THE PROPORTION AND ASSOCIATED FACTORS OF PRIVATE HEALTH INSURANCE UPTAKE IN THE EAST COAST MALAYSIA

By:

DR. MOHD ADLI BIN ABD KHALIM

Research project report submitted in

partial fulfilment of the requirements for the degree of

Master of Public Health

JUNE 2021

ACKNOWLEDGMENTS

In the name of Allah, the Most Compassionate, the Most Merciful

Praise be to Allah, the Lord of the Universe. May peace and blessings be upon the beloved Prophet Muhammad PBUH, his family, and his companions. I would like to express my deepest gratitude and thanks to the following individuals who have contributed and supported me during the preparation of the research project report:

- Dr. Surianti Sukeri, my supervisor and lecturer from the Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia (USM).
- All lecturers from the Department of Community Medicine, School of Medical Sciences, USM, who have given their guidance for the research project report and the course.
- My colleagues from the Master of Public Health 2020/2021 batch.
- My family, especially my beloved wife Dr. Farhani binti Md Azizan, my parents; Abd Khalim bin Harun and Hamidah binti Jaafar, and also my siblings for their endless encouragement and prayers.

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LIST OF ABBREVIATION

AdjOR	Adjusted Odds Ratio
B40	The bottom 40% in household income categorisation
CHE	Catastrophic health expenditure
CI	Confidence interval
DOSM	Department of Statistics, Malaysia
M40	The middle 40% in household income categorisation
OOP	Out-of-pocket
OR	Odds ratio
PHI	Private health insurance
ROC	Receiver Operating Characteristics
SPSS	Statistical Package for the Social Sciences
T20	The top 20% in household income categorisation
WHO	World Health Organization

LIST OF SYMBOLS

%	Per cent
=	Equals to
≤	Less than or equal to
<	Less than
≥	Greater than or equal to
>	Greater than

ABSTRAK

PERKADARAN DAN FAKTOR-FAKTOR YANG BERKAITAN DENGAN PENGAMBILAN INSURANS PERUBATAN SWASTA DI WILAYAH PANTAI TIMUR MALAYSIA

Latar belakang: Sistem penjagaan kesihatan awam di Malaysia terlalu terbeban, kekurangan dana, dan tidak mampan. Terdapat keperluan untuk menilai semula kaedah pembiayaan penjagaan kesihatan dengan meningkatkan penggunaan insurans perubatan swasta yang akan membantu mengurangkan bebanan sistem penjagaan kesihatan awam dan menurunkan tahap perbelanjaan isi rumah untuk tujuan kesihatan.

Objektif: Kajian ini bertujuan untuk mengkaji perkadaran pengambilan insurans perubatan swasta dan faktor-faktor yang berkaitan dengannya di kalangan penduduk Pantai Timur.

Metodologi: Satu kajian keratan lintang telah dilakukan dari Februari 2021 hingga Jun 2021 menggunakan proforma dwibahasa berasaskan laman web di kalangan penduduk Pantai Timur. Persampelan berstrata berkadar dilakukan untuk mendapatkan 1113 responden dari wilayah Pantai Timur Malaysia. Analisis deskriptif dan regresi logistik telah digunakan.

Keputusan: Kajian in melibatkan semua 1138 responden yang memenuhi kriteria kajian. Jumlah perkadaran pengambilan insurans perubatan swasta di kalangan penduduk Pantai Timur adalah 54.3%. Negeri Pahang mempunyai peratusan pengambilan insurans perubatan swasta tertinggi iaitu sebanyak 21.3%, diikuti oleh negeri Kelantan (21.1%) dan Terengganu (12.0%). Faktor-faktor yang berkaitan dengan pengambilan insurans perubatan swasta di Pantai Timur adalah tahap pendidikan (AdjOR: 1.82, 95% CI: 1.26, 2.64), pendapatan isi rumah untuk kedua-dua

kategori M40 (AdjOR: 2.34, 95% CI: 1.73, 3.17) dan T20 (AdjOR: 3.50, 95% CI: 2.40, 5.10), dan status pekerjaan termasuklah bekerja di sektor awam (AdjOR: 6.76, 95% CI: 3.26, 14.01), sektor swasta (AdjOR: 7.28, 95% CI: 3.36, 15.79), dan bekerja sendiri (AdjOR: 10.34, 95% CI: 4.39, 24.38).

Kesimpulan: Perkadaran pengambilan insurans perubatan swasta di kalangan penduduk Pantai Timur berdasarkan kajian ini (54.3%) adalah lebih tinggi berbanding jumlah perkadaran ketiga-tiga negeri Pantai Timur yang dilaporkan dalam Tinjauan Kebangsaan Kesihatan dan Morbiditi 2019 (31.6%). Faktor-faktor yang signifikan dengan pembelian insurans perubatan swasta menggambarkan kebolehan membayar sekaligus membuktikan insuran ini perlu dipromosikan di kalangan mereka yang mampu. Penemuan ini dapat memberikan manfaat kepada syarikat insurans perubatan swasta untuk memperkenalkan polisi insurans yang dapat menarik lebih ramai bakal pelanggan. Walau bagaimanapun, para pembuat dasar juga harus memantau perkembangan ini untuk melindungi hak pengguna insurans perubatan swasta di Malaysia dengan lebih baik.

Kata kunci: Pengambilan insurans perubatan swasta, wilayah Pantai Timur, faktor penentu pembelian insurans perubatan swasta.

ABSTRACT

THE PROPORTION AND ASSOCIATED FACTORS OF PRIVATE HEALTH INSURANCE UPTAKE IN THE EAST COAST MALAYSIA

Background: The public healthcare system in Malaysia is overburdened, underfunded, and unsustainable. There is a need to rethink healthcare financing through PHI by increasing its uptake which will assist in reducing the burden of the public healthcare system and lower the level of household OOP expenditure.

Objective: This study aimed to study the proportion of PHI uptake and its associated factors among the East Coast population.

Methodology: A cross-sectional study was done from February 2021 until June 2021 using a bilingual web-based proforma among the East Coast population. Proportionate stratified sampling was done to obtain 1113 respondents from the East Coast region of Peninsular Malaysia. Descriptive analysis and logistic regression were applied.

Result: All 1138 respondents who fulfilled the study criteria were included. The proportion of PHI uptake among the East Coast population was 54.3%. Pahang had the highest PHI uptake at 21.3%, followed by Kelantan (21.1%) and Terengganu (12.0%). Factors associated with PHI uptake in the East Coast region were education level (AdjOR: 1.82, 95% CI: 1.26, 2.64), household income categories for both M40 (AdjOR: 2.34, 95% CI: 1.73, 3.17) and T20 (AdjOR: 3.50, 95% CI: 2.40, 5.10), and employment status including working in public sector (AdjOR: 6.76, 95% CI: 3.26, 14.01), private sector (AdjOR: 7.28, 95% CI: 3.36, 15.79), and self-employed (AdjOR: 10.34, 95% CI: 4.39, 24.38).

Conclusion: The proportion of PHI uptake among the East Coast populations in the current study was higher (54.3%) than the total proportion of PHI uptake among the

East Coast populations reported in the National Health and Morbidity Survey 2019 (31.6%). Significant factors associated with the uptake of PHI were those that reflect the ability-to-pay, which reaffirmed the fact that PHI should be promoted among those who can afford it. The findings may benefit PHI providers to introduce insurance policies that may attract more potential clients. However, policymakers should also monitor these developments to better protect the rights of PHI purchasers in Malaysia.
Keywords: Private health insurance uptake, East coast region, determinants of purchasing decision.

CHAPTER 1

INTRODUCTION

1.1 Background

Health care financing can be defined as the action of raising or collecting revenue to maintain and improve a country's health care system to ensure all people have access to the health services they need. In general, finance sources for health care are government revenue, social health insurance (SHI), private health insurance (PHI), out-of-pocket (OOP) payment, and foreign aid (Yu *et al*., 2008; OECD, 2017; WHO, 2020).

The government revenue refers to all revenues collected from taxes and non-taxes sources which are used for its expenditure. For example, in Malaysia, the federal government revenues consist of tax revenue as well as non-tax revenue. Tax revenue includes corporations' income tax, individuals' income tax, stamp duty, import duties, export duties, excise duties, taxes imposed on goods and services, levies, and miscellaneous taxes. While non-tax revenue consists of licenses, rentals of government properties, interests from investments, fines, penalties, etc (UK Essays, 2017; Royal Malaysian Customs Department, 2019; Inland Revenue Board, 2021).

Social health insurance (SHI) is a method of health financing that involves mandatory health insurance contributions by eligible individuals in the population. Enterprises, employees, and self-employed persons will pay their contribution into the SHI fund based on their income, while the proportion of those who are unemployed,

disabled, or low-income earners are funded by the government or contributed by the rich (Carrin and James, 2005; Doethinchem *et al.*, 2010). These contributions will be added to the existing allocation for the public health care services (Verma *et al.*, 2015). This scheme is expected to protect people from financial hardship as its fund pooling promotes broad risk-spreading and cross-subsidisation between people with different risks of ill and different income groups (Fenny *et al.*, 2018). However, the SHI scheme is not established in Malaysia (Bernama, 2020).

Private health insurance (PHI) or also known as 'voluntary health insurance' refers to health insurance coverage offered by private entities and often acquired voluntarily by individuals or employers for their employees (Thomson and Mossialos, 2010). It is considered as a medium for enriching individuals' choice of providers and health care services, lowering the cost and demand pressures on public healthcare, as well as reducing direct payments for healthcare services especially in the private sector (Kefeli and Jones, 2012; Kullberg *et al.*, 2019).

There are a few differences when comparing PHI to SHI schemes. For instance, the premium (monthly payment to insurance companies) for a PHI is set based on the health risk of the individuals (higher health risk, higher premium), while for the SHI, the government will determine the contribution rate according to the ability to pay. In terms of coverage, the PHI offers a wide variety of coverage with additional and faster services, while the SHI usually relies more on both public and private healthcare services and the government will regulate the benefits package. Normally, this benefits package will be outlined in detail so that there is no room for confusion, wrongdoing, or exploitation (Immergut, 2001; Pardo and Schott, 2012; Verma *et al.*, 2015).

Out-of-pocket (OOP) payment is money paid by individuals, directly to health care providers for health goods or services rendered, where the cost is not covered by

either public or private health insurance (OECD, 2019). It includes outpatient healthcare, oral healthcare, over-the-counter medications or health products, purchase of dietary supplements, private medical laboratory services, medical check-ups, etc (Institute for Public Health, 2020). A high share of OOP over total income is associated with catastrophic health expenditure (CHE). The World Health Organization (WHO) suggested that the goal to achieve universal health coverage (UHC) is unfeasible when a country's OOP level is high because of the high risk of CHE and poverty (Evans and Etienne, 2010; Njagi *et al.*, 2018).

Catastrophic health expenditure (CHE) from high OOP is the indicator 3.8.2 to monitor target 3.8 within the Sustainable Development Goal (SDG) 3 framework. It is defined as the proportion of the population with large household spendings on health as a share of total household expenditure or income. Target 3.8 focuses on achieving UHC, including financial risk protection, access to quality essential healthcare services, as well as access to safe, effective, quality, and affordable essential medicines and vaccines for all (World Bank Group, 2019).

Foreign aid involves the transfer of resources (funds, goods, services, technical advice, or training), usually from a rich country or international organisation to a poor country (Williams, 2020). Developing countries are commonly associated with low income earning and scarce resources, thus rely more on this type of assistance to fill in the gap between their expenditure and income. However, there are controversies regarding the role of foreign aid whether it will assist the poor nations to break free from the cycle of poverty and ill-health, or on the other hand causing delays in the development of those countries (Bendavid and Bhattacharya, 2014).

In reality, no country in the world uses only a single health financing mechanism as combining multiple approaches is preferred to overcome each other

disadvantages. Healthcare is becoming more expensive both in developed and developing countries. Appropriately designed healthcare financing strategies assist governments to mobilise adequate financial resources for health, allocate them rationally, and use them effectively and equitably (WHO, 2005).

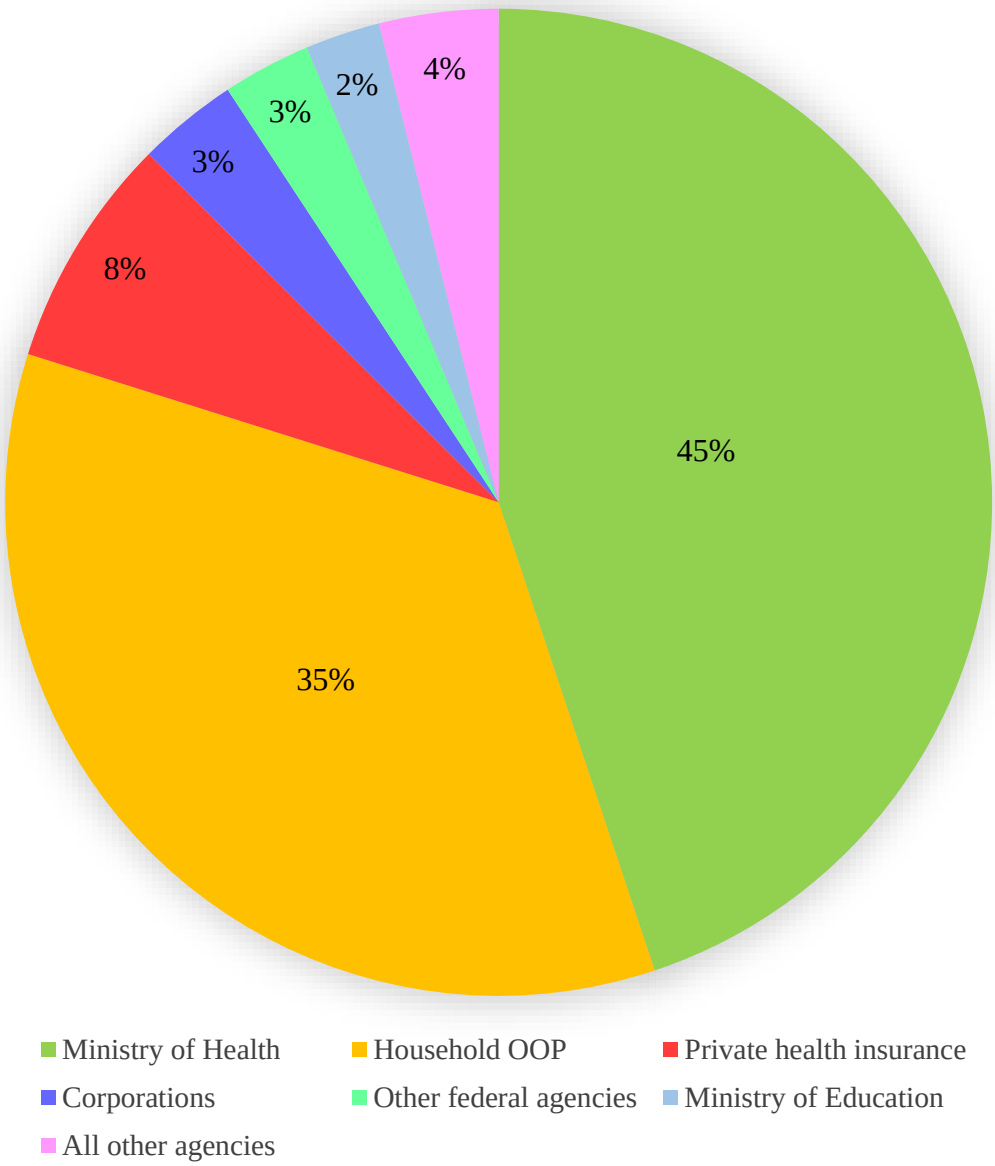
1.1.1 Healthcare financing in Malaysia

Malaysia has adopted the Beveridge model which is characterised by the provision of healthcare services for all citizens through the government's revenue financed from various taxes and revenues at 3.75% of its gross domestic product (GDP) (World Bank, 2021). However, health care financing through taxation in Malaysia is no longer sustainable. Tax-based health financing is influenced by the fiscal capacity of the government. Budget cuts will affect healthcare delivery resulting in longer waiting time, delayed care, privatization of health services, reduction of treatment subsidies and medications. High medical inflation rate, ageing population, double burden of communicable and non-communicable diseases will further strain the already stretched thin government budget. If the allocation for health reduces, subsequently it will impact the continuity and the quality of health care provided. On top of that, the cost of healthcare will be shifted to patients who have to pay OOP and thus increases the risk of catastrophic expenditure among poor patients.

Out-of-pocket has remained the second-highest source of healthcare spending in Malaysia ever since 1997. According to the Malaysia National Health Accounts (MNHA) report, OOP expenditure accounted for between 37%- 35% of the total expenditure on health in Malaysia from 1997 to 2019.

Another source of spending on healthcare services among Malaysians is PHI. However, the proportion of expenditure from PHI is much lower around 7.6% of the

total spending (MNHA, 2020). Figure 1.1 below showed the proportion of all sources of health spending in 2019.



Source: *MNHA Steering Committee Meeting, 2020*

Figure 1.1: Sources of health spending in Malaysia, 2019

1.2 Introduction to PHI

Private health insurance is an arrangement between the policyholder (the insured) who pays the private insurance provider (the insurer) an agreed amount known as the premium at regular intervals, usually on monthly basis. The premium then is pooled into a fund that is managed by the insurer. In return, the insurer will pay out a pre-determined amount of money to compensate the medical cost of the insured (either a partial or total cost). Health insurance should not be confused with life insurance. The former covers medical expenses (such as hospitalisation, surgical fees, doctor's visits, medications, tests, and procedures), while the latter is an add-on rider insurance that pays out a certain benefit to the insured or their beneficiaries in case of total permanent disability or death (Investopedia, 2019; iMoney, 2020). However, in a certain insurance scheme, both types of these insurances were combined in a single policy.

1.2.1 Functional types of PHI

Generally, there are three functional types of PHI, namely substitutive, complementary, or supplementary.

A substitutive PHI refers to the scheme that covers certain groups in the population who are not entitled to government-financed coverage based on their age or income levels, or those who are permitted to opt for private coverage (Thomson *et al.*, 2020). For instance, before the initiation of statutory universal coverage in 2006 in the Netherlands, high-income households were excluded from the public health insurance system and had to purchase substitutive PHI as a substitute. A similar policy was practised in Ireland whereby rich households were denied public hospital care prior to the establishment of the universal hospital cover (Thomson and Mossialos,

2010). In terms of age, some countries set a certain age limit to be entitled to government-financed coverage. For example, in Germany, people aged 55 years old are no longer eligible for such coverage (Sagan and Thomson, 2016). In Cyprus, approximately 20% of the population purchased substitutive PHI as they are not eligible for publicly financed coverage. As for Germany, around 11% of the population (most of them are high-income individuals) preferred substitutive PHI to social insurance (Wouters and McKee, 2017).

A complementary PHI has two functions. One is to provide coverage for services such as outpatient care, occupational therapy, physiotherapy, spectacles, co-payments for drugs and dental care that were typically excluded from the SHI. In Ireland, almost half of the population acquired this type of PHI coverage (Thomson and Mossialos, 2010). The second function of a complementary PHI is to reimburse costs of user charges, which is less commonly practised (Thomson *et al.*, 2020). France and Slovenia are among the countries that widely practised this type of complementary PHI, which covered almost 96% and 70% of the population, respectively (Thomson and Mossialos, 2010; Wouters and McKee, 2017).

A supplementary PHI is a scheme that expands purchasers' options of healthcare services. In other words, by acquiring supplementary PHI, customers have expedited access to treatment or bypass the waiting lists, more choices of healthcare providers, and enhanced services or convenience such as a private room (Sagan and Thomson, 2016; Wouters and McKee, 2017; Thomson *et al.*, 2020). Generally, this type of insurance is acquired by high-earners, white-collar workers, or well-educated individuals (Thomson and Mossialos, 2010). Supplementary PHI schemes are well-established in many countries, including Malaysia. Table 1.1 showed the differences between the three functional types of PHI.

Table 1.1: The functional types of PHI

Type of PHI	Nature of cover	Countries
Substitutive	Covers people excluded from publicly financed coverage or allowed to choose between publicly and privately financed coverage	Chile; Egypt; Germany; the Netherlands (before 2006); the US
Complementary (services)	Cover of services excluded from the publicly financed benefits package	Belgium
Complementary (user charges)	Cover of user charges (co-payments) for goods and services in the publicly financed benefits package	France, Slovenia, Denmark
Supplementary	Offers faster access to services, greater choice of health care provider, or enhanced amenities	The UK

Source: Adapted from Thomson et al., (2020)

1.2.2 Roles of PHI

The literature has been inconclusive about the role of PHI. The systems that are poorly developed or regulated are often regarded as promoting inequality in the population, with higher enrollment among high-income earners, young, and healthy people. Yet, past experiences also proved that PHI can be beneficial in boosting equity among the population in developing countries for reasons discussed in the following paragraphs.

First, OOP expenditure on health services is one of the common burdens in developing countries. A pre-payment scheme such as PHI may avert a large amount of OOP health spending, and subsequently prevent households from experiencing CHE (Savedoff and Sekhri, 2004). In a systematic review involving 30 studies conducted in China from January 2000 to June 2020, with a total of 63,3917 participants, the findings demonstrated that the rate of CHE among people who owned any type of health insurance (12.8%, 95% CI: 12.2%-13.3%) was significantly lower compared to those who did not acquire health insurance (16.2%, 95%CI: 15.4%-16.9%) (Li *et al.*, 2020).

Secondly, many developing countries had limited capacity to generate enough revenue or finance SHI schemes to ensure financial protection for their people. With the growth of the PHI industry, the government could reallocate resources to vulnerable groups. As for those who can afford to pay their medical costs, they should do so without depending on the government's subsidies (Savedoff and Sekhri, 2004).

Thirdly, several Organisation for Economic Co-operation and Development (OECD) countries had successfully developed their SHI systems basing on voluntary PHI schemes. Developing countries could learn from the past histories of their developed counterparts to establish public insurance systems of their own (Savedoff and Sekhri, 2004).

Finally, the PHI industry could always be supplementary to the public-financed health systems even though the country has achieved universal coverage (Savedoff and Sekhri, 2004). Besides providing more options to the customers, supplementary PHI schemes could lessen the burden in the public healthcare systems (Wan Abdullah and Ng, 2009; Harley *et al.*, 2011).

1.2.3 Arguments on PHI

The PHI scheme has several drawbacks. The main issue is related to the access to the scheme as insurers are often allowed to decline potential customers' applications based on their pre-existing conditions (previous medical or surgical history), age, and lifestyle characteristics (Odeyemi and Nixon, 2013). The Netherlands once experienced this issue before the enforcement of a safety-net programme for social health insurance. A similar type of programme was imposed by other countries to ensure that some percentage of high-risk groups can be enrolled in PHI schemes (Colombo and Tapay, 2004).

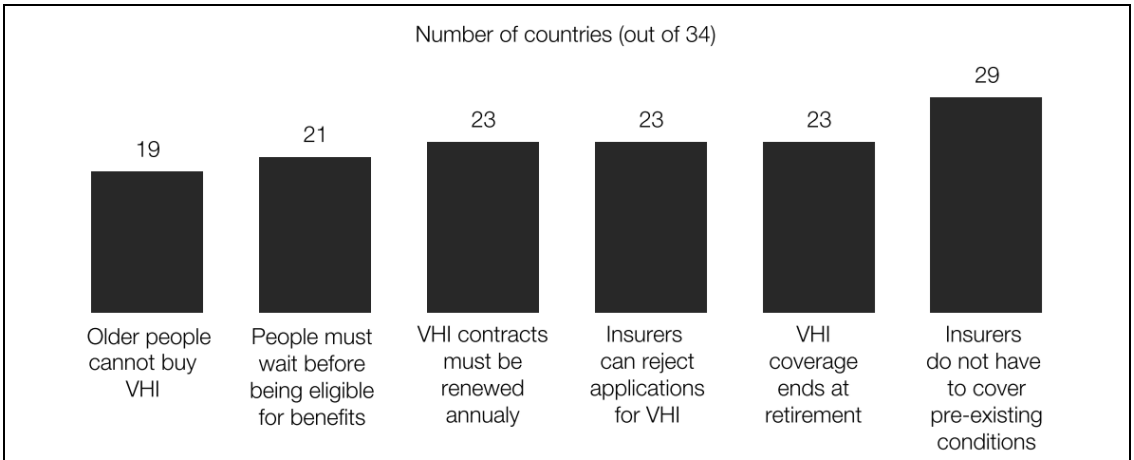
This risk selection indirectly increases the pressure on the public sector. As a higher proportion of those who have pre-existing conditions or unhealthy lifestyles are being excluded from the scheme, they would have to rely on the public sector. Not only they are at risk of developing diseases, but having comorbidities are also associated with high medical care costs (Alexandersen *et al.*, 2016).

In terms of premium, different groups are charged with different amounts of premium based on the customers' health and occupational risks. In other words, those who had pre-existing diseases can be charged higher premiums to cover the cost of treatment, which eventually may lead to discontinuity of the coverage due to their inability to pay (Thomson and Mossialos, 2010; Sagan and Thomson, 2016; Wu *et al.*, 2020).

Another issue with the premium is that insurers would increase the premium at will. This will have a significant impact on the coverage of PHI as well as health care spending. For example, Buettgens *et al.*, (2010) conducted a study to examine the outcome of the insurance coverage under two different scenarios for a premium rise; intermediate and largest rise scenarios. As a result, about 1.9 million and 3.3 million Americans discontinued their insurance coverages with intermediate and largest premium increases, respectively. They also found that the most affected groups were the low- and middle-income earners. The healthcare expenditure also increased significantly with an additional of $19.1 billion and $38.6 billion with intermediate and largest premium increases, respectively.

In certain conditions, the insurers would exempt coverage for any pre-existing conditions of the clients. For example, a PHI scheme in the Czech Republic excluded treatment for some chronic diseases such as HIV/AIDS, drug addiction, and mental health (Thomson and Mossialos, 2010; Sagan and Thomson, 2016). Figure 1.2 showed

the PHI policy implemented in 34 European countries, where 29 countries excluded pre-existing disease treatment from PHI coverage.



Source: *Adapted from Sagan and Thomson, 2016*

Figure 1.2: PHI policy conditions in Europe, from 2012 and later

1.3 PHI in Malaysia

The history of PHI prior to the 1980s was not found. It cannot be confirmed when PHI was first introduced in Malaysia. However, the earliest available data found the proportion of PHI uptake in 1983 was very small which was around 1.5% of the population. However, the figure had a tenfold increase by the year 1995. In 2006, it was reported that almost 19% of Malaysians were covered either by health insurance, life insurance, or any type of health-related insurance, with a total premium of RM1.21 billion (Wan Abdullah and Ng, 2009).

In 2007, health insurance providers offered more than a million new individual life policies with a total sum assured at RM51 million, and the most preferred plan was medical or health insurance (Wan Abdullah and Ng, 2009). To promote PHI uptake and boost the growth of the insurance industry, the government implemented various

initiatives including tax exemption for education/medical insurance up to RM3,000. However, the rate remains unchanged for almost two decades (Wan Abdullah and Ng, 2009; Inland Revenue Board of Malaysia, 2021).

Due to the increasing trend of PHI uptake in the mid-2000s, insurance providers began to launch more competitive insurance policies, either in a form of life coverage or general business (non-life insurance products, for example, fire, marine, motor, accident, and other non-life insurance), or both type of coverage (Wan Abdullah and Ng, 2009). Up until now, there are 14 insurance companies offering life business insurance and 15 takaful (sharia-compliance insurance products) operators (Central Bank of Malaysia, 2021), all of them are profit-oriented.

Among the top insurance providers and takaful operators in Malaysia are AXA Affin Life Insurance Berhad, AIA Berhad, Allianz Life Insurance Malaysia Berhad, Etiqa Life Insurance Berhad, Great Eastern Life Assurance (Malaysia) Berhad, Hong Leong Assurance Berhad, Prudential Assurance Malaysia Berhad, Tokio Marine Life Insurance Malaysia Bhd, Zurich Life Insurance Malaysia Berhad, Prudential BSN Takaful Berhad, Etiqa Family Takaful Berhad, Syarikat Takaful Malaysia Keluarga Berhad, Takaful Ikhlas Family Berhad, FWD Takaful Berhad, etc.

There are two types of health insurance plans which are individual (including family plan) and employer-sponsored health insurance (commonly known as group coverage). Both types of plans will cover the policyholder from any event of illness, accident, hospitalisation, or surgery. However, there are some differences in terms of annual limit, as well as daily room and board limit. As for individual health insurance, an individual plan only protects a single person, whereas a family plan protects two or more people (spouse and/or children). The premium for family plans will increase based on the number of people covered under the same policy. As for the deductibles

(the amount of payment before the insurance plan starts to pay), family plans usually have higher deductibles compared to individual plans.

In Malaysia, the insurance industry is regulated by the Central Bank of Malaysia (Bank Negara Malaysia) under the Insurance Act 1996. This act established laws for all aspects of the insurance business, including the licensing and regulation of insurance business, the broking and adjusting business, as well as other related purposes. It also banned any practice of insurance businesses (either as an insurer, insurance broker, adjuster, or financial adviser) by the unlicensed or unregistered organisations (Insurance Act, 1996). However, there is not much the act can do to protect consumers who purchased PHI as it is a general act for all types of insurance, not one that is specific for PHI. Due to this shortcoming, PHI providers may do as they wish as there is no proper monitoring to control their operation. Premium hikes are common but room and board as well as the annual limit have remained the same regardless of the high inflation rate in medical costs. Consumers complained their request for hospital admission are often rejected and making claims are taxing and arduous process. If these situations continue to persist, it is possible that the public will no longer have trust in PHI and may refuse to continue their policies.

1.3.1 Medical card

The PHI in Malaysia is popularly known as a ‘medical card’. It refers to medical insurance that pays for in-patient treatment and the following outpatient care (Kefeli and Jones, 2012). The name originates from the card that allows its policyholder a cashless admission for in-patient care at panel hospitals listed by the insurance providers. Entry to non-panel hospitals is allowed however policyholders have to pay

on their own and submit reimbursement claims later from their insurance provider (RinggitPlus, 2021).

A medical card may exist either as a standalone policy or with an added rider. A standalone medical card is purely a medical insurance plan without any add-ons (such as critical illness protection, life insurance, income protection, investments, or savings benefits), thus, the premium will be cheaper. On the contrary, a medical card with an added rider is relatively expensive as it includes both health and life coverage in a single premium, as well as a saving portion that can be withdrawn by the insured.

1.3.2 Benefits coverage and exemption of medical card

Generally, all medical cards have the same components of coverage such as annual limit, lifetime limit, pre-hospitalisation diagnostic tests, room & board, post-hospitalisation treatment, surgical fees, emergency accidental outpatient treatment, emergency dental treatment, cash allowance at the government hospital, etc. The difference between these medical cards is the amount fixed for each component. Table 1.2 showed the differences between three medical cards in Malaysia (RinggitPlus, 2021).

Table 1.2: The coverage differences between medical cards

	IKHLAS Individual Medical Secure	**Prudential PRUHealth Medical Card**	**Maybank MediRider**
Minimum entry age	N/A	1 year of age	30 days of age
Maximum entry age	70 years of age	70 years of age	59 years of age
Coverage age	N/A	1 year-100 years	30 days-75 years
No. of panel hospitals	101	78	96
Annual limit	RM20k - RM150k	RM50k - RM250k	RM20k - RM100k
Lifetime limit	RM200k - RM1.5m	RM520k - RM2.6m	RM60k - RM300k
Pre-hospitalisation diagnostic tests	As charged	As charged	As charged
Room & board	RM100 - RM400 per day	RM100 - RM600 per day	RM100 - RM450 per day
Post-hospitalisation treatment	As charged	As charged	As charged
Surgical fees	As charged	As charged	As charged
Emergency accidental outpatient treatment	As charged per accident	RM1k - RM6k	As charged
Emergency dental treatment	As charged per accident	N/A	As charged
Ambulance fees	As charged	N/A	RM100 - RM200
Cash allowance at the government hospital	RM100 per day, up to 60 days	Not stated	RM50 up to RM200 per day

1.4 Statement of problem

The public healthcare system in Malaysia is overburdened, underfunded, and unsustainable. Furthermore, the Malaysia National Health Accounts (2020) reported that in 2019, up to 35% of the total expenditure on health was from OOP payments, and this high reliance on OOP could eventually lead to CHE and worsening individual economic status. It has been suggested that OOP payments could be reduced with the introduction of social health insurance (Kananatu, 2002). However, since Malaysia is nowhere near realising this initiative, thus, there may be a need to rethink healthcare financing through PHI by increasing its uptake which will assist in reducing the burden of the public healthcare system and lower the level of household OOP expenditure.

Data on the uptake of PHI was available from the National Health and Morbidity Survey (NHMS) in 2019. However, the COVID-19 pandemic has resulted in many individuals who lost their employments and consequently may have terminated their PHI policies. It is also possible that the uptake may have been increased as access to public hospitals is now limited due to the pandemic. It was not our intention to associate the study findings with the pandemic, but merely to observe if any change in the uptake of PHI occurred post NHMS 2019.

Furthermore, no prior study has ever attempted to determine the associated factors of PHI uptake. The absence of data will interfere with the government's intention to promote PHI uptake among those who can afford it. There is also a lack of understanding of the consumer behaviour towards voluntary purchasing of health insurance in Malaysia.

1.5 Rationale

The findings on the associated factors of PHI uptake can be used towards improving health financing strategy in Malaysia by increasing the uptake of PHI among those who can afford it. It is high time for such initiative to be pursued since the COVID-19 pandemic has resulted in a significant burden on public healthcare facilities and even greater financial strain on the government. Furthermore, the study findings may also provide additional insights for the future implementation of a social health insurance in Malaysia.

1.6 Research questions

- What is the proportion of the PHI uptake in the East Coast region of Peninsular Malaysia?
- What are the factors associated with the uptake of PHI among the East Coast populations?

1.7 Research objectives

1.7.1 General objective

To study the proportion of PHI uptake and its associated factors among the East Coast population.

1.7.2 Specific objectives

- To determine the proportion of PHI uptake among the East Coast population.

- To determine the associated factors of PHI uptake among the East Coast population.

1.8 Research hypotheses

HA: There are significant associations between age, gender, ethnicity, marital status, level of education, employment status, household income, and strata with the purchasing of PHI among the East Coast population.

CHAPTER 2

LITERATURE REVIEW

The literature search was done via three search engines, namely PubMed, Scopus, and Google scholar. Keywords used in the search were private health insurance, voluntary health insurance, complementary health insurance, supplementary health insurance, PHI determinants, health insurance coverage, health insurance enrollment, community-based health insurance, medical insurance, catastrophic health expenditure, and out-of-pocket expenditure.

2.1 PHI uptake nationally and globally

Based on the 2015 NHMS, the proportion of PHI uptake in Malaysia was reported at 23.7% (Institute for Public Health, 2015). However, the proportion declined to 20.5% in the subsequent NHMS in 2019 (Institute for Public Health, 2020).

According to the data in 2015, Terengganu had the lowest proportion of PHI ownership among these three states (7.0%), followed by Kelantan (10.4%) and Pahang (19.1%). Four years later Kelantan became the state with the lowest PHI uptake at only 4.9%, whilst Terengganu and Pahang recorded a proportion of 9.7% and 17.0%, respectively (Institute for Public Health, 2015, 2020). No other finding was available apart from these data from the NHMS. It seemed that this topic was extremely under-researched.

These figures were considered low when compared to more PHI-dominant countries such as Australia (47.3%), Canada (67%), the Netherlands (84%), and the United States (66%) (Mossialos *et al.*, 2016).

However, when compared to other developed countries such as China (5.06%) and Brazil (13%), or third-world countries such as Ethiopia (12.8%) and Namibia (17.5%), Malaysia had a relatively high proportion of PHI uptake (Allcock *et al.*, 2019; Costa Filho *et al.*, 2020; Nageso *et al.*, 2020; Wan *et al.*, 2020).

2.2 Factors associated with PHI uptake

The Andersen behavioural model has been commonly applied to health service sectors and diseases (Babitsch *et al.*, 2012; Jin *et al.*, 2016). This model was first proposed by Ronald M. Andersen (the US sociologist and health services professor at the University of California, Los Angeles) in 1968, to discover the answer for "how" and "why" of the health service's utilisation. Andersen proposed that the usage of health services among the community was the outcome of their proneness to use the services (predisposing factors), factors that allow or prevent them from using them (enabling factors), and their need for care (need factors).

The model included demographic component (age and gender), social structure (factors influencing individual status in the community and the capability to deal with difficulties, e.g. level of education, ethnicity, social networks, or social interactions), and health belief (knowledge and individual perception towards health and health services).

As for enabling factors, he explained that health services must be available in the community, and people must have the means to reach those services. He then listed

several examples, such as income, health insurance, travel and waiting time, and the knowledge of health services available in the community.

Lastly, he believed that in establishing a health service use model, the perception of a person's health must be taken into account (the need factor). This includes how they dealt with the illness and pain, and whether or not they considered the problem to be sufficient to get proper health services (Andersen, 1995).

Even though the model was originally designed for health services' utilisation, several authors have applied this model in understanding the demand and purchase of PHI (Jin *et al.*, 2016; Otieno *et al.*, 2019; Wan *et al.*, 2020).

2.2.1 Predisposing factors

Predisposing factors can be defined as the demographic and social conditions that influenced an individual's decision to acquire PHI. These include variables such as age, gender, ethnicity, marital status, and level of education.

(a) Age

A study conducted in Brazil in 2015 showed that people in the age group of 35-44 years old were likely to acquire PHI, while those who were 60 years old and above had the lowest proportion of PHI coverage (Costa Filho *et al.*, 2020).

Wan *et al*., (2020) also discovered similar findings. They carried out a study in China using the dataset from the China Household Finance Survey from 2017 and found that individuals in the age group of 35-44 years old had the highest proportion of PHI ownership, while individuals aged more than 65 years old had the lowest proportion.

However, another study in Hangzhou, China, by Wo *et al*., (2020) reported a contradicting finding whereby the younger age group (25-39 years old) had the highest insurance health coverage.

In Namibia, Allcock *et al*., (2019) found that an older age group (45-49 years old) had the highest PHI ownership. They also discovered that young participants (15-24 years old) were mostly uninsured compared to older individuals.

(b) Gender

Studies in China and India showed that the proportions of PHI ownership between males and females were equivalent (Mathur *et al.*, 2015; Wan *et al.*, 2020; Wo *et al.*, 2020).

However, a study conducted in Brazil showed that women had higher insurance health coverage (Costa Filho *et al.*, 2020). On the contrary, Allcock *et al*. (2019) found that males in Namibia had a higher proportion in PHI ownership compared to females.

(c) Ethnicity

Based on limited literature on PHI uptake in Malaysia, there was no supporting data that showed the different nature of PHI purchasing among ethnicities. However, a study conducted in Pulau Pinang by Shafie and Hassali (2013) regarding the willingness to pay for voluntary community-based health insurance found that Malaysian Chinese were willing to pay more compared to other ethnicities.

In addition to Shafie and Hassali (2013), another study in Brazil also showed that certain ethnicities had a positive attitude towards PHI ownership. Costa *et al*. (2020) reported that the self-reported white ethnicity in Brazil had higher insurance coverage compared to other ethnicities/skin colours.

(d) Marital status

A study based on data collected from the Korean Health Panel Survey from October 2008 to December 2011 showed that 68.6% of married individuals were insured, compared to 31.4% of single individuals (a combination of unmarried, divorced, and widowed) (Choi *et al.*, 2015).

A similar result was found in a study conducted in Namibia where the coverage of health insurance was notably highest among those who were currently married (36.8%), followed by those who were formerly married (15.4%), never married (12.1%), and were currently living with a partner (11.2%) (Allcock *et al.*, 2019).

In a study carried out in Hangzhou, China, Wo *et al*. (2020) found that three out of four married individuals were insured. They also found that those who are divorced or widowed were less likely to purchase PHI, which might be attributed to the fact that being in that condition had a detrimental influence on either the financial or mental status of the individuals.

(e) Level of education

Higher educational levels are usually associated with higher levels of health literacy. People who attained higher levels of education had more opportunities and knowledge platforms to gain accurate information regarding their health status and services provided in the community, thus improving their capability to evaluate the costs and benefits of acquiring PHI. In addition, people with higher education levels also tend to have better employment with promising salary prospects.

Many studies showed that educational level was positively related to a higher likelihood of PHI purchasing. Wan *et al*. (2020) found that individuals with a master's

degree or above had 2.5 times the odds of owning PHI compared to those who went to junior high school. Meanwhile, another study conducted in China showed that the odds for people with a master's degree were as high as 7.6 times to acquire PHI compared to those with a low educational level (Wo *et al.*, 2020).

Besides deciding for themselves, a study carried out in South Korea revealed that the higher the educational level of parents, the higher likelihood of their children to be insured (Shin *et al.*, 2015).

2.2.2 Enabling factors

Enabling factors are conditions that provide support for individuals to purchase PHI. Examples of enabling factors are employment status, household income, and strata (which provide opportunities to access services).

(a) Employment status

Having a stable and good monthly income is an important factor in deciding whether to acquire PHI. A study in Brazil found that a higher proportion of PHI ownership was observed among those who were military personnel, and those who work in both public and private sectors. Meanwhile, those who do not have a secure and stable income (such as students, unemployed, retirees, self-employees, and housewives), were less likely to purchase PHI (Costa Filho *et al.*, 2020).

Wan *et al*. (2020) also found that employment status had a positive relationship to PHI ownership. They also discovered that among those who were currently working, the types of enterprises also had a certain influence in purchasing PHI. For instance, employees of state-owned enterprises and private/foreign-owned enterprises were more likely to acquire PHI compared to other types of enterprises.