable	Coefficient	COR*	AOR*	95% C.I. for AOR		P-Value
				Lower	Upper	
Age						
18–30	Ref.	1	1			
31–40	0.313	1.338	1.368	0.785	2.384	0.269
41 and above	0.983	2.558	2.672	1.591	4.487	0.000
Gender						
Male	Ref.	1	1			
Female	0.820	1.739	2.271	1.373	3.756	0.001
Ethnicity						
Malay	Ref.	1	1			
Chinese	0.455	1.683	1.576	0.815	3.047	0.177
Indian and other	0.763	2.807	2.144	1.301	3.534	0.003
Family monthly income						
≤3000 MYR*	1.537	5.483	4.652	2.588	8.364	0.000
3001–4000 MYR	1.553	4.779	4.727	2.513	8.894	0.000
>4000 MYR	Ref.	1	1			
Occupation						
Non-private sector employee	Ref.	1	1			
Private sector employee	0.706	2.119	2.026	1.278	3.212	0.003
Constant	-3.906		0.020			0.000

*COR=Crude Odds Ratio, *AOR=Adjusted Odds Ratio, *MYR=Malaysian Ringgit (1 MYR=0.23 USD on 1st November 2015)

The variance inflation factor was lower than 1.2 across all the predictors included in the logistic regression. These low values indicated that the model did not suffer from

collinearity. The p-value of the Hosmer and Lemeshow test ($p=0.369$) indicated that the model fitted the data well.

Discussion

Although the results showed that the majority of public clinic users had access to clinics in their residential areas, more than a quarter of them still lacked such access. This finding reflected the inequality of public clinic distribution in the area under study. The locational dimension of access to primary care is a crucial determinant of health status. Improved accessibility to public clinics assured that all had an equal opportunity to them. The location of the new clinics should be carefully planned to reach people deprived of access to public clinics.

Several studies showed that access to healthcare varied among ethnicities. This study showed that the ethnic minority groups had less access to public clinics. This finding accorded with studies from the United States (9,10) and the United Kingdom (18). In the light of these results, eliminating ethnic disparities in accessing public clinics may be a prime driver for improving health status in the country and for achieving equal healthcare rights for all citizens.

Those of older age have more health problems, and thus the elderly are more in need of accessible healthcare. The results of this study showed that elderly respondents had less access to public clinics. Similar results were found in studies from the United Kingdom (7) and Bangladesh (8). A crucial step to improve the health conditions of elderly people is to provide them with accessible primary health care in their neighbourhoods. Therefore, any expansion of public clinics aiming at improving accessibility to these clinics should give priority to the elderly population.

Inequality among genders in access to healthcare is also a concern in health research. Women are often found to have worse health conditions than men as well as less access to care (7,8,19,20). In line with the literature, our results revealed that women were less likely to have access to public clinics than their male counterparts. This finding showed that the accessibility of women to public clinics should be improved to at least equal that of men.

Several researchers have linked income, social status, and employment with accessibility to healthcare (7–9,21,22). The poor financial conditions of low-income people led them to live in low-cost housing areas, which lacked access to basic amenities, including healthcare. This could explain the lack of accessible public clinics among the poor. It is highly recommended that more public clinics should be established in the residential areas of lower-income people. The study further found that private sector employees were more in need of accessible public clinics than their counterparts.

Limitations

The random sample in this study was only drawn from Kuala Lumpur and its conurbation areas. This area, as a

focal metropolitan region that attracts people from all Malaysian states, mirrors, the demographic profile of the Malaysian population. The correlation between the variables did not infer causation. Future studies with time-variant observations would be needed to establish causal models. The merging of the unemployed with the other occupational subgroups prevented the assessment of the effects of unemployment on accessibility. However, the results of the study and the interpretations were rigorous and valid.

Conclusions

More than one-quarter of Malaysian public clinic users did not have access to public clinics in their residential areas. This poor accessibility should be improved to enhance the health status of Malaysians. Strategies aiming at improving public clinic accessibility should focus on reaching the elderly, the women, those of ethnic minority groups, those of low-income households, and the private sector employees.

This study had important policy implications as it provided vital data on those among the public who lacked access to public clinics. The demographic information could help in prioritising intervention policies aimed at improving health care accessibility and enhancing the overall health of public clinic users.

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Competing Interests

The author(s) declared no potential conflict of interests concerning the research, authorship, and publication of this article.

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