Health Care Expenditure of Ageing Population in Perak

Abstract

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As Perak has the highest ageing population in Malaysia, a s study was conducted using Household Expenditure Survey (HES) data for 2004, 2009 and 2014 to examine the trend of health care expenditure (HCE) of the elderly in Perak. The findings show even though there was no significant difference of individual HCE consumption, the overall value of HCE by older persons in Perak suggests otherwise. In fact, the HCE for older population in Perak in 2014 increased significantly compared to ten years ago. Nevertheless, the findings suggest older population in Perak spent reasonable amount on HCE and ageing population did not contribute to the rise of HCE.

Keywords: Elderly population, Healthcare Expenditure (HCE)

1. Introduction

At the moment, there is no United Nations standard numerical criterion on the old age definition, but the UN agreed cutoff is 60+ years to refer to the older population (WHO, 2016). An ageing society is defined by the United Nations when a society or nation with older population of more than 65 years of age exceeds 7.0 percent of its overall population (DOSM. 2017[a]). An ageing population is highly associated with increasing healthcare expenditure (HCE) (UN, 2013) partly due to the increase in the proportion of older persons, which have higher prevalence of morbidity and demand for health care than younger adults. HCE study on older population in Perak is conducted due to its population structure. When compared to the rest of the States in Malaysia, Perak has the highest population who are more than 65 years old. As at 2017, older population in Perak is at 9.9 percent of overall Perak's population and the number is expected to increase further to 15.7 percent in 2040 (DOSM, 2016) With growing numbers of ageing population in Perak, demand for HCE is expected to increase as well. The study thus, seeks to examine if ageing population contributes to the increase in health care expenditure in Perak.

2. Literature Review

Various studies on HCE and age were made by various authors. Breyer et al (2010) found that the rise in longevity lead to a further demand for life prolonging medical care. In addition their findings implied with growing per capita income, the willingness to pay for greater longevity and thus, the

demand for health services in old age also increased (Lubitz et al, 2003). Based on pseudo-panel data of German sickness fund members over the period 1997 to 2009, Breyer et al (2015) find that ageing i.e. an increase of longevity alongside a fall in mortality rates increase health expenditure. Using (dynamic) panel data models, they find that age, mortality and 5-year survival rates each have a positive impact on per-capita HCE and the reason is that physicians treat patients more aggressively if the results of these treatments pay off over a longer time span, which is called ''Eubie Blake effect''. In another study which is using a simple cohort-component model method, Polder et al (2006) made a projection of future health care in Netherlands. The results show the health care cost in the last year of life of people who died in 1999 were on average 13.5 times higher than cost of people who did not die.

There are however, findings that suggest health care expenditures (HCE) are driven not by age but by proximity to death (Werblow. A et al 2007) and there were limited impact of age on HCE (Zweifel et al, 1999). Other factors such as technical progress especially in medical technology in providing health care services may result in rise of HCE and health care sector (Werblow. A et al 2007). A study on health care expenditure by Dormont, B et al (2006) to insured French for year 1992 and year 2000 obtained similar finding. Their study indicate changes in practices such as technological progress which is oriented towards the elderly to be the main driver in the increase of HCE, while ageing has a small impact in the rise of HCE, and future primary care providers (doctors, dentists, physiotherapists etc but excluding drugs, nursing home etc) are largely determined on population size, not by ageing (Madsen et al, 2002). Madsen et al 2002 conducted a study to Danish population using 1995 to 1997 and projected to 2020 and assumes average costs of primary health care services remain constant. They find the future costs of primary care will increase at 8.2 per cent which is proportionately to the population growth, whether or not costs in the last year of life is taken into account.

Citing from Dormont et al, 2006, the vast majority of findings at macroeconomic level show that age structure has a small or no significant impact on HCE but GDP has a sizeable and highly significant impact. The OECD countries studies suggest the age effect accounted for less than one tenth of the growth in health care expenditure observed between 1970 to 2002 (OECD, 2006). Meanwhile the share of health expenditure in GDP for those countries is forecasted to increase by 3.9 percentage points (from 5.7 percent in 2005 to 9.6 per cent in 2050).

3. Data Sources & Research Methodology

The study was based on the time series data of Household Expenditure Survey (HES) for year 2004, 2009 and 2014 conducted by Department of Statistics, Malaysia (DOSM). Classification of Individual Consumption According to Purpose (COICOP) by the United Nations identified that HCE comprised of medical products, appliances and equipment; outpatient services and patient services in hospital. The HCE data were calculated to reflect annual costs and then deflated using appropriate Consumer Price Index (CPI), i.e health CPI to get to constant (2010 = 100) prices. Various authors such as Polder et al (2006) applied more than 65 years while Buchner & Wasem (2006) employed 65 years as a cut off age in their studies. In this study, the analysis of the data will focus on the expenditure on healthcare of the head of households (HoH) who are more than 65 years of age for Perak and intends to observe their HCE pattern between 2004 and 2014.

While some author such as Werblow, et al, (2007) classified HCE into ambulatory care, nursing home care, home care, hospital inpatient care, hospital outpatient care, prescription drugs and other services, based on the COICOP classification, this study has categorized nine (9) HCE of item codes used in the Household Expenditure Survey and grouped them into seven (7) components as follows:

a) Dental & Medical Services;
b) Government Corporate Hospital
c) Government Hospital;
d) Other Medical Products;
e) Paramedical Services;
f) Pharmaceutical Products; and
g) Private Hospital Care.

One of the limitations of the study was that it did not include all 65 years of age in Perak, instead only HoH who are more than 65 years old was taken into account in the study.

This study is mainly a descriptive study of the current expenditure and therefore reflects what happens (as opposed to what ought to happen like many other studies on project HCE). A descriptive study using Household Component of the 1987 National Medical Expenditure Survey (NMES), a health expenditure survey in 14,000 households in the United States with a focus on pharmaceutical expenditures was conducted by Mueller et al (1997).

An independent sample t test between HoH who are more than 65 years old in 2004 and 2014 was conducted to to identify if there was a mean difference in the medical consumption pattern among the elderly in Perak between 2004 and 2014.

The hypotheses used is as below:

Ho: There is no difference in medical expenditure pattern among the elderly in Perak between 2004 and 2014.

Ha: There is a difference in medical expenditure pattern among the elderly in Perak between 2004 and 2014

The results suggest there was no difference in medical expenditure pattern among the elderly in Perak between 2004 and 2014. This was as signified by p value of the test of 0.743 which was more than 0.05.

4. Results & Discussion

4.1 HCE for all age groups in Perak

Total health care costs in Perak showed an average annual growth of 22.6 percent from RM7.0 million in 2004 to RM19.4 million in 2009. Meanwhile, it grew moderately with an average growth of 5.2 percent to RM24.9 million in 2014 from RM19.4 million in 2009 (Table 4.1). Between 2004 & 2014, those who were more than 65 years old recorded an average HCE growth of 10.2 percent (Table 4.2). A significant increase of HCE of RM 3.0 million for the elderly was recorded in 2009 from RM1.5 million in 2004. Despite an increase of HCE to RM3.9 million in 2014 for the elderly

from RM1.5 million in 2004 (Table 4.1), the HCE between 2009 to 2014 registered a moderate growth of 5.3 percent (Table 4.2). All age groups except below 24 years of age recorded a double digit growth for total HCE in 2009 as shown in Table 4.2.

Table 4.1: Total HCE by age group, Perak 2004, 2009 & 2014 at constant (2010 = 100)

(RM '000)

Age group	2004	2009	2014
< 24	138	109	304
25 - 34	1,262	2,891	3,470
35 – 44	1,053	3,675	5,591
45 – 64	3,088	9,734	11,702
> 65	1,488	3,028	3,927
Total	**7,030**	**19,437**	**24,994**

Table 4.2: Average Annual Percentage Growth of Total HCE by Age Group, Perak 2004, 2009 & 2014 (%)

Age group	2009	2014	2004-2014
< 24	-4.7	22.8	8.2
25 - 34	18.0	3.7	10.6
35 – 44	28.4	8.8	18.2
45 – 64	25.8	3.8	14.2
> 65	15.3	5.3	10.2
Total	**22.6**	**5.2**	**13.5**

4.2. HCE for the Elderly in Perak

Table 4.3 shows that total HCE for individuals 65+ in Perak increased to RM3.9 million as compared to RM1.5 million in 2004. Pharmaceutical products which comprised of controlled medicines; medications and drugs for hypertension, heart, diabetes, asthma and others accounted for 54.6 percent to overall HCE for the elderly in 2014 and is the largest HCE item for them in Perak. Between 2004 and 2014, all HCE items for the elderly in Perak, save for private hospital care, indicate an increase in HCE consumption.

Table 4.3: HCE Components for the Elderly, Perak at constant 2010=100 (RM '000)

HCE component	2004	2009	2014

Dental & medical Serv.	222.8	540.6	1,176.9
Gov Corp& Gov. Hospital	27.6	359.3	51.4
Other Medical Products	28.4	14.7	90.3
Paramedical Services	60.7	19.9	125.7
Pharmaceutical Products	491.5	1,827.6	2,143.3
Private Hospital Care	542.2	22.0	6.2
Therapeutic Appliances and Equipment	115.0	244.2	332.8
Total	**1,488.2**	**3,028.4**	**3,926.6**

Table 4.4: Percentage Annual Average Growth of HCE for the Elderly in Perak

HCE component	2009	2014	2004-2014
Dental & Medical Serv.	19.4	16.8	18.1
Gov Corp& Gov. Hospital	67.1	-32.2	6.4
Other Medical Products	-12.3	43.8	12.3
Paramedical Services	-20.0	44.6	7.5
Pharmaceutical Products	30.0	3.2	15.9
Private Hospital Care	-47.3	-22.3	-36.0
Therapeutic Appliances and Equipment	16.3	6.4	11.2
Total	**15.3**	**5.3**	**10.2**

Table 4.5: Percentage Share of HCE for the Elderly in Perak (%)

HCE component	2004	2009	2014
Dental & Medical Serv.	15.0	17.9	30.0
Gov Corp& Gov. Hospital	1.9	11.9	1.3
Other Medical Products	1.9	0.5	2.3
Paramedical Services	4.1	0.7	3.2
Pharmaceutical Products	33.0	60.3	54.6
Private Hospital Care	36.4	0.7	0.2
Therapeutic Appliances and Equipment	7.7	8.1	8.5
Total	**100.0**	**100.0**	**100.0**

The consumption for pharmaceutical products increased from RM0.5 million in 2004 to RM1.8 million in 2009 and RM2.1 million in 2014. The expenditure of this component recorded an annual average growth or compounded average growth rate of 15.9 percent for the ten year period.

The second highest HCE item is in dental and medical services which contributed 30.0 percent (2004: 15.0 percent) of total HCE for the elderly in Perak in 2014. Dental and medical services

indicate an annual average increase of 18.1 percent between 2004 and 2014. Therapeutic appliances and equipment also rose 11.2 percent during those 10 year period, with an increase in value from RM0.1 million to RM0.3 million in 2014 (Table 4.3).

The expenditure for government corporate & government hospitals and private hospital care decreased in 2014 as compared to 2009. The HCE of the elderly in Perak for the government corporate hospitals (such as National Health Institute) and government hospitals reduced to RM0.05 million in 2014 compared to RM0.36 million in 2009. Similar trend was also depicted for private hospital care which decreased from RM22.0 thousand in 2009 to RM6.2 thousand in 2014 (Table 4.3). In fact in 2009, the cost of the private hospital care for the elderly in Perak reflects an average annual growth of a negative 47.3 percent between 2004 and 2009 (Table 4.4).

There was also a change in HCE consumption pattern for the elderly in Perak between 2004 and 2014. The share of expenditure for private hospital care for the elderly decreased substantially from 36.4 percent between 2004 to 0.2 percent in 2014 as shown in Table 4.5. Item in dental & medical services however increased from 15.0 percent in 2004 to 30.0 percent in 2014. An increase for pharmaceutical products to 54.6 percent of the overall HCE in 2014 (33.0 percent: 2004 and 60.3 percent: 2009) was observed in Table 4.5. Although its share has reduced in 2014 as compared to 2009, pharmaceutical remains the largest HCE item to be consumed by older population in Perak.

Between 2004 and 2014, a two digit growth of 10.2 percent of HCE was recorded amongst the elderly in Perak. This indicates a growing expenditure on health care in tandem with the biggest elderly population in Malaysia. Pharmaceutical products which primarily comprise medications such as heart medicines, hypertension medicines and diabetes medicines remains the biggest HCE item consumed by the elderly in Perak. It expanded by 15.9 percent between 2004 and 2014. Pharmaceutical products were the biggest items consumed for the elderly. This is consistent with findings by Dormont (2006) which showed there was an increase in pharmaceutical expenditures between year 1992 to 2000 especially for those above 70 years old in French. Mueller et al (1997) found that pharmaceutical expenditures accounted for 34.0 percent of medical expenses among the US elderly population. According to Morgan (2006), per capita drug expenditures increased at an average annual rate 10.8 percent between 1996 dan 2002 in British Columbia**.**

Dental & medical services was the second highest HCE component consumed by the elderly in Perak with a 30.0 share in 2014. The component comprised items such as dental services and outpatient services for government's clinics and private clinics (treatment and medicine). A study by National Care Medical Statistics, 2014 (MOH, 2016) estimated nearly 33.0 percent of more than 60 years of age, seek medical treatment in public and private clinics in Malaysia. Out of this number, 23.0 percent of those of 60 years of age in Malaysia went to public clinics to obtain their primary care, while 9.7 percent went to private clinics. Their findings reflect similarities between consumption pattern of that group in medical services of the elderly in Perak and in Malaysia. Meanwhile, number of dental attendances in 2014 for Perak represented 9.7 percent or 1.1 million from 11.6 million for Malaysia (MOH, 2015[b]).

Malaysia healthcare system which is highly subsidized could also contribute to the consumption trend for dental and medical services for the elderly in Malaysia and in Perak specifically. Most of them would make recurring visitations to public clinics to seek treatments such as diabetes, high blood pressure and cholesterol. The government allocated some 8.3 percent or RM21.9 billion for Malaysian health expenditures (operating and development expenditure) out of RM264.1 billion in the budget for year 2014. The actual expenses for the operating expenditure went to medical care with a value of RM12.4 billion accounting for 60.2 percent of total operating expenditure in the Ministry of Health's expenditure (MOH, 2015[b]).

The government is also committed to provide health care facilities to the Malaysian citizens. As at December 2014, there were 1,061 government health clinics, 2,238 dental clinics (including mobile dental teams) 327 1Malaysia clinics (including 1 Malaysia dental clinics and mobile team) (MOH, 2015[a]). In Perak alone, there were 331 health clinics in 2014 with 84 health clinics, 236 community clinic and 11 maternal and child health clinic. In Perak, number of day care services attendances in government hospitals are recorded at 110,749 (MOH, 2015[b]).

5. Conclusions

The ageing population in Malaysia is forecasted to increase to 6.0 million in 2040 from 1.4 million in 2010 (DOSM, 2016) is expected to contribute to the rise in the HCE as well. The increase in longevity should also contribute to the demand for health care services and consumption. However, due to high subsidies provided by the Malaysian government, the cost of HCE borne by individual should remain stable and affordable.

Even though the HCE consumption by the elderly per person suggests to be insignificant, overall value of HCE in Perak depicts an upward trend. This is consistent with a growing number of older persons in Perak from 182.6 thousand in 2010 to an estimate of 246.8 thousand in 2017 which is equivalent to an average annual increase of 4.4 percent.

The study suggests a growing consumption on HCE by the elderly in Perak between 2004 and 2014 from RM1.4 million in 2004 to RM3.9 million in 2014. In terms of HCE components, pharmaceutical products comprise medications such as hypertension medicines, heart medicines & diabetes medicines accounted 54.6 per cent of overall HCE by the elderly in Perak. This is in line with findings by Dormont (2006) and Mueller et al (1997). We therefore conclude that, even though there is an increase in terms of value for HCE, ageing population in Perak spent manageable and reasonable amount of HCE and have not impacted on the rise of HCE. This could be due to the heavily subsidized healthcare system provided by the government; and for those who can afford, may seek treatment in private hospitals or clinics.

As there is a growing number of elderly in Malaysia, the policy should remain favourable towards them. This can be seen by the effort of the government to provide bigger access and sustainable healthcare system and facilities such as continuous expansion in public health infrastructure at large. Future studies may include all household members who are 65+ years old to better reflect the spending pattern of ageing population in Perak.

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