

---

## PUBLIC HEALTH RESEARCH

---

# Willingness to Pay for Future National Health Insurance Scheme: A Study Among Health Sector Employees in Kuala Lumpur, Malaysia

Hairusnizan Hamzah,<sup>1,2</sup> Pangie Bakit,<sup>1</sup> Mohamad Azim Noor Azmi,<sup>2</sup> Azimatun Noor Aizuddin,<sup>2</sup> Faiz Daud<sup>2\*</sup>

<sup>1</sup> Institute for Health Management, Ministry of Health, Malaysia.

<sup>2</sup> Department of Public Health Medicine, Faculty of Medicine, The National University of Malaysia, Kuala Lumpur, Malaysia.

\*Corresponding: [faizdaud@hctm.ukm.edu.my](mailto:faizdaud@hctm.ukm.edu.my)

### ABSTRACT

---

<b>Introduction</b>	The National Health Insurance (NHI), which utilizes the concept of social health insurance, is a long-term strategy for addressing healthcare costs and rising household out-of-pocket expenditures. This study aimed to determine the willingness to pay (WTP) for NHI among health sector employees and the factors that affect their WTP.
<b>Methods</b>	A cross-sectional study was conducted among 122 health sector employees of three government health institutions in Kuala Lumpur. A self-administered questionnaire (Cronbach's alpha 0.78) using the Contingent Valuation Method technique was used to estimate the value of WTP.
<b>Results</b>	The response rate was 91.8%. Most respondents (n = 96, 85.7%) were willing to pay for NHI. The mean and median of NHI monthly premiums were RM72.00 (SD RM77.92) and RM50.00 (IQR RM70.00) or 1.94% (SD1.92%) and 1.00% (IQR 1.88%) of respondents' monthly income. Age ( $\chi^2=12.088$ , $p=0.001$ ), household size ( $\chi^2 = 5.737$ , $p= 0.017$ ) and total monthly income of respondents ( $\chi^2=4.978$ , $p= 0.026$ ) were significant in influencing their WTP for NHI.
<b>Conclusions</b>	In conclusion the future NHI scheme will be supported by the majority of health sector employees if the government implements it in Malaysia, based on a sample of 122 employees. Most were willing to pay RM72.00 or 1.94% per month of their total monthly income for NHI. Age, household size, and monthly income were the key factors to consider in planning a successful and sustainable NHI.
<b>Keywords</b>	Willingness to pay; Social health insurance; National health insurance; Health sector employees

Article history:

Received: 24 February 2025

Accepted: 28 July 2025

Published: 12 September 2025

## INTRODUCTION

Financing healthcare services is a challenging aspect of a country's socio-economic development, and Malaysia is no exception to this globalization phenomenon. According to data from the Malaysia National Health Accounts (MNHA) for the period 2011–2023, the sources of funding for both public and private healthcare services in the country have increased every year. The primary source of funding for public healthcare services—which constituted 52.7% of the National Total Expenditure on Health (TEH) in 2023—comes from the Consolidated Revenue Fund under the Ministry of Finance, channelled to the Ministry of Health Malaysia (MOH). Meanwhile, household out-of-pocket (OOP) expenditure, the main source of private healthcare financing, accounted for 36% of TEH.<sup>1</sup> Private health insurance (PHI) contributed 8%, with the remainder coming from other federal agencies, including statutory bodies, the Ministry of Education, and corporations.<sup>1</sup>

The rising cost of medical care, coupled with significant increases in household OOP spending on private healthcare, poses a continuing challenge to Malaysia's healthcare financing system. Private health services in Malaysia generally serve populations with financial means and are mainly concentrated in urban areas.<sup>2</sup> Increasing OOP spending, particularly in the private sector, creates a financial burden for low-income individuals, ultimately affecting their quality of life and health outcomes.<sup>3</sup>

Without significant reforms to the current health financing system, the country's gross health expenditure will be inadequate to keep pace with the growing health demands of the population. Thus, there is a need to review the existing health financing framework to ensure a system that is equitable, affordable, sustainable, and resilient in addressing future challenges.

One proposed reform is the National Health Insurance (NHI), a long-term strategy designed to address rising healthcare costs and the growing OOP burden. NHI is a prepaid mechanism that consolidates the health risks of the entire population through insurance. By sharing health risks across the community, premium rates become lower and more affordable. Under NHI, funds are pooled by requiring all members of the community to pay a premium into a government-mandated fund.

For example, in South Korea, the government introduced NHI by imposing mandatory premium contributions on all residents through compulsory salary deductions from both employees and employers.<sup>4</sup> Over a period of 12 years, South Korea successfully achieved universal coverage under its NHI.<sup>5</sup> Through this system, healthy members of society help bear the costs of healthcare for the sick, thus meeting the main objective of NHI: to provide access to health services without

imposing high OOP expenses. As a result, patients are able to obtain better healthcare and experience improved health outcomes.<sup>6,7</sup>

However, several aspects must be considered in designing a comprehensive and resilient NHI, drawing lessons from other countries that experienced challenges such as low enrolment, poor retention, and a pro-rich bias.<sup>8</sup> Achieving high enrolment and strong public support is crucial. Risk pooling is ineffective if only high-risk individuals join, as this would result in higher premiums and discourage wider participation. In Malaysia, gaining broad-based support will be a major challenge, since the population is accustomed to healthcare services that are already 98% subsidized by the government.<sup>9</sup> This challenge is also common in other countries implementing social health insurance (SHI), such as Kenya and Thailand, where limited participation from the informal sector has hindered expansion.<sup>10</sup>

Before moving to the implementation phase, it is essential to assess the level of public support for NHI and their willingness to pay (WTP) for monthly premiums. In Malaysia, several studies have investigated WTP for NHI among different target populations: farmers in Selangor (2009),<sup>11</sup> households in Penang (2009),<sup>9</sup> patients attending the National University Medical Centre Specialist Clinic (2012),<sup>12</sup> households across Kedah, Kelantan, Johor, and Selangor (2014),<sup>13</sup> senior lecturers and professors (2015),<sup>14</sup> and civil servants.<sup>15,16</sup> However, there remains a knowledge gap regarding WTP among health sector employees.

Health sector employees are a unique and important group. They are directly involved in healthcare delivery, regularly exposed to health information and policy developments, and embedded within the broader national health system. Their views are essential, as their participation and support could influence wider public acceptance. Furthermore, adequate remuneration and benefits, such as insurance coverage, are strongly linked to job satisfaction and performance among healthcare professionals.<sup>17,18</sup> Almualm et al.<sup>12</sup> also found that better knowledge of NHI was positively associated with WTP. Therefore, this study aims to determine the WTP for NHI among health sector employees and identify the factors influencing it.

## METHODOLOGY

A cross-sectional study was conducted over 3 months period among 122 health sector employees working at three government health institutions in Kuala Lumpur. All three health institutions were purposely selected from the target population, considering accessibility factors, location, finance and human resources for this study.

Sampling Procedure

Multistage sampling was used to select 122 participants. From each of the three selected institutions, employees were stratified into two groups: the professional group and the support group. Proportionate to population sampling (PPS) was applied to determine the number of participants from each group, and sample units were then randomly selected. Of the total 173 employees, 89

belonged to the professional group and 84 to the support group. Based on calculated proportions, 63 participants were selected from the professional group and 59 from the support group (Table 1).

The entry criteria were; Malaysian citizen and a member of either professional or support services group. While those non-consented and on leave during the study period were excluded from the study.

**Table 1** Sampling using proportionate to population sampling (PPS)

Service Group	Population sample	Proportion from population	Total sample
Professional Group	89	$(89/173)*100 = 51.4\%$	$51.4\%*122 = 63$
Support Group	84	$(84/173)*100 = 48.6\%$	$48.6\%*122 = 59$
Total	173		122

Study Tools

This study used self-administered questionnaires developed by Aizuddin et al. (2011) pre-tested and validated with a Cronbach’s alpha of 0.78 as the main study tool. It is divided into five sections; information related to individuals, socio-economic, and financing of patient care, health insurance, information on WTP for NHI.

To determine the WTP for NHI among the health care employees, this study used the Contingent Valuation Method (CVM). In healthcare sectors, various studies on WTP have utilized CVM to gather information on demand variation or financial perspectives alongside price setting.<sup>19-21</sup> Through CVM, a scenario on the country’s need to establish NHI was given to the respondent and then, they answered a closed-ended question (“yes” or “no”) regarding their supports towards NHI. Subsequently, two open-ended questions were asked to the respondents to obtain WTP value by both percentage of income per month and by fixed amount per month (in RM value). The independent variables (demographic status, socio-economic status, and private health insurance ownership status) are hypothesized to be the factors influencing

the dependent variable (WTP for NHI). Factors influencing WTP for NHI were analysed using Chi-Square for categorical variables and Mann-Whitey U Test for the continuous variables with a significance level of 0.05. Verbal and written consent was obtained from respondents to participate in this study. Statistical Product and Service Solutions (SPSS), version 20.0 was used for data analysis.

**RESULTS**

A total of 112 health sector employees participated in this study with a response rate of 91.8%. From the 112 samples received, a total of 96 (85.7%) respondents have declared that they were willing to pay for NHI, while 16 (14.3%) respondents were not willing to pay for NHI (Table 2).

Table 3 shows results among respondents who were willing to pay for NHI; the mean and median they were willing to pay for NHI’s monthly premiums are 1.94% (SD1.92%) and 1.00% (IQR 1.88%) from their monthly income respectively.

**Table 2** Descriptive analysis of the WTP for NHI

Variables	Frequency (%)
WTP NHI	
Yes	96 (85.7)
No	16 (14.3)

**Table 3** Descriptive analysis of the WTP for NHI among respondents who were willing to pay for NHI (N = 96)

Variables	Mean (SD)	Median (IQR)
The monthly premium for NHI (% from monthly income)	1.94 (1.92)	1.00 (1.88)
The monthly premium for NHI (Fixed value in RM)	72.00 (77.92)	50.00 (70.00)

Table 4 shows the association between demographic, socio-economic factors, private health insurance ownership and willingness to pay (WTP) for National Health Insurance (NHI). The study found that respondents aged  $\leq 34$  years were significantly more willing to pay compared to those aged  $>34$  years ( $\chi^2 = 12.088$ ,  $p = 0.001$ ). Participants from smaller households ( $\leq 3$  members) also showed

a higher likelihood of WTP ( $\chi^2 = 5.737$ ,  $p = 0.017$ ), and lower-income respondents ( $<RM3000.00$ ) were more willing to pay than those with higher incomes ( $\geq RM3000.00$ ) ( $\chi^2 = 4.978$ ,  $p = 0.026$ ). Other variables, including gender, marital status, education level, and private health insurance ownership, were not significantly associated with WTP.

**Table 4** The association between demographic, socio-economic factors, private health insurance ownership, and WTP for NHI among health sector employees in Kuala Lumpur

Variable	WTP		Z-statistic** / $\chi^2$ value	p value
	Yes (n=96) n(%) / Median (IQR)	No (n=16) n(%) / Median (IQR)		
Age (years)	33 (12)	41 (13)	-3.168**	0.002*
$\leq 34$	57 (96.6)	2 (3.4)	12.088	0.001*
$>34$	39 (73.6)	14 (26.4)		
Gender				
Male	31 (91.2)	3 (8.8)	0.635 <sup>a</sup>	0.425
Female	65 (83.3)	13 (16.7)		
Married Status				
Single/Widow	35 (92.1)	3 (7.9)	1.918	0.166
Married	61 (82.4)	13 (17.6)		
Household size (people)	3 (4)	5 (3)	-2.255**	0.024*
$\leq 3$	55 (93.2)	4 (6.8)	5.737	0.017*
$>3$	41 (77.4)	12 (22.6)		
Educational level				
SPM and Diploma	29 (90.6)	3 (9.4)	0.410 <sup>a</sup>	0.522
Degree and above	67 (83.8)	13 (16.2)		
Respondent's monthly Income (RM)	3468.85 (4425.00)	5100.00 (5475.00)	-1.963**	0.050*
$<RM3000.00$	40 (95.2)	2 (4.8)	4.978	0.026*
$\geq RM3000.00$	56 (80)	14 (20)		
Having private health insurance (N=112)				
Yes	71 (83.6)	14 (16.4)	0.734 <sup>a</sup>	0.392
No	25 (92.6)	2 (7.4)		
Satisfied with private health insurance (N=85)				
Yes	56 (82.4)	12 (17.6)	0.048 <sup>a</sup>	0.826
No	15 (88.2)	2 (11.8)		

<sup>a</sup> Continuity Correction

\* p value significant at  $< 0.05$ , \*\*Mann-Whitney U Test

## DISCUSSIONS

### WTP for NHI

This study found that 85.7% of respondents were willing to pay (WTP) for NHI. This result is higher than what was reported in other Malaysian studies involving formal, non-healthcare sectors such as

61.1% among civil servants in Petaling Jaya,<sup>16</sup> 70% among lecturers at a public university,<sup>14</sup> and 80.5% among civil servants in Putrajaya.<sup>15</sup> The higher proportion observed in this study may be attributed to the fact that health sector employees are more regularly exposed to healthcare system

developments and policy discussions, making them more aware and more supportive towards the need for a sustainable health financing mechanism like NHI.

#### Monthly Premium Value for NHI

Among respondents who were willing to pay for NHI, the mean monthly premium contribution was RM72.00 (SD = RM77.92), while the median was RM50.00 (IQR = RM70.00). These values were comparable to findings among civil servants in Putrajaya, where the average monthly WTP was also RM50.00,<sup>15</sup> and reflect the similar income range (RM2000–RM4000) of the two populations.

In contrast, studies involving populations with lower income levels reported lower monthly WTP values. For example, study among civil servants in Petaling Jaya and farmers in Selangor, monthly contributions were reported as low as RM20.00 or RM2.00 per household respectively.<sup>11,16</sup> On the other hand, a study among university lecturers with a higher mean income (RM7428.75) reported a higher WTP value of RM79.32 per month.<sup>14</sup>

In term of percentage of monthly income, this study found that the mean was 1.94% (SD = 1.92%) and the median was 1.00% (IQR = 1.88%). These values were lower compared to studies conducted in other countries. For example, in South Sudan, a majority of respondents were willing to pay up to 5% of their monthly income, 4.2% among formal sector employees in China,<sup>20</sup> 4% of the population in rural India,<sup>22</sup> and 4% among teachers in Southern Ethiopia.<sup>23</sup>

From these different findings shows that studies of WTP for NHI provide a different premium value according to the average monthly income of the population. The information gained from these studies are essential to the government in implementing NHI in future. It serves as one of the bases to determine the amount of contributions from both the public and the government. Excessive contribution may result in financial burden on the low-income population. However, inadequate contributions on the other hand may lead to insufficient fund to cover the cost of treatment of various types of illness.

#### Factors Influencing WTP for NHI Among Health Sector Employees

This study had found that age, household size and monthly income were significantly associated with WTP for NHI. In term of age, respondents aged  $\leq 34$  years were more willing to pay for NHI compared to older respondents. Similar findings can be observed from a study among lecturers in Malaysia's public university where younger respondents (30 years and below) were more WTP for health insurance than older age group.<sup>14</sup> This is due to the fact that younger respondents foresee the probability of paying at

lower premium compared to a higher premium if they participate at older age. These findings were also supported by international research such as Adams et al<sup>24</sup> who studied WTP for NHI among households in a Caribbean country. Their study revealed that older respondents had higher monthly financial obligations and lower monthly disposable income and hence were less willing to pay for health insurance. Bärnighausen et al<sup>20</sup> also reported a negative relationship between age and WTP suggesting that older individuals may rely on their children for care during illness, reducing their perceived need for health insurance.

For household size, findings showed respondents who had smaller household size were more willing to pay for NHI compared to those from larger households. This finding was supported by other studies showing that WTP declines as household size increases.<sup>14, 22, 24, 25</sup> The rationale was that the head of larger household sizes need to pay more premium monthly to protect each members of the household.<sup>25, 26</sup> Besides, larger families have higher spending, and their income may not be sufficient to pay for health insurance premiums.

This study also found a significant association between monthly income and WTP. Interestingly, lower-income respondents were demonstrated to be more willing to pay for NHI than higher-income respondents. The median monthly income of those willing to pay was RM3468.85, while it was RM5100.00 for those not willing to pay. While this finding may appear counterintuitive since higher income generally implies greater payment capacity, it has been observed in other local study, including one among university lecturers.<sup>14</sup> One possible explanation is that lower-income individuals perceive a greater need for financial protection due to vulnerability to out-of-pocket medical expenses. Alternatively, higher-income individuals may already have private insurance and perceive less value in contributing to an additional scheme. Nevertheless, other studies have shown a positive correlation between income and WTP for NHI, indicating that the relationship may vary depending on population context and perceived benefit.<sup>9,11,14,15,27</sup>

#### CONCLUSION

In conclusion, the majority of health sector employees were willing to support and contribute to a future National Health Insurance scheme if implemented in Malaysia. The average amount they were willing to pay was RM72.00 per month (SD = RM77.92), with a median of RM50.00 (IQR = RM70.00), or 1.94% (SD = 1.92%) and 1.00% (IQR = 1.88%) of their monthly income, respectively. Factors such as age, household size, and monthly income were significantly associated with WTP in this study. These findings may assist policymakers in designing an equitable and sustainable NHI

scheme by aligning contribution rates with the population's demographic and income characteristics.

### ACKNOWLEDGEMENT

The authors would like to thank the Medical Research Ethics Committee (MREC), Faculty of Medicine, National University of Malaysia (Project code FF-2018-230) and MREC Medical Ministry of Health, Malaysia (NMRR-18-570-40183) for their permission to conduct the study.

### REFERENCES

1. Kementerian Kesihatan Malaysia. Malaysia National Health Accounts (MNHA) National Health Expenditure 2011-2023 2024.
2. Daud F, Ponnampalam PK, Nadzri NFM. Exploratory Study on the Compensation Practices in Private Hospitals for Clinical Specialists in Malaysia. *IJUM Medical Journal Malaysia*. 2023;22(4).
3. Lee W-Y, Shaw I. The impact of out-of-pocket payments on health care inequity: the case of national health insurance in South Korea. *International journal of environmental research and public health*. 2014;11(7):7304-18.
4. He AJ. Introducing voluntary private health insurance in a mixed medical economy: are Hong Kong citizens willing to subscribe? *BMC Health Services Research*. 2017;17:1-10.
5. Bae G, Kang M, Reich MR. The Consolidation of Risk Pools in the National Health Insurance Program of the Republic of Korea: Analysis of the Political Processes. *Health Systems & Reform*. 2024;10(1):2375101.
6. Acharya A, Vellakkal S, Kalita S, Taylor F, Satija A, Burke M, et al. Do social health insurance schemes in developing country settings improve health outcomes and reduce the impoverishing effect of healthcare payments for the poorest people. A systematic review. 2011:1-27.
7. Ghimire S, Ghimire S, Singh DR, Sagtani RA, Paudel S. Factors influencing the utilisation of National health insurance program in urban areas of Nepal: Insights from qualitative study. *PLOS Global Public Health*. 2024;4(7):e0003538.
8. Mishra SR, Khanal P, Karki DK, Kallestrup P, Enemark U. National health insurance policy in Nepal: challenges for implementation. *Global health action*. 2015;8(1):28763.
9. Shafie A, Hassali M. Willingness to pay for voluntary community-based health insurance: Findings from an exploratory study in the state of Penang, Malaysia. *Social science & medicine*. 2013;96:272-6.
10. Nungo S, Filippon J, Russo G. Social Health Insurance for Universal Health Coverage in Low and Middle-Income Countries (LMICs): a retrospective policy analysis of attainments, setbacks and equity implications of Kenya's social health insurance model. *BMJ open*. 2024;14(12):e085903.
11. Aizuddin A, Hod R, Rizal A, Yon R, Al Junid S. Ability and willingness to pay for healthcare and contribute to National Healthcare Financing Scheme among farmers in Selangor. *J Community Health*. 2011;17(1):56-63.
12. Almualm Y, Alkaff SE, Aljunid S, Alsagoff SS. Factors influencing support for National Health Insurance among patients attending specialist clinics in Malaysia. *Global journal of health science*. 2013;5(5):1.
13. Aizuddin AN, Aljunid SM. Ability to pay for future national health financing scheme among Malaysian households. *Annals of Global Health*. 2017;83(3-4):654-60.
14. Salameh AMM, Juni MH, Hayati K. Willingness to pay for social health insurance among academic staff of a public University in Malaysia. *International Journal of Public Health and Clinical Sciences*. 2015;2(5):21-32.
15. bin Taib A. Kesanggupan Membayar Penjawat Awam Di Putrajaya Ke Atas Perkhidmatan Kesihatan Dan Skim Insuran Kesihatan Kebangsaan. *Prosiding Persidangan Kebangsaan Ekonomi Malaysia Ke*. 2015;10:503.
16. Saimy IS, Juni MH, Rosliza A. Willingness to pay for health insurance and its associated factors among staff of local authorities in Petaling District, Selangor, 2016. *International Journal of Public Health and Clinical Sciences*. 2016;3(6):35-49.
17. Daud F, Abd Ghani NF, Zahid SNA. Job Satisfaction Among Specialist In Ministry Of Health Malaysia And Its Associated FactorS. *Malaysian Journal of Public Health Medicine*. 2022;22(3):1-8.
18. Faiz D, Siti Norbani A, Azimatun N, Nik Azlan NM. Work Performance and its Influencing Factors Among Support Staff in Hospital Mersing, Johor. *Medicine & Health*. 2020;15:47-55. <https://doi.org/10.17576/MH.2020.1502.07>
19. Shono A, Kondo M, Ohmae H, Okubo I. Willingness to pay for public health services in rural Central Java, Indonesia:

- Methodological considerations when using the contingent valuation method. *Social science & medicine*. 2014;110:31-40.
20. Bärnighausen T, Liu Y, Zhang X, Sauerborn R. Willingness to pay for social health insurance among informal sector workers in Wuhan, China: a contingent valuation study. *BMC Health Services Research*. 2007;7:1-16.
  21. Ahmed S, Hoque ME, Sarker AR, Sultana M, Islam Z, Gazi R, et al. Ahmed et al. 2016 Willingness-to-Pay for Community-Based Health Insurance among Informal Workers in Urban Bangladesh. *Test site 1*. 2023;1(1).
  22. Dror DM, Radermacher R, Koren R. Willingness to pay for health insurance among rural and poor persons: Field evidence from seven micro health insurance units in India. *Health policy*. 2007;82(1):12-27.
  23. Agago TA, Woldie M, Ololo S. Willingness to join and pay for the newly proposed social health insurance among teachers in Wolaita Sodo town, South Ethiopia. *Ethiopian journal of health sciences*. 2014;24(3):195-202.
  24. Adams R, Chou Y-J, Pu C. Willingness to participate and Pay for a proposed national health insurance in St. Vincent and the Grenadines: a cross-sectional contingent valuation approach. *BMC health services research*. 2015;15:1-10.
  25. Al-Hanawi MK, Vaidya K, Alsharqi O, Onwujekwe O. Investigating the willingness to pay for a contributory National Health Insurance Scheme in Saudi Arabia: a cross-sectional stated preference approach. *Applied health economics and health policy*. 2018;16:259-71.
  26. Habtewold YW. Preference for health care financing options and willingness to pay for compulsory health insurance among government employees in Ethiopia: Umeå International School of Public Health umeå, Sweden; 2009.
  27. Onwujekwe O, Okereke E, Onoka C, Uzochukwu B, Kirigia J, Petu A. Willingness to pay for community-based health insurance in Nigeria: do economic status and place of residence matter? *Health policy and planning*. 2010;25(2):155-61.