WHITE PAPER

Ability to Pay for Future National Health Financing Scheme among Malaysian Households



Azimatun Noor Aizuddin, MD, MCommMed, PhD, Syed Mohamed Aljunid, MD, MSc, PhD Kuala Lumpur, Malaysia; and Kuwait City, Kuwait

Abstract

BACKGROUND Malaysia is no exception to the challenging health care financing phenomenon of globalization.

OBJECTIVES The objective of the present study was to assess the ability to pay among Malaysian households as preparation for a future national health financing scheme.

METHODS This was a cross-sectional study involving representative samples of 774 households in Peninsular Malaysia.

FINDINGS A majority of households were found to have the ability to pay for their health care. Household expenditure on health care per month was between MYR1 and MYR2000 with a mean (standard deviation [SD]) of 73.54 (142.66), or in a percentage of per-month income between 0.05% and 50% with mean (SD) 2.74 (5.20). The final analysis indicated that ability to pay was significantly higher among younger and higher-income households.

CONCLUSIONS Sociodemographic and socioeconomic statuses are important eligibility factors to be considered in planning the proposed national health care financing scheme to shield the needed group from catastrophic health expenditures.

KEY WORDS ability to pay, ability to pay for health care, health financing, health financing scheme, national health financing scheme.

INTRODUCTION

Health is an internal need of humans and it is also the main input in reducing the poverty rate in the socioeconomic development of a country. Financing health care has become very challenging as health care expenditure has continued to rise in spite of presenting health care as equitable, affordable, and efficient as possible for all. In light of this, Malaysia is no exception to the phenomenon of globalization.

Spending on health services is affecting various groups at various levels in the health service funding scheme. Furthermore, health care services are not often accessible and made available to all people in a country, especially by those who are less fortunate and cannot afford to pay for such services. This is especially true in rural communities, where it is apparent that there have been extensive years of struggle to be able to gain affordable access to quality health care services, especially from private health care organisations.²

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All data and materials are available on request. All authors had access to the data. AAN and ASM participated significantly in designing the study, formulated the questionnaire and drafted the manuscript. AAN conveyed the data collection and analysis. All authors read and approved the final manuscript.

From the Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia (ANA); International Centre for Casemix & Clinical Coding, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia (SMA); and Department of Health Policy and Management, Faculty of Public Health, Kuwait University, Kuwait City, Kuwait (SMA). Address correspondence to A.N.A. (azimatunnoor@ppukm.ukm.edu.my).

With the differences in living conditions of people coming from rural and urban populations, it is also apparent that they have significant differences when it comes to their ability to pay (ATP) for different health care services, especially private health care. In view of these differences, strategies have been pursued by several sectors calling for equality in access to such services. It is essential to preserve health services as equitable and affordable for all, including the poor, as well as retaining quality services. Furthermore, something to consider in analyzing the government approach is to place an emphasis on the individual responsibility of health care and the ability to lighten the burden of the disease.

In many developing countries, people are expected to contribute to the cost of health care from their own resources. As a result, ATP for health care has become a critical policy issue in developing countries. Households face combined user fee burdens from various essential service sectors. Households may have no choice but to pay for their health care services. As a result, such households might try to mobilize the resources they need by sacrificing other basic needs.³

The Malaysian total expenditure on health was 2.9% of the gross domestic product (GDP) in 1997, which increased to 4.2% of GDP in 2006 and 4.5% of GDP in 2012.4 The Malaysia National Health Accounts in 2012 reported that from 1997-2005, the proportions of health spending between the public and private sector were almost equal at 53% and 47%, respectively. However, in 2005, the public and private sector's proportion of health spending has become equal at 50%. Further, it was found that the private households in the country spend vast amounts on outof-pocket (OOP) expenditures to fund their health care services. OOP payments contribute to 37% of the total health expenditure. This is followed by a public expenditure of 51%.4 With the present situation regarding health care financed by the government, it has been reported in previous years that the private-public health expenditure gap is closing, with private households spending vast amounts of OOP expenditures. Therefore, Malaysia needs one health care financial scheme to solve these problems. By assessing the ability of an individual to pay for health care, the present study will help policymakers to identify the groups of individuals and methods to allow the sharing of these financial burdens. The study's objective is to identify the ATP for households in the Malaysian Peninsula to contribute to the proposed national health financing scheme (NHFS).

METHODS

Study Design. This is a cross-sectional study using multistage random sampling employing a sampling frame maintained by Malaysian Statistic Department. Four states representing the east, west, south, and central regions of Peninsular Malaysia were selected in the first stage. In the second stage, 1154 households were selected from 2 districts in each state. This study is a part of a bigger study to assess the ability and willingness to pay for health care and their influencing factors among Malaysian population.

Study Tools. Face-to-face interviews were conducted from February until September 2014 using a structured questionnaire that was constructed and adopted from the questionnaire used by Al Junid et al⁵ and Aizuddin et al.⁶ The questionnaire was pretested to check for reliability and validated by health financing experts from both academic institution and the Ministry of Health in Malaysia through a focus group discussion. The experts were invited to review, examine, and give comments in improving the content of the questionnaire.

The questionnaire has a few questions focusing on sociodemographics, socioeconomics, household health care usage, and health insurance. ATP for health care was measured by the household monthly expenditure on health care as a proportion of the monthly household total income. ATP was then divided into "able to pay" and "not able to pay," according to the World Health Organization (WHO) definition of those able to pay as having a health care budget of <5% of their total income.

Data Analysis. Data were initially entered into an Excel (Microsoft Inc., Redmond, WA) spreadsheet before being exported and analyzed using STATA Version 13 (StataCorp, College Station, TX). All variables were explored descriptively, and we then proceeded with simple logistic and multiple logistic regressions to examine the determinant factors ATP for NHFS.

Ethics Approval. The research proposal was reviewed and approved by the Medical Research Ethic Committee, Faculty of Medicine, Universiti Kebangsaan Malaysia with Ethic Number FF 331-2012 for commencing the study and publishing the study results. All participants provided informed consent before interviews commenced.

RESULTS

Descriptive Analysis. A total of 774 respondents gave consents and managed to be interviewed. This gives

Variable	Frequency (Percentage
Age	
≤40 years	213 (27.5%)
41-60 years	412 (53.2%)
≥61 years	149 (19.2%)
Gender	115 (151270)
Female	148 (19.1%)
Male	626 (80.9%)
Ethnic	020 (001570)
Malay	532 (68.7%)
Chinese	178 (23.0%)
Indian	59 (7.6%)
Others	5 (0.7%)
Status	
Unmarried	72 (9.3%)
Married	614 (79.3%)
Separated	88 (11.4%)
No. of Dependents	
	299 (38.6%)
3-4	306 (39.5%)
≥5	169 (21.8%)
Education	
Low	206 (26.6%)
Middle	366 (47.3%)
High	202 (26.1%)
Locality	
Rural	281 (36.3%)
Urban	493 (63.7%)
Income	
Low: < MYR3000	441 (57.0%)
Middle: MYR3000-4999.99	200 (25.8%)
High: ≥ MYR5000	133 (17.2%)

a response rate of 67.1%. The sociodemographic and socioeconomic characteristics of heads of households are listed in Table 1. The mean age of the household heads was 48.93 (standard deviation [SD] 13.29). The majority of heads of households were men (80.9%). The majority (68.7%) of respondents were Malays, followed by Chinese (23.0%), Indian (7.6%), and others (0.7%). A total of 79.5% of household heads were married, with a mean number of dependents of 3.14 (SD 2.08). The majority of the participants (73.9%) had attained either a middle or high level of education. The mean household incomes were MYR3140.18 (SD 2822.13), with a median income of MYR2500 (interquartile range [IQR] = 1500-4000). Based on the Economic Planning Unit of Malaysia, the monthly average Malaysian household gross income was MYR5000 and median income was MYR3626. Employing these in the study

Expenditure	Min-Max	Mean (SD)/Median (IQR)
Water	0-500	33.36 (40.35)/20 (10-50)
Electricity	0-2000	94.01 (121.61)/70 (40-100)
Communication	2-2000	127.70 (145.46)/90 (45-169)
Children school	0-4000	215.02 (355.01)/99 (0-300)
Food and drinks	0-11,500	533.78 (577.33)/500 (250-650)
Transport	0-2000	201.43 (209.48)/150 (50-300)
Clothing	0-3000	77.90 (144.71)/41.6 (16.7-83.3
Health care	1-2000	73.54 (142.66)/10 (5-100)
Rental	0-3500	356.73 (558.34)/0 (0-600)
Cigarette	0-750	43.41 (96.87)/0 (0-40)

data as references for the respondents' income group, it was found that more than half of the study respondents (57%) had low household monthly incomes.

The respondents' household expenditure distributions are listed in Table 2. The mean monthly household expenditure for health care was MYR73.54 (SD 142.66), with a median of MYR10 (IQR 5-100). The proportion of households' total household's income spent on health care expenditures was between 0.05%-50%, with mean 2.74 (SD 5.2) and median 0.9 (IQR 0.33-2.78). Categorizing the respondents into able-to-pay or not-able-to-pay groups by employing spending <5% of income for health care by the WHO as a reference, it was found in this study that the majority (86.6%) of the respondents were able to pay.

Bivariate Analysis. A simple logistic regression was conducted as primary screening for factors associated with ATP. Factors found to have P value < .25 were selected for subsequent multivariate analysis. The variables were age, race, education, outpatient choice, inpatient choice, having disease, and own insurance, as shown in Table 3.

Multivariate Analysis. Multiple logistic regression stepwise forward and stepwise backward analyses were conducted to look for predictive factors for ATP. The findings, as listed in Table 4, indicated that only AgeInYr and IncomeCat were significantly predictive of ATP. A pseudo- R^2 for this model was 0.077, which implies that the model only explains 7.7% of the variability factors influencing ATP for NHFS. The preliminary model was further checked for multicollinearity and interaction. It was found that the correlations between the variables were relatively small, at only 0.14, and the interaction term (AgeInYr and Income) was not significant (P = .259). Assumptions were also checked by assessing the goodness of fit of the model using the Hosmer-Lemeshow test,

Table 3. Factors Associated with ATP by Simple Logistic Regression Analysis (n = 774)

Variable	Regression Coefficient (β)	Crude Odds Ratio (95% CI)	<i>P</i> Value
AgeInYr	-0.02	0.980 (0.964, 0.995)	.010*
NoDependentCat3	0.08	1.089 (0.714, 1.659)	.693
Income	0.00	1.000 (1.000, 1.000)	.015*
Gender	0.06	1.067 (0.626, 1.818)	.812
RaceCat1	-0.56	0.572 (0.375, 0.873)	.010*
Status1	-0.09	0.912 (0.439, 1.896)	0.807
EduCat2	0.44	1.557 (1.003, 2.417)	0.048*
Locality	0.06	1.061 (0.692, 1.627)	0.785
OPChoiceCat	-0.39	0.677 (0.446, 1.027)	0.067*
IPChoice	-0.71	0.490 (0.297, 0.810)	0.005*
HaveDz	-0.42	0.656 (0.383, 1.124)	0.125*
OwnInsurance1	-0.29	0.751 (0.493, 1.145)	0.184*

ATP, ability to pay; CI, confidence interval.

* P < 25

a Pearson χ^2 test, a classification table, and the area under the receiver operating characteristic curve. There was no significant difference between the observed probability and the expected probability. The Hosmer-Lemeshow χ^2 8 = 2.65 with *P* value = .954. The Pearson χ^2 152 = 167.61 with *P* value = .182. In the classification table, the overall correctly classified per-

centage is good at 86.7%. The area under the receiver operating characteristic curve = 0.62. The model can accurately discriminate 62.0% of cases.

The final model was achieved as shown in Table 5. Older people were less likely to have ATP (β = -0.016, odds ratio = 0.98, 95% confidence interval = 0.96-0.99, P = .044), and people in higher income groups were more likely to have ATP (β = 0.496, odds ratio = 1.64, 95% confidence interval = 1.18-2.27, P = .001). Pseudo- R^2 was 0.0275, which implies that the final model only explains 2.75% of the variability factors influencing ATP for NHFS.

Therefore, the logistic regression equation for ATP for NHFS is:

Odds =
$$(P/1 - P)$$
 = $e^{(2.42 - 0.016*ageinyr + 1.64*incomecat)}$

DISCUSSION

Financing health care has become very challenging. Despite the economic downturn, health care costs have continued to escalate. With limited resources, cost sharing becomes very important. Albeit with the responsibilities of the nation, the government should continue to bear the expenses for the provision of health care services to its citizens and health care services continue to be a national and government priority.⁷

Variable	Regression Coefficient (β)	SE	Z	Adjusted Odds Ratio (95% CI)	P Value
AgelnYr	-0.02	0.01	-2.00	0.98 (0.97, 1.00)	.046*
Income	0.00	0.00	3.31	1.00 (1.00, 1.00)	.001*
RaceCat1	-0.31	0.18	-1.25	0.74 (0.46, 1.19)	.211
EduCat2	0.15	0.31	0.55	1.16 (0.69, 1.95)	.581
OPChoiceCat	-0.40	0.18	-1.49	0.67 (0.40, 1.13)	.137
IPChoice	-0.61	0.18	-1.80	0.55 (0.28, 1.06)	.073
HaveDz	-0.49	0.17	-1.75	0.61 (0.35, 1.06)	.080
OwnInsurance1	-0.45	0.17	-1.68	0.64 (0.38, 1.08)	.093

ATP, ability to pay; CI, confidence interval; SE, standard error. *P < .05.

Table 5. Multiple Logistic Regression Model Associated Factors for ATP (n = 774)*						
Variable	Regression Coefficient (β)	SE	Z	Adjusted Odds Ratio (95% CI)	P Value	
AgeInYr	-0.016	0.008	-2.02	0.98 (0.96, 0.99)	0.044	
IncomeCat	0.496	0.272	3.00	1.64 (1.18, 2.27)	0.001	
Constant	2.42	4.99	5.51	11.34 (4.78, 26.89)	<.001	

Pseudo- $R^2 = 0.0196$. Multicollinearity and interaction term were checked and not found. Hosmer-Lemeshow test (P = .918), Pearson χ^2 test (P = .306), classification table (overall correctly classified percentage = 86.7%), and area under the received operative curve (62.0%) were applied to check the model fitness. ATP, ability to pay; CI, confidence interval; SE, standard error.

^{*} Multiple Logistic Regression Backward model was applied.

Technically the Malaysian government has covered almost the entire population, compared with its neighboring countries, Thailand (98%), Singapore (93%), the Philippines (78%), Indonesia (60%), Vietnam (65%), Cambodia (24%), and Lao (15%).8 For future objectives, both the WHO and Malaysia's Vision 2020 aim to ensure that all individuals have access to effective, efficient, and affordable health. Among the 12 yardsticks for health recommended by the WHO at the 34th WHO Assembly in 1981 were health for all, with at least 5% of GDP spent on health.9 At present, Malaysia has already spent more than 4.0% of GDP for health care, and this trend is set to increase in the upcoming years. The majority of the health care cost was subsidized by the government via taxation; therefore, there is a need for Malaysia to review the existing health care system to cope with the challenges of the future. The option is to establish a new NHFS.

Despite achieving universal coverage, the World Health Survey Report in 2000 also found that 4% of Malaysian households were exposed to catastrophic spending and 2% were impoverished. Decause of these problems, one of the recommendations has called for the establishment of the NHFS to pool the health resources and provide universal financial risk protection on the basis of social health insurance principles. One important element of universal financial risk protection would be the distribution of health care financing with regard to the ATP and the need for the extension of prepayment coverage to everyone, including those coming from the informal sector. Decaute of the More of the section of the propayment coverage to everyone, including those coming from the informal sector.

In discussing the implementation of the NHFS to achieve full universal coverage, the researchers found that there has been a lack of attention to the ability of households to pay or who should pay in Malaysia. ATP is defined by determining those who are exempted from paying, together with those for whom premium or payment contribution is compulsory. In the present study, it was found that the mean proportion of household health care expenditure to household income was 2.74. In fact, this finding is slightly higher compared with a previous study done in Malaysia by Aizuddin et al⁶ in 2011 among farmers (1.94%), and only 1.9% as reported by Department of Statistics.¹³ This low proportion was found in Malaysia most likely because of the subsidized health care services by the Malaysian government. Weaver et al,¹⁴ in their study done in 1996 in the Middle African Republic, reported that the median monthly household expenditure for health care was 2.6%. This result was similar to the present study's finding because the African continent has also subsidized their health care. However, a study by Sanmartin et al¹⁵ in Canada, using private insurance as the major health financing method, found that the Canadian household mean percentage health care expenditure to household income was high, measuring between 2.6% and 5.7%. Moreover, Xu et al¹⁶ found in their study that countries with social institutions such as social insurance or tax-funded health systems protect their households from catastrophic expenditure. ¹⁶

It was found in the present study that the majority (86.6%) of respondents were able to pay for health care. The finding is similar to that of Aizuddin et al.⁶ They found that, among farmers in Malaysia, 92.3% of respondents were able to pay for their health care. The most apparent reason why the majority of Malaysian populations were able to pay was because they spent very little for their health care, amounting to less than 5% of their income. This low proportion of health expenditure, compared with overall household expenditure, probably is due to health care services that are already subsidized by the government, in addition to the fact that public health care services are accessible. Approximately 90% of the population has access to some form of health care. The public health facilities are within 3-5 km away from everyone in the country.¹⁷ Nonetheless, it is important to remember that if the health care services are not as heavily subsidized and rather geographically accessible as they are now, the percentage of health care expenditure relative to overall household expenditure may be much higher.

In the present study, age and income were found to be the significant predictive factors for ATP. Nevertheless, this model should be reflected on with careful consideration because only 2.75% of factors influencing ATP were explained by this model. These study findings are comparable to other previous studies. Aizuddin et al⁶ also found, in their study among farmers in Malaysia, that age, education, and income were factors associated with ATP in the initial analysis. Al Junid et al⁵ found in their study that besides socioeconomic status, education level also influenced ATP.5 Weaver et al14 reported different findings; in their study, ATP was associated with resident locality. Many studies have found that education is highly correlated with employment and income. In fact, studies have found that income positively correlates with happiness and health.¹⁸⁻²²

All of these findings indicate that the socioeconomic status of an individual or household is an important factor in determining the individual or household ATP. Because of these facts, in most

countries, age and income are used as cut-off points for eligibility for health care coverage or social health insurance. In Thailand, regarding the Medical Welfare Scheme, free medical care was initially offered to lowincome individuals who passed a means test based on an income of less than B1000 per month, which was then expanded to cover the elderly (those older than 60) and all children younger than 12.23 Similarly, for Santa Clara County, California residents, there are few criteria to determine whether they are eligible for the Ability to Pay program, which includes income and age older than 21 years.²⁴ However, it is slightly different in Los Angeles, where full medical coverage was offered to Los Angeles County residents who did not qualify for Medi-Cal, Medicare, or the Covered California plan, with no cost for individuals with incomes ≤US\$1354 per month and low cost for individuals with incomes >\$1,354 per month.²⁵ For French National Health Insurance, the program covered salaried workers whose wages were under a low ceiling.26

Before concluding the study findings, it is of significance to recognize limitations of the study. Our study response rate was slightly low. However, this is expected for a community survey and it was overcome by adding an extra 10% to the sampling size

calculation, which was already based on study objectives and study design.

CONCLUSION

Knowing the ability-to-pay and inability-to-pay groups will help the government to properly plan the national health care financing scheme to protect the needed group from catastrophic health expenditure and enhance the fair utilization of health care services provided to all for more equitable health care. The proposed NHFS in Malaysia may be a sustainable effort if the contributions required are covered by about 85% of eligible citizens. The remaining 15% of citizens would require support or subsidy in financing their health care needs. Besides using the level of socioeconomic status in determining the eligibility group, age should also be considered, especially with the elderly.

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