ORIGINAL ARTICLES

Self-Perception of Health among Elderly Community Dwellers in Singapore

K M Chan,*_{FAMS, MBBS, M Med (Int Med)}, W S Pang,**_{FAMS, M Med (Int Med), MRCP (UK)},
C H Ee,***_{FAMS, MBBS, M Med (Int Med)}, Y Y Ding,**_{FAMS, MBBS, MRCP (UK)}, P Choo,****_{FAMS, MRCP (UK), DGM (Lond)}

Abstract

Majority (90.5%) of the elderly living in the community in Singapore had a positive (satisfactory to good) perception of their health. This study found that age (70 years or older), recent hospitalisation, regular medical follow-up, hearing impairment, presence of chronic medical conditions (like musculo-skeletal problems, hypertension, ischaemic heart disease and chronic obstructive lung disease), impairment in activities of daily living, history of falls, those on regular medications and those with financial difficulties all adversely influenced perception of health. Those able to participate in regular outdoor leisure activities have a positive influence. Factors that did not significantly influence perception of health were gender, health-promoting activities, work, poor eyesight, cognitive impairment, urinary incontinence, diabetes, history of stroke and the ability to use public transport.

Ann Acad Med Singapore 1998; 27:461-7

Key words: Factors influencing, Financial needs, Functional state, Health services utilisation, Illness symptoms

Introduction

The single most important determinant of the quality of an elderly person's life is health. In the elderly, health matters affect all other areas of life, including his willingness to seek and accept help.[1] Studies also support the fact that though health declines with age, many older people still rate their health positively.[2] A number of studies have also found that self-ratings of health among elderly adults are valid measures of the respondent's objective health status and match up as well to physician evaluations.[2-4] Most of these studies were confined to Western population. The purpose of the current study was to look at how the elderly community dwellers in Singapore perceive their own health, and the possible factors that influenced their perception.

Materials and Methods

This was a cross-sectional random sample survey of persons aged 60 and older residing in Singapore. A random sample of 3000 names (persons 60 years and above) was chosen from a database based on the 1990 population census. Letters were sent out to 2582 individuals who had local and complete addresses. In the letter, they were informed about the purpose of the survey, and invited to participate in a questionnaire and clinical health screening at an appointed date at a polyclinic (Hougang Polyclinic), which is situated quite centrally in Singapore. Participants were reminded the day before the appointment by telephone, and a new appointment could be given at the subject's convenience. Screening was done through a health questionnaire and a clinical examination. These were conducted between September 1992 and November 1993. It was administered by a team of six doctors with postgraduate training in geriatric medicine. A protocol was provided to ensure standardisation of measurements during clinical examination.

The health questionnaire assessed the person's perception of their own health, and was subjectively scored as "good", "satisfactory" or "poor" based on their response to the question "How do you consider your health status?". Factors which may influence the person's perception of health were assessed. They included: work, exercise, eating habits, smoking, alcohol consumption, health-promoting activities, recent hospitalisations (over the past one year), need for regu-

  * Consultant and Head
    Department of Geriatric Medicine
    Alexandra Hospital
 ** Consultant
**** Consultant and Head
    Department of Geriatric Medicine
    Tan Tock Seng Hospital
 *** Consultant and Head
    Department of Geriatric Medicine
    Changi General Hospital
Address for Reprints: Dr Chan Kin Ming, Geriatric Centre, Alexandra Hospital, 378 Alexandra Road, Singapore 159964.

lar medical follow-up, medication used, presence of chronic medical conditions (like cardiovascular, respiratory and neurological conditions, diabetes mellitus, musculo-skeletal and foot problems, visual and hearing difficulties), cognitive status, body mass index, ability to use public transport, falls, function (basic and instrumental activities of daily living), leisure activities, urinary incontinence and financial status.

Functional status of the person was assessed using the 20-point Barthel's index for the basic activities of daily living.[5] The instrumental activities of daily living scale (IADL) assessed were the ability to prepare a simple meal, shop, use the telephone, housekeep and take their own medications. Mental status of the person was assessed using the 10-point modified Abbreviated Mental Test (AMT).[6] A general clinical examination was performed, including height and weight (expressed as Body Mass Index) and foot problems.

Statistical Analysis

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS 6.1) software program. Chi-square test was used as an initial test of significance. The significant factors were then subjected to multiple logistic regression analysis. All measurements were calculated to the nearest 2 decimal places.

Definitions

Regular exercise was defined as an exercise frequency of at least three times a week, each time lasting at least 20 minutes. The categories of exercise included walking, Tai Chi, Qigong, jogging and others (like swimming, bending and stretching exercises). Being careful with diet implied a conscious effort to reduce daily intake of salt and fats when compared to their usual. Health-promoting activities (HPA) included regular exercise, being careful with diet and not smoking. Body Mass Index (BMI) was expressed as weight (in kg)/(height in metres)^2. Engaging in outdoor leisure activities implied going out of the house more than once a week for leisure (e.g. visiting friends or relatives) and not for work.

Results

Response

A total of 2582 individuals were invited to have a general health screening. About 26% were not contactable because of wrong address (14.6%) or had died (11.3%); 1512 declined the invitation. A total of 401 patient data were obtained from the questionnaire survey at the Polyclinic. This represented a response rate of 21%. The differences between responders and non-responders were:

1. Responders were younger (mean age of 68.8 years and median age of 67 years versus mean age of 69.9

years and median age of 68 years for non-responders).
2. More female non-responders than responders (60% female non-responders versus 48.3% for responders).

Age, Sex, Race and Marital Status Distribution

Table I shows the baseline characteristics of our cohort of 401 patients. There were more Chinese than Malays who responded in the surveyed group. This could be reflective of the larger Chinese community in Singapore.

TABLE I: BASELINE CHARACTERISTICS OF SURVEYED GROUP (n = 401)

Characteristics of surveyed group	n (%)	Singapore resident population aged 60 years and above in 1990* (%)
Age		
Mean	68.8 years	
Median	67 years	
Range	60 to 90 years	
Gender		
Male	207 (51.7)	(46.5)
Female	194 (48.3)	(53.5)
Race		
Chinese	333 (82.8)	(80.0)
Malay	31 (7.7)	(11.2)
Indian	25 (6.2)	(7.5)
Others	12 (3.3)	(1.3)
Marital Status		
Married	256 (63.7)	
Widowed	128 (31.8)	
Single	9 (2.2)	
Separated	5 (1.2)	
No data	3 (1.1)	
Self-perception of health		
Poor	36 (8.9)	
Satisfactory	212 (52.9)	
Good	152 (38.2)	

* Source: Census of Population 1990

Person's Own Perception of Health

37.8% felt that their health was good while 52.7% felt that their health was satisfactory. The remaining 9.5% subjectively felt that they were in poor health. Figure 1 shows the distribution of the subjects' health perception. Table II shows the relationships between various factors and self-perception of health.

Perception of Health and Age, Gender and Marital Status

There was a significant association of poor health in the age group 70 years and above ($P = 0.022$). Gender and marital status did not significantly influence perception of health.
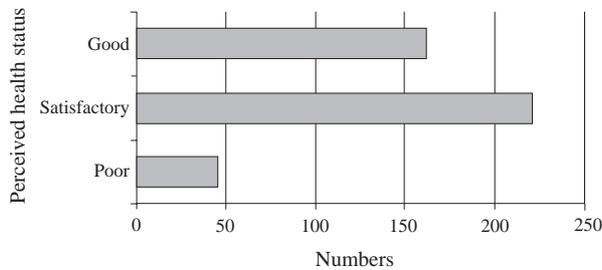
Fig. 1. The distribution of subjects' health perception.

Perception and Work

Seventy-nine (23.4%) of the persons surveyed were still working. In this group, 46 persons (58.2%) were working full-time while the rest were working part-time (33 persons). The mean age of the group that was still working (full or part-time) was 65.6 years old (compared to the mean age of the population of 68.8 years), while the median age was 65 years (compared to the median age of the population of 66 years). This suggests that the group that was still working tend to be the young-old

(but this difference was not statistically significant). Whether the person was working or not did not influence his/her own perception of health (P = 0.39).

Exercise

Slightly less than half of those surveyed exercised regularly (44.5%). The mean age of those who exercise was 68.6 years (median 67 years). Most of them exercised by taking walks (62%) or by practising Tai Chi (13.4%). Males exercise more often than females (63.1% of the exercise group were males) and this difference was statistically significant (P = 4.2 x 10^{-5}). In the exercise group, three-quarter (75.7%) did so daily. The exercise group was not associated with better perception of their own health.

Eating Habits

Two hundred and seven (51.5%) expressed care in what they eat daily, especially in the amount of fat and salt. Among those who were careful with their diet, 57.5% were males. The mean age of this group was 68.8 years. There was significant difference in eating habits

TABLE II: RELATIONSHIPS BETWEEN VARIOUS FACTORS AND SELF-PERCEPTION OF HEALTH

Factors	Poor	Satisfactory	Good	n (%)	Chi square value	*P* value	Significance
Age >75 years	6	39	29	74 (18.5)	0.12	0.94	ns
Gender (Male)	21	100	86	207 (51.6)	3.83	0.15	ns
Marital Status							
Married	25	127	104	256 (63.8)	3.3	0.2	ns
Widowed	11	75	44	130 (32.4)	1.74	0.42	ns
Working	4	42	33	79 (19.7)	1.87	0.39	ns
Exercise	16	85	78	179 (44.6)	4.5	0.1	ns
Care in diet	20	113	74	207 (51.6)	0.99	0.61	ns
Smokes	8	43	27	78 (19.5)	0.54	0.76	ns
Drinks alcohol	6	45	30	81 (20.2)	0.44	0.8	ns
Health-promoting activities	10	42	40	92 (22.9)	2.62	0.27	ns
Recent hospitalisation	14	42	16	72 (17.9)	16.86	2.18 x 10^{-4}	<0.001
Taking medication	33	141	82	256 (63.8)	21.8	1.82 x 10^{-5}	<0.0001
Had heart disease	8	14	13	35 (8.7)	8.56	0.014	<0.05
Had chronic airway disease	9	18	3	30 (7.5)	22.88	9.78 x 10^{-6}	<0.00001
Had musculo-skeletal problem	24	96	56	176 (43.8)	1.08	4.5 x 10^{-3}	<0.005
Foot problems	6	20	9	35 (8.7)	4.47	0.11	ns
Hearing impairment	7	35	9	51 (12.7)	10.51	5.21 x 10^{-3}	<0.01
Poor vision	21	119	73	213 (53.1)	2.75	0.25	ns
Both hearing and visual impairment	6	26	6	38 (9.5)	15.65	3.52 x 10^{-3}	<0.005
Diabetes mellitus	8	44	30	82 (20.4)	0.13	0.94	ns
History of stroke	2	13	5	20 (5)	0.46	0.47	ns
Had cognitive impairment	18	108	79	205 (51.1)	0.59	0.99	ns
Obese (BMI >29)	4	25	10	39 (9.7)	4.15	0.39	ns
Underweight (BMI <23)	16	90	59	165 (41.1)	0.56	0.76	ns
Ability to use public transport	25	147	100	272 (67.8)	0.2	0.9	ns
Falls	11	42	16	69 (17.2)	10.25	5.93 x 10^{-3}	<0.01
Impaired ADL and IADL function	8	45	12	65 (16.2)	14.3	7.8 x 10^{-4}	<0.001
Engage in outdoor leisure activities	17	113	102	232 (57.9)	7.49	0.024	<0.05
Urinary incontinence	7	48	21	76 (18.9)	4.76	9.24 x 10^{-2}	ns
In financial difficulty	8	39	49	96 (23.9)	9.51	8.6 x 10^{-3}	<0.005

ns: not significant; ADL: activities of daily living; IADL: instrumental activities of daily living

between the sexes, with males being more careful than females (*P* = 0.026). There was no difference in perception of health (*P* = 0.61) within the group who were careful in their diet or whether they had a disease (e.g. hypertension or diabetes, *P* = 0.37) that warranted dietary modification or not.

Smoking and Alcohol Consumption

About 19.4% (78 persons) were still smoking, of whom 14.4% were in the age group of 60 to 69 years old. Half of them smoked between 1 and 10 sticks per day, about one-third smoked between 11 and 20 sticks per day, while the remaining smoked more than 20 sticks per day. The smokers were mainly males (*P*<0.0005).

Seventy-nine persons (19.7%) consumed alcohol and the amount they drank ranged from occasional (less than once a week) to more than once a week. Most (54.4%) did so at less than once a week. There were more male drinkers (*P*<0.05).

Twenty-four (6.4%) persons both smoked and consumed alcohol. Smoking alone (*P* = 0.76), consumption of alcohol alone (*P* = 0.8) or both smoking and drinking alcohol (*P* = 0.34) has no bearing on perception of health.

Health-promoting Activities (HPA)

Ninety-two persons (22.9%) were engaged in health-promoting activities. However, such practices did not significantly affect self-perception of health (*P* = 0.27).

Recent Hospitalisation

Seventy-two of the persons (17.9%) surveyed gave a history of admission into hospital at least once in the preceding one year. Forty-four (61.1%) of them were males with a mean age of 70 years (median 69.5 years). Those with recent hospitalisation had a lower self-perception of health (*P*<0.001).

Regular Medical Reviews

56.7% of the surveyed population were still on regular medical reviews. 59.6% of them were males. The median age of those who required regular medical reviews was 68.9 years while those did not was 68.5 years (compared with mean age of surveyed population of 68.8 years). Most of them were reviewed at the Government Outpatient Clinics (34.3%), Specialist Clinics in hospitals (31.4%) or by general practitioners (27.7%). Those requiring regular medical reviews had lower rating of their own health (*P* ≤ 10^{-6}).

Medication Use

64.6% (256 persons) were taking medication during the survey. 54% (138 persons) were males. The mean age of those who took medication was 69.9 years (median 69 years), while the mean age of those who was not on medication was 69.1 years old (median age 67 years).

The number of medications taken ranged from 1 to 8 different types (mean of 1.6). The mean number of prescription drugs prescribed was 2.52, while the mean non-prescription drug was 1.86. Consumption of medications was associated significantly with the perception of poor health (*P*<0.0001).

Known Chronic Medical Problems

In this survey, 43.8% had known musculo-skeletal problems such as arthritis, 35.8% had hypertension, 20.4% had diabetes mellitus, 15.9% had ischaemic heart disease, 8.7% claimed to have foot problem, 7.5% had known chronic airway problems/asthma and 5% had previous stroke. Fifty-three per cent of them had poor vision, and about 12% have hearing difficulties. Figure 2 shows the distribution of common medical problems.

The chronic medical conditions that influenced self-perception of health were the presence of hypertension and ischaemic heart disease (*P*<0.05), history of asthma or chronic obstructive lung disease (like chronic bronchitis, *P*<10^{-5}), musculo-skeletal problems (e.g. arthritis, *P*<0.005) and deafness (*P*<0.01). The chronic medical conditions that did not influence self-perception of health were poor eyesight (*P* = 0.25), history of diabetes mellitus (*P* = 0.94) and history of stroke (*P* = 0.47).
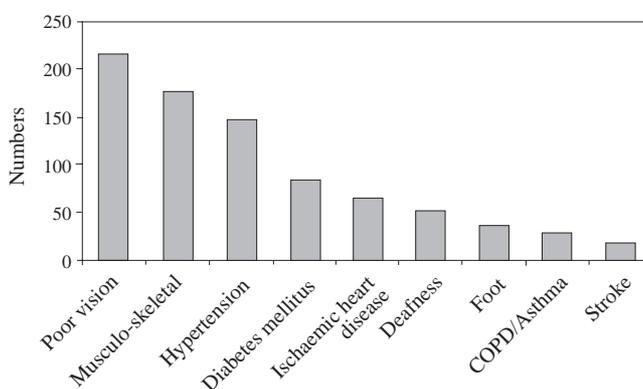

Fig. 2. The distribution of common medical problems.

Cognitive Function

One hundred and ninety-two persons (48.4%) had full score of 10/10, 137 persons (34.5%) scored 8 or 9, and therefore, had mild cognitive impairment. Forty-nine (12.3%) had moderate impairment (scores of between 5 and 7) while 19 persons (4.8%) had severe impairment (scores less than 5). Cognitive function of the subject did not influence health perception (*P* = 0.9).

Weight, Height and Body Mass Index

The mean weight of our study sample was 59.1 kg (median 57 kg), with a range of 20.7 to 99.1 kg. Their measured height ranged from 130 to 188 cm, with a

mean of 156.9 cm. Both male and female subjects had the same mean measured height of 156.9 cm.

One hundred and seventy-five (43.6%) had normal BMI of between 23 and 29. One hundred and eighty-seven (46.6%) had BMI <23 and 39 persons (9.8%) had BMI >29. The mean BMI for male was 23.3 (median 23.4) while that for female was 22.7 (median 23.4). The overall mean BMI was 23.9. Being obese (BMI >29, $P = 0.39$) or underweight (BMI <23, $P = 0.76$) did not influence health perception.

Ability to Use Public Transport

Among the group that went out for leisure activities (347 persons), the most common mode of transportation was: bus (62.8%), taxi (12.1%), car (6.1%), chauffeured to their destinations by their family (12.1%), and Mass Rapid Transit train (MRT) (4.3%). The remaining 2.6% either walked or cycled when they go out. 65.5% of those surveyed could use public transport like bus or MRT. The ability to use public transport did not, however, influence the persons' perception of health ($P = 0.725$).

Falls

Sixty-nine (17.2%) persons had at least one fall in the last one year. Among this group who had fallen before, 66.7% of them were females. The female gender was significantly associated with a history of falling ($P \leq 0.005$). Age, however, was not statistically associated with history of falling, nor the frequency of falls ($P = 0.25$). The median and mean ages of the group with less than 2 falls and the group with more than 2 falls were the same i.e. median of 67 years and mean of 68.8 years respectively. Most (78.3%) attributed their falls to being "accidental". About 46% of them seek medical attention after their fall. The presence of falls in a person significantly influenced the perception of health ($P \leq 0.01$).

Function [Basic and Instrumental Activities of Daily Living (ADL)]

Three hundred and thirty-two (83.2%) persons scored full marks from the Barthel's ADL index, which comprises question assessment on bladder and bowel continence, ability to groom, independence in toilet use, ability to walk, climb stairs, transfer (e.g. from bed to chair), feed, dress and bath independently. This group has a mean age of 68.7 years (median 67 years).

Among those with less than perfect score, the common problems in self-care were occasional urinary incontinence (14.3%), occasional bowel incontinence (2.8%), inability to negotiate stairs (2.3%), difficulties in transfer and to walk (1.5% each), needing help in toilet use (1%), and problems with feeding and dressing (0.5% each). This group tended to be older with a mean age of 69.9 years and a median age of 70 years. The difference was, however, not statistically significant.

When they were assessed for higher functional activities with the Instrumental ADL (IADL) index, 85.3% (342 persons) were independent in all 5 areas assessed: prepare a simple meal, do own shopping, use the telephone, do housekeeping and take their own medicines. The remaining had problems in the following areas: 5.7% could not prepare a simple meal, 4.8% each could not do their own shopping or use the phone, and 3.8% each could not do housekeeping or take their own medicine. 8.2% had inability in more than 1 of these 5 areas being assessed. The inability in IADL could be due to lack of skill or practice rather than physical ability. Dysfunctional in both ADL and IADL ($P<0.001$) significantly influenced health perception.

Leisure Activities

Two hundred and thirty-two subjects (57.9%) reported going out of the house for leisure activities at least once a week. Leisure activities significantly influenced perception of health ($P<0.05$).

Urinary Incontinence

Seventy-six persons (19.1%) had wet themselves before at least twice in the preceding 2 months. Most of the incontinence occurred less than twice per month and most (88.2%) had this problem for more than 3 months already. Presence of urinary incontinence did not influence health perception ($P = 0.09$).

Financial State of the Person

Twenty-eight per cent had their own sources of income, and 75% received money from various sources—68.8% from children and 31% from relatives. Ninety-six persons (24%) found difficulties in making ends meet. Of this group with difficulties making ends meet, 69.8% (67 persons) were receiving money from their children, 2% (2 persons) received money from friends and 4.2% (4 persons) were working and receiving a salary. The rest (24% or 23 persons) had to survive on their savings. Difficulty in making ends meet financially influenced the person's self-perception of health ($P = 0.001$).

Table III shows the significant factors when all the factors that significantly influenced perception of health were analysed using multiple logistic regression.

Discussion

Of the 2582 invitations sent out, 401 subjects (21%) responded. There was no significant difference between responders and non-responders with regards to sex and ethnic group. This response rate could be affected by various reasons:

1. Those sampled, being elderly, are dependent on their children or caregivers to bring them. Since this is just a survey, they may not be too keen to take leave for this purpose.

TABLE III: FACTORS THAT SIGNIFICANTLY INFLUENCED PERCEPTION OF HEALTH (ANALYSED USING MULTIPLE LOGISTIC REGRESSION)

Perception of Health	Significant factors	*P* value
Between "Poor" and "Satisfactory" perception		
	COAD	0.033
	Number of drugs consumed	0.008
	Musculo-skeletal symptoms	0.010
Between "Satisfactory" and "Good" perception		
	Number of drugs consumed	0.015
	Financial difficulties	0.035
	Presence of hypertension	0.023
	Barthel score <20	0.003
Between "Poor" and "Good" perception		
	Recent admission	0.045
	COAD	0.026
	Number of drugs consumed	0.001
	History of falls	0.013
	Hearing impairment	0.044
	Presence of hypertension	0.005
	Musculo-skeletal symptoms	0.009

COAD: chronic obstructive airway disease

2. Some of those sampled may not be able to attend because of ill health or immobility.
3. As all screening was done at Hougang Polyclinic, those staying far away, for example, in the western part of Singapore, may not want to come.
4. Problem of ageism, where the elderly or their caregivers may not see the value of health screening.

This response rate was, however, compatible to the 1992 Singapore National Health Survey when compared by age group (our survey returned a 10.5% response rate compared with 7.8% in the 1992 survey for the 60 to 69 years age group).

Limitation of study

The results of the study is limited by the response rate which could generate a biased sample. The group of subjects that turned up could be the healthier group and, therefore, would influence the results on the perception of health and factors affecting it.

Results

Majority of the elderly living in the community in Singapore had positive perception of their own health. 90.5% self-reported satisfactory to good health. The self-rating of health is an important parameter in evaluating health status, determining prognosis and in survival.[7-10] Older people often perceive themselves as being in good health for their age. Self-assessments of personal health are often based upon how they compare themselves with others of their own age and sex, and perhaps also upon the expectations others have of their health. Eleanor Stoller suggested that older people expect a decline in their health as they aged. When the decline in health did not take place at the rate or extent they had expected, they would rate their health better. At the same time, subjective responses to a health problem are dependent on how much of a person's life is disrupted by the condition. As most elderly persons do not need a high level of physical or mental activity, most will perceive their health as adequate to meet their needs.

In this study, we found that the following factors adversely influenced perception of health: recent hospitalisation, requiring regular medical follow-up, hearing impairment, history of chronic medical conditions like musculo-skeletal problems (e.g. arthritis), hypertension and ischaemic heart disease, asthma or chronic obstructive lung disease (like chronic bronchitis), impairment in activities of daily living (ADL and IADL), history of falls during the preceding one year, need to take medication regularly and those with financial difficulty. Those who could participate in regular outdoor leisure activities had a positive influence. However, when we compared the groups with "poor" and "satisfactory" self-perception, only 3 factors were significant—chronic obstructive airway disease (COAD), number of drugs consumed and musculo-skeletal symptoms. Between the groups with "satisfactory" and "good" self-perception, only 4 factors were significant—number of drugs consumed, financial difficulties, presence of hypertension and musculo-skeletal symptoms. Finally, when we compared the 2 extreme groups of "poor" and "good" self-perception of health, 7 factors were significant—recent admission, COAD, number of drugs consumed, history of falls, hearing impairment, presence of hypertension and musculo-skeletal symptoms. Presence of ischaemic heart disease and ability to go out of the house for leisure activities were not significant factors in the analysis.

These factors could be grouped into:

a) *Symptom generating conditions*: Musculo-skeletal problems (like arthritis) and falls generate pain, while history of asthma or chronic obstructive lung disease causes breathlessness. These were significant factors influencing self-perception of health. The number of illness symptoms experienced was found to have important influences on self-assessments of health. The less symptoms of illness the person had, the better they will rate their health.[2]

b) *Health services utilisation*: Higher health services utilisation rate, like the need for regular medical follow-up, recent hospitalisation and need for regular medication, may influence self-perception by being constant reminders of poor health.

c) *Functional state*: Like hearing impairment, both visual and hearing impairment existing together, presence of musculo-skeletal problems, loss of ADL and IADL

functions and falls may influence perception by limiting and disrupting the person's way of life. It was surprising that visual impairment alone did not influence perception significantly. The ability to engage in regular outdoor leisure activities also implied that there is probably no significant loss of function and a continued interest in life. However, this factor, when analysed with the rest, was not found to be significant. The biased selection of subjects, the small numbers involved, and the relative unimportance of leisure activities viewed by the elderly subjects may be reasons to explain why this was so. Some studies also found that self-assessed health was not related to either physical or instrumental activities.[11]

d) *Financial needs*: Those without financial difficulty may feel healthier relative to others because they felt their social environment was more conducive to maintaining good health. They are also likely to be more educated, and therefore, would seek medical attention earlier. We did not study the education level of this group, but education was found to have an important influence on self-assessment of health.[12] The more education a person has, the more likely for the person to perceive health in a positive manner.[2]

Factors that did not significantly influence perception of health were gender, exercise, being careful with their diet, smoking and alcohol consumption, engaging in health-promoting activities, work, poor vision, cognitive impairment, obesity or underweight, urinary incontinence, diabetes mellitus, history of stroke and the ability to use public transport like bus and MRT.

Similarly, our findings did not support Pender's health promotion model assumption that people who engage in health-promoting activities perceive their own health status positively.[12,13] Ninety-two persons (22.9%) in our study were engaged in health-promoting activities (HPA). However, such practices did not significantly affect self-perception of health (P= 0.27). Possible explanations were:

1. Subjects with good health perception did not see a need for HPA, or
2. Those engaged in HPA were advised to do so because of disease conditions like hypertension or diabetes. When this group was further analysed, the results were again insignificant, but this could be due to the small numbers.

While working status had been one of the markers of general health in the younger age group, this was not so in the elderly. Poor vision, cognitive impairment, diabetes, history of stroke did not influence perception. A possible explanation could be an acceptance of these conditions as being part of "normal" ageing.[3] This seem to be so with urinary incontinence with many regarding it as a normal occurrence.[14]

REFERENCES

1. Smith M A, Plawecki H M, Houser B, Carr J, Plawecki J A. Age and health perceptions among elderly blacks. J Gerontol Nurs 1991; 17:13-9.
2. Cockerham W C, Sharp K, Wilcox J. Ageing and perceived health status. J Gerontol 1983; 38:352.
3. Svanborg A, Sixt E, Sundh V, Thornton J E. Subjective health in relation to ageing and disease in a representative sample at ages 70, 75 and 79. Compr Gerontol A 1988; 2:107-13.
4. Bush T L, Miller S R, Golden A L, Hale W E. Self-report and medical record report agreement of selected medical conditions in the elderly. Am J Public Health 1989; 79:1554-6.
5. Mahoney F I, Barthel D W. Functional evaluations: The Barthel Index. Maryland State Med J 1965; 14:61-5.
6. Hodkinson H M. Evaluation of a mental test score for assessment of mental impairment in the elderly. Age Ageing 1972; 1:233-8.
7. Philpel D, Carmel S, Galinsky D. Compr Gerontol B 1988; 2:110-6.
8. Kaplan G, Barell V, Lusky A. Subjective state of health and survival in elderly adults. J Gerontol 1988; 43:114-20.
9. Idler E L, Angel R J. Self-rated health and mortality in the NHANES-I epidemiological follow up study. Am J Public Health 1990; 80:446-52.
10. Idler E L, Kasl S V, Lemke J H. Self-evaluated health and mortality among the elderly in New Haven, Connecticut and Iowa and Washington counties. Am J Epidemiol 1990; 131:91-103.
11. Ailinger R L. Self assessed health of Hispanic elderly persons. J Community Health Nurs 1989; 6:113-8.
12. Campbell J, Kreidler M. Older adults' perceptions about wellness. J Holist Nurs 1994; 12:437-47.
13. Riffle K L, Yoho J, Sams J. Health-promoting behaviours, perceived social support, and self reported health of Appalachian elderly. Public Health Nurs 1989; 6:204-11.
14. Lara C, Nacey J. Ethnic differences between Maori, Pacific Island and European New Zealand women in prevalence and attitudes to urinary incontinence. N Z Med J 1994; 107:374-6.