Title	An exploratory study on utilisation pattern and costs of aged care in Hong Kong: implications for formal care in the community
Author(s)	Cheng, YH; Chi, I; Boey, KW; Ko, LSF
Citation	Journal of the Hong Kong Geriatric Society, 1997, v. 8 n. 1, p. 16-23
Issued Date	1997
URL	http://hdl.handle.net/10722/223928
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AN EXPLORATORY STUDY ON UTILISATION PATTERN AND COSTS OF AGED CARE IN HONG KONG: IMPLICATIONS FOR FORMAL CARE IN THE COMMUNITY

Yeung-Hung Cheng, PhD
Lecturer
Department of Community Medicine and Unit for Behavioural Sciences
Iris Chi, DSW
Senior Lecturer
Department of Social Work and Social Administration
Kam-Wing Boey, PhD
Senior Lecturer
Department of Social Work and Social Administration
Lisanne Suk-Fun Ko, MSc
Research Associate
Department of Community Medicine & Unit for Behavioural Sciences
The University of Hong Kong, 7 Sassoon Road, Patrick Manson Building South Wing, Hong Kong

J HK Geriatr Soc 1997;8:16 - 23.

Received in revised form 20 October 1997
Address correspondence to: Dr. Y.H. Cheng

Summary

This paper explores the aged care utilisation patterns among elderly people in Hong Kong, and the relationship between the cost of aged care and the health of respondents. 450 persons aged 65 and above residing in public housing estates in the Southern District of Hong Kong Island were interviewed using a structured questionnaire. In the preceding six months, community-dwelling elderly had a higher rate of utilising medical/health services than community support services. Using the standard cost of each service supplied by the relevant departments, the average cost for those who used both medical/health and community support services was higher compared to those who used medical/health services only or community support services only. Using ADLs and self-rated health to indicate the level of health of the respondents, non-linear relationships were observed between the health of respondents and the average cost of care services. The number and nature of diseases reported, other than cultural explanations and individuals' help-seeking behaviour, may explain this 'unconventional' situation. To conclude, affordable and accessible formal care enables many elderly people to live independently in the community. Preventive intervention may enhance the well-being of elderly people, rendering them less dependent on expensive medical/health care. Although there are limitations to this study, the study provides a premise for further discussion on assessing the cost of aged care and the health of elderly people in Hong Kong.

Introduction

For the past few decades, fundamental changes in the population structure have emerged in developed countries around the world[1,2] as more and more people have moved into the age category that we classify as 'old age'. Meanwhile, the declining birth rate implies that the number of younger generation around to care for elderly persons has become less[3]. Besides, the change of family structure and increasing number of women involved in the labour force plays a role in the emerging issues of caring for elderly persons in society[4,5]. In Hong Kong, aside from such changes, the movement of the population from urban centres to new towns usually leaves elderly persons staying alone. Moreover, the 1997 issue and the resulting migration of many younger generation to the other parts of the world has also been seen as another factor causing elderly care to become a prominent social issue[6,7].

Medical advances have enabled more people to survive to old age. However, these advances cannot reduce disabilities along with extending life[3,8]. Although being old is not synonymous with illness and disability[8,9], many elderly persons live with disablement resulting from age-related illnesses with or without the care of others[10]. As the capacity of the family to care for its members diminishes, elderly persons are particularly vulnerable when they lose the ability to care for themselves[11]. In turn,

their general well-being would be affected[12]. To maintain elderly persons living independently in the community, formal service delivery is important to both elderly persons with or without family. Recent studies[12,13] in Hong Kong suggest that elderly persons tend to under-utilise community support services as compared to utilising medical and health services. As Chi and Boey[12] indicated, the limited provision of social services for elderly people may play a part for such a situation. Population ageing is considered to present substantial economic implications, medical costs in particular[3,14,15,16,17]. Programmes like Social Security and Medicare for elderly persons in the US, for example, will increase the fiscal burden on the federal budget in the coming decades[3]. For the sake of effective formal care delivery, service cost is the prime concern of policy makers and health care providers.

As aged care in Hong Kong is dominated by the public sector, which depends on the revenue the government can earn and then allocate to human service programmes, any economic recession, if it should arise, will cast a shadow on the care of elderly people in society. As the population grows older, the demand on care services will increase. However, there is little knowledge concerning the cost of aged care itself and the base for calculation in Hong Kong. This paper intends to shed some light on this area. The objectives of this paper are threefold: to describe aged care utilisation patterns among the elderly respondents; to calculate the average cost of aged care; and to discuss the implications of formal care in a community through exploring the relationship between the cost of care and the health of the respondents.

Methods

The study was targeted to those aged 65 and above residing in public housing estates in the Southern District of Hong Kong Island [a]. To protect personal information, both the Census and Statistics Department and Housing Authority could not provide the location of the required respondents for our study. So a multi-stage cluster sampling was adopted in order to cut down the cost of screening for respondents. The procedures were as follows: All residential blocks of a housing estate were randomly selected. Within each selected block, floors were also randomly drawn. Then, all those aged 65 and above residing on that floor were sought for their consent to interview. The information was collected by means of a structured questionnaire through face-to-face interview. Data collection was done between December, 1994 and July, 1995.

Two major types of formal care were categorised - (1) medical/health services, and (2) community support services. *Medical/health* services refer to geriatric day hospitals, community nursing services, in-patient services, specialist and general out-patient clinic services, and care proffered by private doctors and private hospitals. *Community support services* refer to home-help services, elderly social recreational centres, multiple services centres for the elderly, day care centres, and other related services (e.g. services provided by the Housing Department in public housing estates). Because the field work of this study was finished in the financial year of 1995-96, and for the sake of not under-estimating the cost of aged care utilised by the respondents, the unit cost of services involved were calculated based on the information supplied by the relevant departments for the 1995-96 financial year. For medical services provided by the private sector, the information about the cost was sought from the Hong Kong Medical Association[18].

Results

Basic characteristics of respondents

The study sampled 450 respondents from the seven public housing estates [b] in the Southern District of Hong Kong Island. 59% were female. Their mean and median ages were 72.7 and 71 respectively. About 59% were married and over one third (35.5%) were widowed. Three quarters (74.9%) were living with their children. Many of them (60.2%) had received no formal schooling and less than 5% of them were working either full-time or part-time. Nearly a quarter reported that they were financially insufficient for daily living (see Table 1).

Aged care utilisation patterns

Nearly 60% of the respondents reported that they had only sought medical/health services within the pervious six months. A small portion of respondents (5.6%) said that they had only used community support services in the same period; 16.4% used both medical/health, and community support services; 15.6% had not used any kind of formal care in the previous six months (see Table 2). Age had no effect on the utilisation patterns. However, females tended to use more aged care.

a. According to estimates by the Census and Statistics Department, about 70% of the elderly population in the Southern District of Hong Kong Island resided in the public housing estates of that district (Alvin Li, personal communication). Thus, the sampling frame of the present study targeted those elderly persons living in these estates.

b. They were: Shek Pai Wan, Yue Kwong, Ap Lei Chau, Lei Tung, Wah Fu, Wah Kwai and Wong Chuk Hang.

Table 1. Basic characteristics of the respondents (n=450)

Basic characteristics	*No. (%)*
Sex	
Male	184 (40.9)
Female	266 (59.1)
Age	
65 - 69	177 (39.3)
70 - 74	111 (24.7)
75 - 79	91 (20.0)
80 and above	71 (16.0)
Marital status	
Single	13 (2.9)
Separate/divorced	9 (2.0)
Widowed	160 (35.5)
Married	266 (59.1)
Not specified	2 (0.5)
Educational attainment	
No schooling	271 (60.2)
Primary	134 (29.8)
Secondary and above	45 (10.0)
Working status	
Working	19 (4.2)
Not working	431 (95.8)
Living arrangement	
Alone	42 (10.0)
With spouse only	60 (13.3)
With children and/or spouse	337 (74.9)
With other persons	8 (1.8)
Financial sufficiency	
Sufficient	158 (35.1)
Manageable	183 (40.7)
Insufficient	109 (24.2)

Calculation of the cost of aged care

The information about the cost of aged care for the financial year of 1995-96 was given by the Department of Health, Hospital Authority, Hong Kong Medical Association, and the Social Welfare Department. The unit costs of services provided by the first three sectors were straightforward (see Table 3). For the information supplied by the Social Welfare Department, the unit cost of a particular service was calculated as the total standard cost divided by number of utilised days, then divided by the standard provision for that care service. The total standard cost was based on current government subvention adjusted to reflect the additional costs incurred by operating expenses and the market value of the premises. Therefore, the total standard cost included costs for premises, staffing, administrative expenses and other material capital items. For example, the standard cost of a 'day care centre for elderly' was HK$2,059,000 in the financial year of 1995-96 and the standard provision for a day care centre was 45. Thus the unit cost for such care service was HK$2,059,000 divided by 365 days [c] and divided by the total number of provision. The unit cost for 'day care centre for elderly' was HK$125 (see Table 4). The average cost of a care service used by the respondents in this study was the unit cost multiplied by the used frequency of that service. The costs estimated here only took into account the direct costs of the service programme. Indirect and intangible costs were not included in the analysis.

Table 2. Service utilisation patterns in the past six months (n=450)

Services used	*No.*	*(%)*
Used no services	70	(15.6)
Medical/health services only	268	(59.6)
Community support services only	25	(5.6)
Both medical/health and community support services	74	(16.4)
Other (e.g. services provided by Housing Department for elderly residents)	13	(2.9)

As 43.3% of the respondents also used private medical care with or without other services, such a proportion should not be ignored in assessing the cost of formal care. However, as it was very difficult to get the correct figure of various private services, information provided by the Hong Kong Medical Association is referenced. For private practitioner consultations, the median fee charge was used as unit cost for calculation because no other relevant measure could be adopted. For private inpatient services, there were huge variations. For the sake of simplicity and not over-estimating the cost of private service, we adopted the unit cost provided by the Hospital Authority.

c. In doing such a calculation to estimate the unit cost for a particular care service, it was extremely difficult to know the average number of days for using the service concerned, not to mention the frequency used per day/week. So for the sake of convenience, 365 days was used as the denominator. However, the unit cost so calculated tends to be underestimated for those social services which do not open 7 days a week(e.g. day care centre).

Table 3. Unit costs of various services in the financial year of 1995-96 (in HK dollars)

Unit cost of service	*Unit cost*
Home help	$ 70.4
Elderly social centre	$ 5.3
Multiple service centre	$ 14.8
Day care centre	$ 125.4
General in-patient services	$ 3,122.0
General out-patient services (consultation)	$ 175.0
General out-patient services (dressing/injection)	$ 54.0
Specialist out-patient services	$ 422.0
Community nursing services	$ 361.0
Geriatric day hospital	$ 897.0
Private practitioner consultation (general)	$ 150.0*
Private practitioner consultation (specialist)	$ 350.0*

* Because of huge variations of charges among private doctors, the median is used to indicate the unit cost per consultation.

Source: Department of Health, Hospital Authority, Social Welfare Department and Hong Kong Medical Association.

Table 4. Calculation of the unit cost of social services (in HK dollars)

Service Type	*Standard cost for* 1995-96	*Unit cost*
Home help	Home-based team: $1,733,785 Kitchen-based team: $1,797,875	$1,797,875 / 70 provisions / 365 days = $ 70.4
Social centre for elderly	$581,357	$581,357 / 300 provisions / 365 days = $5.3
Multi-service centre for elderly	$4,054,094	$4,054,094 / 750 provisions / 365 days = $14.8
Day care centre for elderly	$2,059,000	$2,059,000 / 45 provisions / 365 days = $125

Average costs, utilisation patterns and health

As shown in Table 5, the average cost of community support services used by the respondents in the previous six-month, was the cheapest among the three utilisation groups. The highest average cost occurred in those using both medical and health, and community support services. For those using none of the aged care services, no cost was recorded. In regards to using 'other services', because the figure was small and there were difficulties in checking the unit cost of those services, this category was not included for analysis. In each of the three groups, the types of services used by respondents was analyzed. In the community support services group, respondents used services provided by a social centre for elderly only. Compared to the group using medical/health services, the mixed care services group proportionally had more respondents who had been admitted to hospital; a few used geriatric day hospital and community nursing services in the previous six-month period. Apparently, the types of services the respondents used affected the cost distribution as the unit cost of social centre for elderly was the cheapest when compared with other aged care services (see Tables 3 and 4).

Table 5. Average cost of services used for the three service utilisation groups (at 1995-96 price)

Service utilisation group	*Average cost*
Mixed care services (both medical/health, and community support services)	$ 11416.16
Only medical/health services	$ 7857.69
Only community support services	$ 133.77

When relating health with the average cost of aged care, self-rated health and Activities of Daily Living (ADL) were used as indicators of health status. There were variations beyond the usual expectation. For those who rated 'fair' the average cost of aged care was the cheapest as compared with those who rated 'good', 'very good', 'poor' and 'very poor' about their health. The last two groups were far more expensive than other groups in relation to aged care services used (see Table 6). ADL groups also evidenced similar observations. The functional performance of the respondents, based on the number of ADL items with which they experienced difficulties, was divided into seven groups (see Table 7). The first group had the least problems and the seventh group experienced the most daily living problems. The most expensive cost contained was not the worst functional status group but a fairly minor group (Group 3). On the contrary, a relatively severe functional group (Group 5) sustained the cheapest of aged care services.

Table 6. Self-rated health and average cost of service utilisation (n=367)

Self-rated health	*No. (%)*	*Average cost*
Very good	35 (9.5)	$ 5,837.01
Good	102 (27.8)	$ 6,070.39
Fair	172 (46.9)	$ 3,537.60
Poor	46 (12.5)	$20,363.83
Very poor	12 (3.3)	$48,777.00

Table 7. Activities of daily living(ADL) and average cost of service utilisation (n=367)

*ADL groups**	*No. (%)*	*Average cost*
1	251 (68.4)	$ 5,551.78
2	43 (11.7)	$ 5,050.93
3	15 (4.1)	$30,537.81
4	15 (4.1)	$ 5,284.12
5	10 (2.7)	$ 1,364.80
6	6 (1.6)	$ 6,386.67
7	27 (7.4)	$27,974.38

* Six items of ADL were used to measure the functional level of respondents: bathing, transfer, outdoor activities, houshold tasks, shopping, and visiting relatives.
ADL group number = one plus the number of items with which the respondents experienced difficulties.
Thus, 'ADL group 1' consisted of those who experinced no difficulty with the six items;
'ADL group 7' consisted of those who experienced difficulty with all the six items.

Those who rated themselves 'very good' were the oldest among the self-rated health groups respondents who used in-patient services. Gender and living arrangement did not produce a pattern among different self-rated health groups. However, a gradient was observed in the number of diseases diagnosed by doctors in the previous six months. Those who rated themselves 'very good' had smaller number of diseases suffered as compared with the other four self-rated health groups. The number of diseases reported in the five groups was: 1.1, 1.3, 1.9, 2.0 and 2.3 respectively. For the 'very good' self-rated health group, the diseases they suffered mainly concentrated on hypertension, diabetes and arthritis. For those who rated themselves as 'fair' or 'poor' health experienced more other diseases such as stroke and heart disease.

Age, gender and living arrangement appeared to have not much effect on ADLs. The number of diagnosed diseases appeared to have a gradient similar to the self-rated health groups. However, ADLs Group 3 had a higher number of diseases suffered as compared with group 1, 2, 4, and 5. The respective number of diseases reported for the seven ADLs groups was as follows: 1.5, 1.9, 2.3, 1.9, 1.9, 2.4, and 2.6. Furthermore, although the respondents in Group 3 experienced more diseases, the types of disease they suffered may explain why they were functionally better than other ADLs groups. In regards to affecting mobility and self-care ability, at face value, several disease types were identified that could play a part in affecting respondents' mobility. They were stroke, fracture, and arthritis. However, the first two conditions accounted for very small portion in all respondents, 3.3% and 8.2% respectively as compared with those who suffered arthritis, 52.2%. At the same time, respondents of Group 3 suffered the least from arthritis, 44.4% (as compared to the other ADLs groups in sequence: 52.1%, 69.2%, 62.5%, 80%, 100% and 75%) and the highest percentage for hypertension, 55.6% (as compared to the other ADLs groups in sequence: 29.5%, 42.3%, 25%, 10%, 20% and 50%). Therefore, at face value, such evidence at least informed us that the relatively small portion of respondents suffering from arthritis in this group may not have disturbed their ADLs very much.

Discussion

Utilisation patterns

On the whole, elderly persons used various kinds of services, and as expected, the majority were using medical and health services, and out-patient services in particular. Utilisation patterns were moderated by the gender of care recipients. Females tended to use more medical and health services as well as community support services. Although studies like MacIntyre, Hunt and Sweeting[19] found that gender difference in health in the developed world was not so clear cut, other studies[20] suggested that women had more chronic illness, more days of disability, a higher rate of doctor consultation, and more frequent use of formal community or home care services than men. Also, females tended to consider themselves sicker and were far more willing to assume a patient role than their male counterparts[21].

More respondents reported using 'elderly social recreational centre' than other kinds of community support services. The higher utilisation rate for females may be due to the fact that they tend to be more expressive and able to understand others' feelings[22], and in turn they are more sociable than males. In general, the utilisation rate of community support services was significantly lower when compared with the use of medical/health services. Many community support services are offered to those with the greatest needs, i.e. frail elderly people[23]. Thus many of those who were not frail, were deterred from using those services. Such a situation was also supported by the belief that Chinese themselves would consider other people's needs above their own[24]. Considering that their needs were not so desperate or even noticed and that their general well-being was fairly 'good', there was no justification to convince themselves to pursue any community support services. At the same time, using formal community support services may carry a stigma. It is because services of this kind may be seen as 'welfare' rather than as 'right' to make use of.

Aged care cost and health

Based on the information given by the relevant departments and organisations, an obvious observation is that the costs of medical and health services are in general far more expensive than community support services. This is especially true for in-patient care. Due to insufficient information and the huge variations between individual medical care units, the base for calculations concerning private medical care is prone to bias. However, the calculations done in this study can be considered as a first step towards developing a more precise way to figure out the cost of aged care in Hong Kong.

The study goes further to explore the relationship between care cost and the health of the respondents. Previous studies[25,26,27] suggest that self-rated health and Activities of Daily Living (ADLs) are reliable indicators to reflect the health status of elderly persons. Using these two indicators, we observed a non-linear relationship between the cost of care and health. Although those who rated themselves with poor health and had the poorest score on ADLs costed more, those who rated their health as good costed higher than those who said their health was fair, and the costs of a better functional status group and a poorer functional status group were reversely distributed. For such bi-variate analysis, there are certainly a number of variables that confound such findings. We found that whether the respondents were admitted to hospital played a crucial role in affecting the cost of care. Those who rated their health as 'good' and 'very good' had a slightly higher percentage of using in-patient services than those who rated 'fair' about their health. This may explain why those who rated themselves better had a higher average cost than those who rated themselves as fair. In addition, the 'poor' and 'very poor' self-rated health groups had a higher percentage to be in-patients, therefore the average cost was correspondingly higher. The better functional status group (Group 3) had a higher percentage of using in-patient services and the highest percentage of using specialist services which resulted in the highest cost among the ADLs groups (the diseases suffered by most of the respondents in this group were dominated by hypertension and arthritis). However, the poor functional status group (Group 5) was the cheapest cost group because none of the respondents in this group had been an in-patient.

Although studies[28,29,30] suggest that those who live alone tend to use more formal services, our findings were different. On the other hand, *age* may be considered as a possible explanation for the higher cost of the 'very good' self-rated health group. As Crets[28] suggested, *age* was a need factor with which the older the person was, the more risks s/he may experience, and in turn more formal care s/he would require. Moreover, the unconventional distribution probably had something to do with the meaning of 'fair' in Chinese terms. When Chinese responded 'fair', it could mean 'good' in a humble way.

On the whole, the types of diseases may also play a part in the use of formal care, in-patient services in particular. As many respondents suffered more than one type of disease, probably chronic illness, it is rather common for them to go to see general practitioners or specialists regularly. At some point, it is not unusual for them to be admitted for something that has to be tackled in a hospital setting, regardless of if one rated him/herself as good or poor or the extent of the individual's physical mobility. For example, Group 3 of ADLs had the highest proportion of respondents suffering from hypertension and arthritis, and it can be speculated that disease of this kind may require more medical attention. As mentioned before, specialist and in-patient care would be inevitable.

Other than that the nature of the disease could pre-dominate the aged care use and the resulting costs of care, an individual's illness behaviour may also play a part in the use of aged care. The literature[31] indicates that there are psychological, social and cultural factors affecting people's help-seeking behaviour including types of services they will use. When to see a doctor and whether to admit to hospital are not necessarily at the point clinically relevant.

The study has several limitations. In considering the data, one should be cautious concerning the nature of disease in relation to the effect of self-rated health and ADLs and the resulting cost of care because in the present study, the severity of disease was not recorded. Thus, there was no way to relate the self-rated health and ADLs to the seriousness of a disease. The discussion was only based on the face value of the disease and assumed the average effect towards an individual's health and mobility. Secondly, in calculating the cost, because a number of groups were only composed of a very small figure (especially true for ADLs groups), biases in measuring the cost would be inevitable. Also, as mentioned earlier, since the criteria for calculation of aged care cost were not very rigorous, the findings of the present study may be misled. Although every effort was made to estimate costs as accurately as possible, assumptions had to be made owning to the lack of relevant data. Nevertheless, even though the out-of-pocket expenses by the respondents or their families were not included, the estimates do provide a reasonable indication of costs of aged care in the Hong Kong community. A limitation of the present study is that it could not

be representative of the broader elderly population in Hong Kong.

Conclusion

The present study examined the aged care utilisation patterns among a group of community-dwelled low and middle-low income elderly persons. A very striking but obvious observation is the high level of use of medical/health services. The findings of the study also suggest that regardless of whether the elderly person is relatively healthy or suffering from a certain kind of chronic condition, becoming an in-patient is not an uncommon event when there is a need to do so. The utilisation is irrespective of an individual's socio-demographic background and disease suffered. As a result, it gave those respondents using in-patient services a substantial higher cost than those who did not use services of this kind. However, in addition to preventing the elderly person from being institutionalised, formal care of this kind can preserve their independence in community [32]. Although using in-patient services is an inevitable way for some elderly persons, for the majority of elderly persons, it has been evident that preventive intervention can reduce the use of medical facilities and in turn, saving the cost of care [33,34]. Moreover, the use patterns suggest that preventive interventions must be targeted and directed to reflect diversity of elderly persons and varying risk patterns associated with different patterns of ageing [35,36].

Although community care for elderly people has long been emphasized in Hong Kong [23,37], its effectiveness has yet to be assessed. Community care may not save money and sometimes, it may be rather expensive if it intends to substitute certain shares of existing informal care [29]. While we emphasize community-based and non-institutionalised forms of care for elderly persons, the care given by family should be acknowledged and should be supported by formal services. Furthermore, in providing medical/health, and community support services to elderly people, such kinds of 'social' problems cannot be solved with money alone. The shortage of solid information and the lack of political will often make even limited progress difficult [38].

Acknowledgements

The authors thank the editor and the two anonymous reviewers for their helpful comments. They also gratefully acknowledge the Committee on Research and Conference Grants, the University of Hong Kong for funding this project.

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AGEING IN PERSPECTIVES

Ageing is a universal, decremental phenomenon. Some functions like reproductive function will be totally lost. Others will decrease in numbers like nephrons in the kidneys whereas some will decrease in quality like slowed neuronal conduction velocity. The dilemma lies in differentiating whether the decrements are due to normal ageing changes or due to pathological conditions. The dilemma to doctors is whether treatment should be initiated. The dilemma to the elderly person is whether to seek medical advice.

Thomas Kirkwood (1992) defined ageing as a progressive, generalized impairment of function resulting in a loss of adaptive response to stress and in a growing risk of age-related disease. So any sudden deterioration, localized decrements, disability and handicap and not just impairments should be ascribed to pathological conditions. This is where the element of expectation comes in. The World Health Organization has used the phrases like "considered normal" and "that is normal" in defining disability and handicap respectively. To illustrate, we would not consider the loss of reproductive function of a menopausal woman to be a disability. The case of handicap is even more complicated. It should be seen from a social point of view. However, different people have different social roles. Theoretically, two people suffering from the same impairment and disability might have different handicaps. That is why in team management, patient and relative are two integral members in the team. The minimization of hanidcap should be defined in their terms.

The following is a collection of saying and proverbs which sometimes is quite applicable in the practice of ageing.

"Age is mostly a matter of mind; if you don't mind, it doesn't matter."

"In the field of observation, chance favours only the prepared minds."

Louis Pasteur

"Look to the future with vigour and not with fondness on the past."

Geoffery Kidd

"Time is the great physician"

Benjamin Disraeli

"The key to longevity is to keep breathing"

Sophie Tucker

From the above discussion, what have you been inspired about ageing?

Dr. Loar Ka-Keung Mo, MBChB MBA
Consultant (Rehabilitation & Geriatrics)
Yan Chai Hospital, Kowloon, Hong Kong

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