GENDER DIFFERENCES IN HEALTHCARE UTILISATION AMONG THE ELDERLY IN MALAYSIA: A DECOMPOSITION ANALYSIS

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Abstract

In improving the health status of the people, Malaysia continuously provides a more equitable distribution of facilities and efficient health services. Due to the increasing proportion of the aging population in the country, this paper examines the differences in the utilisation of the health services among the elderly in Malaysia and identifies the factors responsible for the observed changes between 1996 and 2006 by using the non-linear decomposition approach. The empirical analysis uses the second and third National Health and Morbidity Survey (NHMSII and NHMSIII) data which were conducted in 1996 and 2006. Overall, the findings of this research suggest that other than being sick, the raw differentials in the utilisation of healthcare among the elderly are influenced by socioeconomic status such as education, income, and job status. From this study, it is hoped that by understanding the factors that contribute to the differentials in public and private hospital admissions, and individual's behaviour towards the use of healthcare services, the government can develop strategies for eliminating socially-caused inequity in health. Reducing financial barriers to care, especially among the private health providers, may benefit the lower socioeconomic group.

Keywords: *Inequalities, socioeconomic differences, decomposition analysis, healthcare utilisation, gender*

Introduction

Issues of equity in health and equal access to healthcare among socioeconomic groups are the main stated objectives in the health policies of many countries. Whitehead (1992) defines equity in health as having an equal access to available care for equal need, equal utilisation for equal need and equal quality of care for all. An extreme

example of unequal access arises when people are turned away from or are unable to use health services because of their lack of income, their race, sex, age, religion, or other factors not directly related to their need for care. According to the World Health Organization (WHO) equity in health means that healthcare resources are allocated equitably, health services are received equitably, and payment for health services is equitable (World Health Organization, 1996).

In Malaysia, solving the imbalance in the availability of health and medical services and achieving a more equitable distribution of healthcare services has been one of the main objectives of the Malaysia Development Plans. Evidence that shows socioeconomic differences exist in the utilisation of healthcare can be seen from the findings of the National Household Health Expenditure Survey (NHHES) in 1996. The report shows that utilisation of public hospitals is highest amongst individuals from rural areas, less developed states, large families, Malay households, lower income households, households headed by government employees and persons with lower educational levels (NHHES Final Report, 1999). Moreover, visits to private hospitalisation providers are more common among individuals with higher income, those living in urban areas, tertiary educated, Chinese, and privately employed. Thus, this study is conducted after realising the existence of inequity among the less advantaged individuals in Malaysia, in particular the elderly.

Findings from the Population and Housing Census of Malaysia (2010) revealed an increase in the percentage of the elderly. While the proportion of the population of Malaysia below the age of 15 years decreased to 27.6 per cent compared with 33.3 per cent in 2000, the proportion of the working-age population (15 to 64 years) increased to 67.3 per cent from 62.8 per cent. The proportion of the population aged 65 years and above also increased to 5.1 per cent as compared with 3.9 per cent in 2000. Accordingly, the median age increased from 23.6 years in 2000 to 26.2 years in 2010, while the dependency ratio dropped from 59.2 per cent to 48.5 per cent. The trend of these indicators is in line with the transition of the age structure towards an aging population of Malaysia (Department of Statistics, 2010).

The objective of this study is twofold. First, it investigates the relative importance of socioeconomic factors as well as socio-demographic factors, health conditions and lifestyle factors in explaining the differential in the utilisation of healthcare among the elderly. Second,

it decomposes the utilisation of healthcare by gender and identifies the relative contribution of the factors affecting the differences. It focuses on the period of the National Health and Morbidity Surveys conducted in 1996 and 2006 (NHMSII and NHMSIII). In this study, healthcare utilisation is measured by inpatient visits or hospital admissions to either public or private hospitals in the past 12 months and outpatient visits for individuals seeking treatment at either public or private clinics in the past one month. Between 1996 and 2006 there were no major health reforms or health policy changes so any changes in utilisation of health services over the period are more likely to be explained by variations in socioeconomic factors, socio-demographic factors, health conditions and the lifestyle of the elderly.

The organisation of this paper is as follows. Section 2 reviews related literature on the determinants of utilisation of healthcare in developed and developing countries. Section 3 describes the data and empirical models used in the estimation and section 4 discusses the results. Finally, section 5 concludes with some policy implications.

Literature Review

Equity and efficiency are goals that are pursued by policy-makers in all types of healthcare systems. To achieve an equitable healthcare system, there is a need to understand the concept and the goals of equity. Equity has been defined to mean that persons in equal need of healthcare should be treated the same, irrespective of income (Van Doorslaer, Wagstaff, Calonge, Christiansen, Gerfin, Gottschalk, Janssen, Lachaud, Leu & Nolan, 1992). According to Braveman and Gruskin (2003), inequities in health systematically put groups of people who are already socially disadvantaged (the poor, females, and/or members of a disenfranchised racial, ethnic, or religious group) at a further disadvantage with respect to their health.

The conceptual basis underpinning the behavioural model of access to medical care is set out by Andersen (1995). A major goal of his behavioural model was to provide measures of access to medical care. According to Andersen, equitable access occurs when demographic and need variables account for most of the variance in utilisation. Inequitable access occurs when social structure (e.g. ethnicity), health beliefs, and enabling resources (e.g. income) determine who gets medical care. According to Andersen the initial model of health

service use the suggests that people's use of health services is a function of their predisposition to use services, factors which enable or impede use, and their need for care. Among the predisposing characteristics are demographic factors such as age and gender while the social structure represents factors that determine the status of a person in the community such as education, occupation and ethnicity, and health beliefs. Health beliefs are attitudes, values, and knowledge that people have about health and health services that might influence their subsequent perceptions of need and use of health services. Health service use can be measured in units of physician ambulatory care, hospital and physician inpatient services, and dental care which families consumed over a year depending on what type of service was examined. Hospital services which handle more serious problems would be primarily explained by the need and demographic characteristics. Figure 1 shows the model of health behaviour based on Anderson's view.

Source. Andersen (1995).

Figure 1. An emerging model of health behaviour.
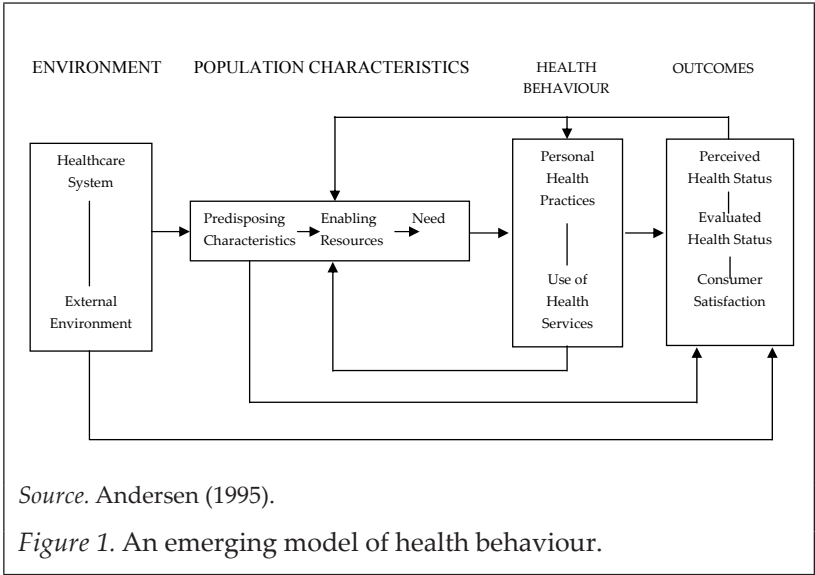
Based on Andersen's conceptual basis, researchers have focused on estimating the differences of the predisposing characteristics such as the demographic and socioeconomic factors that lead to the use of health services and the socioeconomic differences in healthcare utilisation (Van der Heyden, Demarest, Tafforeau & Van Oyen, 2003). Since health policy objectives include equity in health and equal

access to healthcare among different socioeconomic groups, studies of socioeconomic differences and their effects on healthcare utilisation have been conducted in many countries. Various international studies have demonstrated socioeconomic differences in health such as in the United States (Turra & Goldman, 2007), the UK (Saxena, Eliahoo & Majeed, 2002; Balarajan, Yuen & Machin, 1987), Belgium (Van der Hayden et al., 2003), the Netherlands (Gerritsen & Deville, 2009; Spruit, 1990), Spain (Fernandez & Leon, 1996), Italy (Piperno & Di Orio, 1990), Canada (Newbold, Eyles & Birch, 1995; Dunlop, Coyte & McIsaac, 2000) and Ireland (Nolan, 1994). These studies usually found that the better-offs in terms of socioeconomic characteristics suffered less in terms of health inequality in comparison to individuals in the lower socioeconomic groups.

Besides the socioeconomic factors, socio-demographic differences also affect the utilisation of healthcare. Studies on ethnic and gender differences found that people in the less advantaged ethnic groups and females usually experienced poorer health. A recent study by Gerritsen and Deville (2009) looked at the effect of gender differences in health and health-care utilisation among different ethnic groups, i.e. Turkish, Moroccans, Surinamese, and the Netherlands Antilles. They analysed the effects of gender differences in health and healthcare utilisation within and between the ethnic groups using logistic regression. In general, their results showed that women have poorer health than men, women from Morocco and the Netherlands Antilles contacted a general practitioner more often than men, while women from Turkey were hospitalised more often than men. In Canada, Fernandez et al. (1999) also found that women reported poor health more frequently than men. In the analysis, Fernandez et al. (1999) used logistic regression to estimate the association between gender and health, and healthcare service use variables. In developing countries, women have lower healthcare utilisation than men. In India, women (specifically the elderly) report worse self-rated health, higher prevalence of disabilities, marginally lower chronic conditions, and lower healthcare utilisation than men (Roy & Chaudhuri, 2008). While in Bangladesh a study by Ahmed, Adams, Chowdhury & Bhuiya (2000) found that women are significantly less likely to seek care than men. The study was conducted using data from the Bangladesh Rural Advancement Committee (BRAC) integrated socioeconomic development programme.

Compared to the other services such as the social care services, housing and community, and transport and technology, socio-economic inequalities among the elderly are the highest in the field of healthcare; however, difficulties in measuring the socio-economic status of the older age groups might be the reason why little attention has been given to this area of research (Grundy & Holt, 2001). Nevertheless, recently, research on socio-economic inequalities among the elderly has been conducted in many countries. In England, studies on the socio-economic differences among the elderly have found evidence of socio-economic inequalities favouring people with higher incomes in all healthcare service areas including primary care, specialist care and dental care (Allin, Masseria, Mossialos, Oliver, Dixon, Le Grand & Berkey, 2008). Comparing data from Brazil and England, Lima-Costa, Oliveira, Macinko and Marmot (2012) also found that socio-economic inequalities in health affect the elderly in both countries. In Greece, Spain and Italy, the elderly with lower socio-economic positions experience worse health in all instances (Tsimbos, 2010). In most studies, social class and education were used to measure socio-economic status.

In Malaysia, studies on socio-economic differences in health are quite limited and tend to be at a descriptive level. With different levels of socio-economic backgrounds among the population, inequity in health is one of the important issues that needs to be addressed by the government. This study contributes to the literature by focussing on the socio-economic differences in the utilisation of health services among the elderly in Malaysia.

Methodology

In this study, the Fairlie probit decomposition method is used to examine the impact of socio-economic changes on the probability of the utilisation of healthcare (i.e. admission to hospitals and visits to clinics) across a ten-year period between 1996 and 2006. Since the researcher has limited access to the Ministry of Health data, this study employs data from the second and third National Health and Morbidity Surveys (NHMSII 1996 and NHMSIII 2006) only.

The Model

The linear Blinder-Oaxaca decomposition is based on a pair of linear regression models estimated on the data of a set of explanatory exogenous variables for two different groups A and B.

$$Y^A = X^A \beta^A + \mu^A \qquad\qquad (1)$$
$$Y^B = X^B \beta^B + \mu^B$$

Subtracting these two expressions and rewriting in terms of the data means give the standard Blinder-Oaxaca decomposition a showing of how much of the overall gap in the means is attributable to (a) the differences in the *X's* (sometimes called the explained components) rather than (b) the differences in the *β's* (sometimes called the unexplained components).

This study is more interested in decomposing the differentials in: (a) probability of admission to government hospitals, (b) probability of admission to private hospitals, (c) probability of a visit to government clinics, and (d) probability of a visit to private clinics that may be attributable to observed characteristics and attributes across a number of dimensions. The dependent variable, *Y* is a binary variable taking the values of 1 or 0, depending upon whether the observation had at least one admission to either the government or private hospitals or visits to either the government or the private clinics. We assume *Y* is explained by a vector of determinants, *X* and the vectors of *β* parameters, including the intercepts. Because the dependent variable is binary requiring estimation in a probit or logit framework, the Blinder-Oaxaca framework needs extension to the non-linear setting. The Fairlie (2005) extension to standard decomposition is used. Followiβg Fairlie (2005), the decomposition for non-linear equation $Y = F(X_-)$ can be written as follows:

$$\bar{Y}^A - \bar{Y}^B = \left[(\bar{X}^A - \bar{X}^B)\hat{\beta}^A\right] + \left[\bar{X}^B(\hat{\beta}^A - \hat{\beta}^B)\right] \qquad (2)$$

where $\hat{X}^j$ is a row vector of the average values of the independent variables and $\hat{\beta}^j$ is a vector of the coefficient estimates for year *j*.

The first term in brackets in equation (2) can explain the contribution of gender that is due to group differences in the distributions of *X*, and the second term corresponds to the part that is due to differences in the processes determining levels of *Y*. The second term also captures

the portion of the gap due to group differences in unmeasurable or unobserved endowments.

For the purpose of this analysis, the changes in healthcare utilisation between genders (male "M" and female "F") can be estimated using the following equation:

$$\bar{Y}^M - \bar{Y}^F = \left[\sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^F)}{N^M} - \sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^F)}{N^F}\right] + \tag{3}$$

$$\left[\sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^M)}{N^M} - \sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^F)}{N^M}\right]$$

where N^M and N^F are the sample sizes for males and females respectively. The first term in brackets in equation (3) represents an estimate of the contribution of the differences in gender in the entire set of independent variables against the dependent variable, which is healthcare utilisation. This is the explained portion of the raw difference in the means. The decomposition model is run separately for admission to government and private hospitals, as well as visits to government and private clinics.

Data

The analysis is confined to adults over the age of 60 years following the definition of the elderly by WHO. Overall, there are 3,973 observations from NHMSII and 4,562 observations from NHMSIII.

For the decomposition analysis, this study includes a wide variety of variables hypothesised to influence healthcare utilisation. The conceptual basis for the inclusion of the independent variables for modelling the use of healthcare follows Andersen (1995) and Van der Heyden et al. (2003). Specifically, this study controls for income, education, employment status, job sector, age, ethnic, region, gender, marital status, health conditions and lifestyle, and health insurance coverage in the estimation of the demand for care.

Overall, the variables used in this study can be categorised into healthcare utilisation variables (admission to government and private hospitals and visits to government and private clinics), socio-economic variables (income, education, occupation and private health insurance ownership), socio-demographic variables (gender, marital status,

ethnicity and region) and health condition variables (hypertension, diabetes, asthma and smoking). Table 1 shows the definition of all the variables used in the study while Table 2 compares the means between 1996 and 2006 for all the variables considered in the analysis.

Table 1

Definition of Variables from NHMSII and NHMSIII

Variables	Definition
Dependent variables:	
ADMIT_GH	= 1 if admitted to a government hospital in the past 12 months
ADMIT_PH	= 1 if admitted to a private hospital in the past 12 months
VISIT_GC	= 1 if visited a government clinic in the past 1 month
VISIT_PC	= 1 if visited a private clinic in the past 1 month
Independent variables:	
Household income	
HHINC0_699	= 1 if average household monthly income is between RM0 – RM699
HHINC700_999	= 1 if average household monthly income is between RM700 – RM999
HHINC1000_1999*	= 1 if average household monthly income is between RM1,000 – RM1,999
HHINC2000_2999	= 1 if average household monthly income is between RM2,000 – RM2,999
HHINC3000_3999	= 1 if average household monthly income is between RM3,000 – RM3,999
HHINC4000_4999	= 1 if average household monthly income is between RM4,000 – RM4,999
HHINC5000	= 1 if average household monthly income is above RM5,000
Education	
PRIMARY	= 1 if completed primary education
SECONDARY*	= 1 if completed secondary education

(continued)

Variables	Definition
TERTIARY	= 1 if completed tertiary education
NO_EDUC	= 1 if has no formal education
Job status	
GOVEMP*	= 1 if works in government sector
PVTEMP	= 1 if works in private sector
SELFEMP	= 1 if self-employed
HOUSEWIFE	= 1 if a housewife
UNEMPLOYED	= 1 if unemployed
Gender	
MALE*	= 1 if male
FEMALE	= 1 if female
Marital status	
MARRIED*	= 1 if married
SINGLE	= 1 if single
Ethnic	
MALAY*	= 1 if Malay
CHINESE	= 1 if Chinese
INDIAN	= 1 if Indian
OTHER_BUMIS	= 1 if Bumiputera other than the Malays such as the Indigenous people or tribal ethnic groups in Sabah and Sarawak
OTHER_ETHNIC	= 1 if belongs to other ethnic groups, e.g. Jews
Region	
URBAN*	= 1 if lives in urban area
RURAL	= 1 if lives in rural area
Health and lifestyles	
HPT	= 1 if has hypertension
DIABETES	= 1 if has diabetes
ASTHMA	= 1 if has asthma
SMOKE	= 1 if smokes
Health insurance status	
HAVE_PHI	= 1 if has private health insurance

Note: Variable name with * is the reference group.

Table 2

Sample Means of Variables, 1996 and 2006

Variables	NHMSII: 1996 n=3,973	NHMSIII: 2006 n=4,562
Dependent variables:		
ADMIT_GH	0.089	0.068
ADMIT_PH	0.015	0.009
VISIT_GC	0.039	0.063
VISIT_PC	0.074	0.041
Independent variables:		
Household income		
HHINC0_699	0.087	0.202
HHINC700_999	0.025	0.116
HHINC1000_1999	0.190	0.217
HHINC2000_2999	0.081	0.114
HHINC3000_3999	0.038	0.048
HHINC4000_4999	0.020	0.023
HHINC5000	0.231	0.056
Education		
PRIMARY	0.328	0.452
SECONDARY	0.067	0.128
TERTIARY	0.014	0.017
NO_EDUC	0.547	0.394
Job status		
GOVEMP	0.007	0.009
PVTEMP	0.050	0.051
SELFEMP	0.205	0.200
HOUSEWIFE	0.195	0.264
UNEMPLOYED	0.426	0.326
Gender		
MALE	0.456	0.467
FEMALE	0.521	0.533
Marital status		

(continued)

Variables	NHMSII: 1996 n=3,973	NHMSIII: 2006 n=4,562
MARRIED	0.605	0.687
SINGLE	0.395	0.018
Ethnic		
MALAY	0.441	0.536
CHINESE	0.310	0.275
INDIAN	0.061	0.064
OTHER_BUMIS	0.145	0.107
OTHER_ETHNIC	0.043	0.018
Region		
URBAN	0.475	0.498
RURAL	0.525	0.502
Health and lifestyles		
HPT	0.232	0.369
DIABETES	0.101	0.171
ASTHMA	0.077	0.063
SMOKE	0.386	0.397
Health insurance status		
HAVE_PHI	0.052	0.041

Source: Author's estimation.

Findings and Discussion

Table 3 reports the results of the non-linear decomposition of the changes in utilisation among the elderly for four separate samples - admission to a government hospital, admission to a private hospital, visits to a government clinic and visits to a private clinic by gender in 1996 and 2006. It is expected that other than health conditions, healthcare utilisation among the elderly can be explained by socio-economic status. The findings will be useful for policy-makers in targeting the right group for healthcare financing support.

Non-linear Decomposition of Differences in Healthcare Utilisation among the Elderly by Gender, 1996 – 2006

Table 3 reports the raw total and explains gender differences in healthcare utilisation among the elderly in 1996 and 2006.

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Table 3

Raw Total and Explained Gender Differences in Healthcare Utilisation Among the Elderly in Malaysia, 1996 and 2006

	1996				2006			
	ADMIT_GH	ADMIT_PH	VISIT_GC	VISIT_PC	ADMIT_GH	ADMIT_PH	VISIT_GC	VISIT_PC
Male	0.0872	0.0086	0.0517	0.0532	0.0886	0.0151	0.0393	0.0740
Female	0.0787	0.0188	0.0362	0.0797	0.0675	0.0094	0.0627	0.0408
Difference	0.0085	-0.0102	0.0155	-0.0264	0.0211	-0.0012	-0.0234	0.0332
Income	0.0025	-0.0019	-0.0042	0.0011	**-0.0133**	-0.0021	-0.0006	-0.0035
	(0.0030)	(0.0015)	(0.0030)	(0.0024)	(0.0068)	(0.0025)	(0.0041)	(0.0038)
Education	0.0042	0.0002	0.0009	**0.0085**	-0.0006	0.0005	-0.0008	**-0.0039**
	(0.0049)	(0.0023)	(0.0044)	(0.0034)	(0.0016)	(0.0005)	(0.0013)	(0.0019)
Job status	**-0.0075**	-0.0013	-0.0001	-0.0003	0.0006	**-0.0019**	-0.006	-0.0020
	(0.0026)	(0.0010)	(0.0024)	(0.0020)	(0.0014)	(0.0010)	(0.009)	(0.0014)
PHI	-0.0000	0.0004	0.0005	0.0009	-0.0001	0.0000	0.0003	0.0005
	(0.0002)	(0.0005)	(0.0004)	(0.0006)	(0.0003)	(0.0000)	(0.0005)	(0.0005)
Ethnic	-0.0005	0.0006	-0.0003	-0.0002	-0.0006	**0.0029**	-0.0022	0.0013
	(0.0007)	(0.0004)	(0.0005)	(0.0005)	(0.0020)	(0.0010)	(0.0018)	(0.0009)
Region	0.0000	-0.0000	-0.0006	-0.0002	**0.0046**	-0.0006	0.0015	**-0.0024**
	(0.0004)	(0.0003)	(0.0004)	(0.0003)	(0.0021)	(0.0005)	(0.0017)	(0.0008)
Single	**-0.0212**	-0.0009	0.0060	**-0.0150**	-0.0005	-0.0001	0.0012	0.0006
	(0.0098)	(0.0031)	(0.0062)	(0.0067)	(0.0038)	(0.0018)	(0.0028)	(0.0038)
Rural	0.0004	-0.0000	-0.0001	0.0008	-0.0000	-0.0001	-0.0000	-0.0001
	(0.0004)	(0.0001)	(0.0002)	(0.0006)	(0.0003)	(0.0002)	(0.0004)	(0.0003)
Hypertension	**0.0013**	0.0000	**0.0010**	0.0002	**-0.0055**	-0.0003	-0.0012	-0.0024
	(0.0005)	(0.0002)	(0.0005)	(0.0002)	(0.0015)	(0.0003)	(0.0008)	(0.0015)
Diabetes	**0.0024**	0.0002	**0.0011**	-0.0002	**-0.0042**	-0.0003	**-0.0015**	-0.0014
	(0.0009)	(0.0004)	(0.0006)	(0.0002)	(0.0012)	(0.0003)	(0.0007)	(0.0012)
Asthma	**0.0031**	0.0001	**0.0028**	**0.0015**	**0.0040**	0.0009	**0.0035**	**0.0022**
	(0.0007)	(0.0003)	(0.0007)	(0.0006)	(0.0009)	(0.0007)	(0.0009)	(0.0008)
Smoke	0.0064	0.0005	-0.0002	-0.0002	**0.0010**	-0.0000	0.0000	0.0001
	(0.0058)	(0.0021)	(0.0039)	(0.0042)	(0.0006)	(0.0000)	(0.0000)	(0.0002)

Source: Author's estimation.

Notes: Standard errors are reported in parentheses. Figures in bold are at least significant at 10% level.

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1996

In 1996, the results showed that compared to females, males had higher means for admission to government hospitals (0.85%) and government clinics (1.55%) whereas females had higher means for admission to private hospitals (1.02%) and private clinics (2.64%).

The decomposition analysis shows that health variables influenced the increase in the higher admission rate among males (hypertension, 0.13%; diabetes, 0.24%; asthma, 0.31%) in government hospitals. On the other hand, the findings show that **job status** was the only socio-economic factor that was negatively significant in explaining the higher rate of admission in government hospitals for males (-0.75%). The negative sign shows that as job status became higher, utilisation of healthcare among the elderly became lower. Being single was also significant in explaining the lower rate of admission among females. In government clinics, only health variables were found to significantly influence visits to the clinics. The results show that males with health conditions such as hypertension (0.10%), diabetes (0.11%) and asthma (0.28%) had a higher probability of being admitted to government hospitals.

In private hospitals, the overall admission gap was higher for females (1.02%). However, none of the variables in the admission to the private hospitals equation were significant in explaining gender differences in 1996. In private clinics, the higher rates for visits to private clinics among females were explained by one health variable which was asthma (0.15%), one socio-demographic variable which was being single (1.50%) and one socio-economic variable which was the **education level** (0.85%).

2006

In 2006, the overall findings showed that males had higher admission rates to government hospitals (2.11%), private hospitals (0.57%) and private clinics (3.32%) than females. On the other hand, females had higher rates for visits to government clinics (2.34%).

The variables that explain the higher rates for admissions to government hospitals among aged males were region (0.46%), asthma (0.40%) and smoking (0.10%). Nonetheless, health conditions affected admission

for elderly females higher than elderly males for hypertension (0.55%) and diabetes (0.42%). **Income** was also inconsistent with the higher rates among males in government hospitals (-1.33%). Meanwhile, the higher rates for visits to government clinics among females in 2006 were explained by health condition variables such as diabetes (-0.15%) while aged males had higher rates for asthma (0.35%).

The difference in admissions to private hospitals among aged males was explained by **job status** (0.19%) and ethnic group (0.29%). Females had higher rates for visits to private clinics in 2006. Among the factors that influenced the differences was asthma (0.22%). **Education level** (-0.39%) and region (-0.24%) were negatively significant and inconsistent with the overall decomposition estimates for visits to private clinics.

Conclusion and Policy Implications

This study looks at the effects of socio-economic differences in the utilisation of healthcare among the elderly in Malaysia. Furthermore, this study estimates disparities in healthcare utilisation by focusing on gender differences. The data are from the National Health and Morbidity Survey conducted in 1996 and 2006 (NHMSII and NHMSIII). The analysis uses the non-linear decomposition approach.

The findings show that for the elderly, socio-economic factors such as job status, income and education explained the difference in both government and private hospital admissions. Meanwhile, private health insurance was not an important factor contributing to the differences in admissions to hospitals and visits to clinics since the purchase of health insurance was more popular among the younger generation. The unexplained factors for healthcare utilisation between 1996 and 2006 may be attributed to the many health programmes and projects conducted by the Government. Better service quality offered by the public and private health facilities may have also decreased hospitalisation among the elderly.

Overall, the findings of this research suggest that other than being sick, the raw differentials in the utilisation of healthcare are influenced by the socio-economic status. This research also supports the findings of previous studies that found the better-offs, in terms of socio-economic

characteristics, suffer less in terms of health inequality in comparison to individuals in the lower socio-economic groups. In this study, the non-linear decomposition estimates only show the explained factors that can influence differences in healthcare utilisation. There are other unexplained factors that might be significant in explaining gender differences, for instance discrimination.

This research provides a few contributions. Among the contributions are: firstly, this is among the earliest studies to look at socio-economic differences among the elderly and their effects on the utilisation of healthcare in Malaysia; secondly, since there are limited empirical studies in Malaysia that utilise the National Health and Morbidity Survey 1996 and 2006 data, this study provides further understanding of the healthcare utilisation behaviour between genders in Malaysia; and thirdly, the application of the non-linear decomposition approach provides useful evidence in studying the socio-economic differences in the use of healthcare. In future, to further understand the effect of the socio-economic factors on healthcare utilisation, the adult-children sample may be used. Besides that, other types of healthcare services like specialist visits may also be included in the analysis.

Malaysia's vision for health is to be a nation of healthy individuals, families and communities, through a health system that is equitable, affordable, efficient, technologically appropriate, environmentally adaptable and consumer-friendly (MOH Strategic Plan, 2008). To achieve this vision the government has allocated considerable resources to achieve a more equitable health system. From this study, it is hoped that by understanding the factors that contribute to the differentials in public and private hospital admissions, and individual's behaviour towards the use of healthcare services, the government can develop strategies for eliminating socially-caused inequity in health especially among the elderly. Reducing financial barriers to care, especially among the private health providers may benefit the lower socio-economic groups.

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