

Assessment of nutrition education needs among a sample of elderly Chinese in an urban area

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ABSTRACT

As Malaysia is moving towards a rapidly developing economy, its elderly population is also expected to increase not only in numbers and proportion but also in their life expectancies. This demographic shift from a relatively young population to one that includes an increasing number of old and very old age group presents a real challenge to nutritionists and health professionals. The challenge is to maintain a healthy and vigorous elderly population who can lead fulfilling and independent lives. Health promotion and disease prevention efforts, including nutrition education, targeted towards this group can contribute important elements in meeting the challenge. The objective of the study was to assess the nutrition education needs of a sample of elderly Chinese in an urban area. The sample consisted of 34 males and 36 females, whose age ranged from 55 to 86 years. They were generally affluent and well-educated with a mean income of RM101 1.86 and 8.0 years of formal education. A self-administered questionnaire which requires 20 to 30 minutes to complete was used to collect the information. The results of the nutrition knowledge assessment indicated that the typical respondent correctly identified 16 of the 22 nutrition knowledge statements. A majority (91.4%) of the respondents recognized the fact that tomato, dark green leafy vegetables, and orange juice are good sources of vitamin C, while the statement on vitamin supplementation was correctly answered by only 15.7% of the respondents. The mean nutrition knowledge score was 26.14 with a range of between 18 and 36. The t-test indicated a significant difference ($t=3.63$, $p_{0.05}$) between males and females in their nutrition knowledge scores, with the males having higher mean scores. Although only 8.6% of the respondents reported they had participated before in a nutrition education programme, a majority of them believed that nutrition education can improve the nutritional and health status of the elderly. A majority (80%) of the respondents mentioned newspaper articles as their source of nutrition information, while only 8.6% indicated the dietitian as their source of information. However, the doctor was identified as a more creditable and reliable source of information by a majority

(68.6%) of the respondents. Nutrient requirements and physical exercise for the elderly were topics of greater concern to a majority of the elderly than topics on food preparation and food labels. Although the results of the study do not represent the nutrition education needs of all elderly population in Malaysia, our findings may be useful for planning strategies to meet food and nutrition education needs of other elderly groups.

INTRODUCTION

Population aging will be an inevitable phenomenon accompanying the rapidly developing economy in Malaysia. The increasing number of elderly persons, combined with the complexity of nutrition-related health problems ranging from nutrient deficiencies to over-nutrition and the vulnerability of the elderly to various age-related disability and morbidity will exert increasing demand on the health care system.

Health promotion and disease prevention activities are becoming increasingly recognized as a measure to compress morbidity and improve the quality of life of the elderly and at the same time such efforts may reduce the costs of health care and services (Fung *et al.*, 1993). However, many of these activities including nutrition education for older adults have not been a priority area of concern. There are misconceptions that the mental capacity of the elderly has decreased and there is an unwillingness or inability to change through such educational efforts. Nevertheless, previous studies have shown that educational programmes and strategies if carefully planned and targeted, based on needs and

interests of the group can bring positive results (Kohrs, 1979; Smickilas-Wright, 1981).

The present study was designed to assess the nutrition education needs of a sample of elderly Chinese who were members of selected Senior Citizens Associations in the Klang Valley. The level of nutrition knowledge, sources of nutrition information, perceived assessment of the credibility of the sources, and topics of current concern to the elderly were also identified.

METHODS

Sample

Respondents in this study were 70 elderly Chinese males and females selected by convenience sampling from three senior citizens associations, viz., Young Men Christian Association (YMCA) Senior Citizens Club in Brickfields, Kuala Lumpur; the Petaling Jaya Senior Citizens Association in Jalan Selangor and the Klang Senior Citizens Club in Klang. Only members who were ambulatory, healthy, at least 55 years of age, volunteered to participate and willing to answer the questionnaire were included in the study.

Data collection

A self-administered instrument, either in English or Mandarin requiring 20 to 30 minutes to complete was used to collect the information. The questionnaire included sociodemographic information, 22 knowledge statements, sources of nutrition information, credibility of the sources and nutrition topics of concern to the elderly. The questionnaires were distributed to the respondents at the respective senior citizens' clubs during one of their activity day. After being briefed, the questionnaires were completed and returned to the researchers. For those who were unable to read or need help, the data were collected using the interview method. To determine the level of nutrition knowledge, a score was computed based on the correct responses of the 22 nutrition knowledge statements.

Statistical analysis

The Statistical Package for Social Sciences (SPSS-PC +) computer programme was used to analyze the data. Frequencies and measures of central tendency were determined for all items for descriptive purposes. The t-test was used to determine differences in nutrition knowledge scores among the male and female respondents. Correlations between selected variables were also computed. A statistical probability of ≤ 0.05 was considered significant.

RESULTS

Description of the sample

The description of the sample is summarized in Table 1. The sample was represented by almost equal proportion of males and females, 48.6% and 51.4% respectively. The mean age of the group was 63.4 years and it ranged from 55 to 86 years old. A majority of them were still married (74.3%) and were Buddhists (67.1%). The sample was generally quite well-educated and affluent with a mean of 8.0 years of formal education and a monthly income of RM101 1.86. A majority of the respondents (65.7%) still has three to six numbers of living children. On the average, the household size was 3.8 with a majority (84.3%) living in household units of two to seven individuals. More than half of the respondents (55.7%) were living with their spouses and other family members. Only 2.9% lived alone.

Assessment knowledge of nutrition

The results of the nutrition knowledge assessment indicated that the typical respondent (50% or more) could correctly identify 16 of the 22 nutrition knowledge statements included in the instrument. Table 2 summarizes the respondents' strengths and weaknesses as revealed by the nutrition knowledge test. Over 80% of the sample could correctly

Table 1. Selected socio-demographic characteristics of the sample (n = 70)

Characteristics	Number	%	Mean	Range
Sex:				
Male	34	48.6		
Female	36	51.4		
Age (years):			63.4	55-88
55-60	26	37.1		
61-65	24	34.3		
> 65	20	28.6		
Marital status:				
Married	52	74.3		
Widowed	14	20.0		
Single/divorced/separated	4	5.7		
Religion:				
Buddhism	47	67.1		
Christianity	20	28.6		
Others	3	4.3		
Education (years):			8.0	1-20
1-6	31	44.3		
7-11	24	34.3		
> 11	15	21.4		
Monthly income (RM):			1011.86	200-5000
500 and less	25	35.7		
501-1000	22	31.4		
> 1000	23	32.9		
No. of living children:				
1-2	8	11.4		
3-4	27	38.6		
5-6	19	27.1		
> 6	16	22.9		
Household size:			3.8	1-12
1	2	2.9		
2-4	30	42.9		
5-7	29	41.4		
> 7	9	12.8		
Living arrangement:				
alone	2	2.9		
with spouse only	5	7.1		
with spouse and other family members	39	55.7		
with other family members	21	30.0		
with or without spouse and other non-family members	3	4.3		

answer items related to nutrient composition of specific foods and the health benefits of substituting saturated fats with polyunsaturated oils. Areas of inadequate comprehension were related to certain misconceptions, including fiber as a source of energy; relationship of diet and the aging process; role of fat in the diet; vitamins and minerals as a source of energy and the need to consume most vitamins

Table 2. Strengths and weaknesses of responses to the nutrition knowledge statements (n = 70)

<i>Statement</i>	<i>% with correct responses</i>
STRENGTHS	
1. Tomato, green leafy vegetables and juice are good sources of vitamin C	91.4
2. Milk is a good source of protein and calcium	80.0
3. Corn oil is a better source of fat than lard for your health.	80.0
WEAKNESSES	
1. The human body uses dietary fiber mainly for energy.	27.1
2. Optimal diet can stop the aging process	21.4
3. Fat is not absolutely necessary in our diet	17.1
4. Vitamin and mineral provide no energy	15.7
5. Most vitamins have to be consumed daily to maintain health	11.4
6. Most bacteria can cause food poisoning	5.7

daily to maintain health. The most difficult item was related to the role of bacteria in causing food poisoning, which was responded correctly by only 5.6% of the respondents.

The mean nutrition knowledge score was 26.1 with a range of between 18 to 36. About 44% of the respondents were categorized as having low nutrition knowledge scores (less than 24) and only 15.7% were considered to have high knowledge scores of more than 32. The t-test indicated a significantly higher nutrition knowledge score for the males than the females ($t=3.63$; $p\leq 0.05$). Out of the 22 statements, 16 statements had higher percentages of correct responses by the males than the females. The males were better informed or more knowledgeable in areas related to the relationship of diet and the aging process; role of fat in the diet; vitamins and minerals as a source of energy and food storage. Pearson correlation analysis revealed a definite but small and positive relationship between knowledge scores and level of education ($r=0.36$; $p\leq 0.01$).

Sources of nutrition information

More than half of the respondents indicated using between 3 to 5 sources of nutrition information, with an average of 3.3. The distribution of respondents by sources of nutrition information is presented in Table 3. A majority of the respondents (80%) indicated articles in the newspapers as their source of nutrition information. Television programmes, magazine articles, physicians, neighbours and friends were the other sources

of information cited by more than one-third of the respondents. Only 8.6% and 4.3% respectively indicated that dietitians and nurses were their sources of information. There was a higher proportion of males than females who identified the following as sources of Information: newspaper articles, television programmes, magazine articles, physicians, radio programmes, close relatives, dietitians and nurses. On the other hand there were more females compared to males who cited friends and neighbours, recipe books and food label as sources of information. Pearson correlation analysis showed a definite but small relationship between number of sources of nutrition Information and nutrition knowledge scores ($r=0.28$; $p \leq 0.01$). Respondents who used more sources of nutrition information had higher nutrition knowledge scores.

Table 3. Distribution of respondents by sources of nutrition information (n = 70)

Sources of information	Males (n=34) %	Females (n=36) %	Total (n=70) %
Newspapers	85.3	75.0	80.0
Television	50.0	33.3	41.4
Magazines	58.8	25.0	41.4
Physicians	1.2	38.9	40.0
Friends and neighbours	32.4	41.7	37.1
Radio	29.4	19.4	24.3
Relatives	23.5	22.2	22.9
Recipe books	8.8	19.4	14.3
Food labels	8.8	19.4	14.3
Dietitians	8.8	8.3	8.6
Nurses	5.9	2.8	4.3
Others	2.9	2.8	2.9

Credibility of information sources nutrition

Respondents were also asked to rank the credibility of the nutrition information sources. From Table 4, it is revealed that physicians were identified as a creditable and reliable source of information by a majority of the respondents (68.6%). Slightly more than half of the respondents (52.9%) also considered articles in the newspapers as sources that they could trust. On the other hand, recipe books, nurses, friends and neighbours, close relatives and food labels were sources that were considered to be reliable by less than 20% of the respondents.

Table 4. Distribution of respondents by ranking of the credibility of nutrition information sources (n=70)

Sources of information	Males (n=34) %	Females (n=36) %	Total (n=70) %
Physicians	73.5	63.9	68.6
Newspapers	61.8	44.4	52.9
Dietitians	35.3	36.1	35.7
Magazines	44.1	25.0	34.3
Television	32.4	25.0	28.6
Radio	26.5	19.4	22.9
Recipe books	14.7	22.2	18.6
Nurses	17.6	16.7	17.1
Friends and neighbours	8.8	22.2	15.7
Relatives	17.6	13.9	15.7
Food labels	8.8	11.1	10.0
Others	5.9	0.0	2.9

Participation and perception of nutrition education programme

To assess the need for nutrition education programme, the respondents were asked the

importance of nutrition education, their previous participation in any such educational programme and their perception and willingness to participate in future programmes. Nutrition education for the elderly was ranked as very important and important by 34.3% and 58.6% of the respondents, respectively. Only 2.9% of the respondents considered it as not important. Although only 8.6% of the respondents reported that they had participated before in a nutrition education programme, a majority (95.7%) indicated their willingness to participate if such a programme is conducted at their senior citizens club (Table 5). Over 90% of the respondents perceived that nutrition education efforts can improve the health status of the elderly and such programmes are

Table 5. Participation and perception of nutrition education programme (n=70) still not too late for them.

Variable	Males (n=34) %	Females (n=36) %	Total (n=70) %
Previous participation in a nutrition education programme	8.8	8.3	8.6
Willingness to participate in future programme	91.2	100.0	95.7
Perception that nutrition education can improve the health status of elderly	100.0	97.2	98.6
Perception that nutrition education is still not too late for the elderly	94.1	86.1	90.0

Nutrition education topics

Table 6 shows the distribution of respondents by nutrition education topics identified as important by the elderly. Nutritional requirements and physical exercise for the elderly were topics of great concern to a majority (71.4%) of the elderly. More than one-third of the respondents also indicated the following topics as important: How to reduce serum cholesterol and risks of cardiovascular diseases (42.9%); diet and control of body weight (41.4%) and roles of vitamins in promoting health (34.3%). On the other hand, topics on food preparation and how to read food labels were identified as of great concern by only 7.1% of the respondents, respectively. Some of the interests and concerns identified by the male and female respondents varies to a certain degree. A higher percentage of the females were more interested in such topics as nutritional requirement and exercise for the elderly (77.8%), cholesterol and heart disease (55.6%) and salt and hypertension (25.0%). On the other hand, the males were keen to know more about the following topics: Diet and control of body weight, roles of vitamins in promoting health, nutritional value of food, special diets, diet and cancer, food preparation and how to read labels.

DISCUSSION

On the average, the nutrition knowledge scores of the elderly Chinese sample in this study is quite low. This is not unexpected

Table 6. Distribution of respondents by nutrition education topics identified as important by elderly (n=70)

Topic	Males	Females	Total
	(n=34) %	(n=36) %	(n= 70) %
1. Nutritional requirement and physical exercise for the elderly	64.7	77.8	71.4
2. How to reduce serum cholesterol and risk of cardiovascular diseases	29.4	55.6	42.9
3. Diet and control of body weight	44.1	38.9	41.4
4. Roles of vitamins in promoting health	35.3	33.3	34.3
5. Salt and hypertension	23.5	25.0	24.3
6. Nutritional value of food	26.5	22.2	24.3
7. Special diets: low fat, low-carbohydrate, etc.	23.5	19.4	21.4
8. Diet and cancer	17.6	16.7	17.1
9. Food preparation	14.7	0.0	7.1
10. How to read food labels	8.8	5.6	7.1

among the elderly. The level of education of nearly half of the respondents (44.3%) was only one to six years of formal schooling. In addition, the elderly may never have been exposed to nutrition information. There was a significant difference between the nutrition knowledge cores of males and females. This finding is in contrast with the results from other studies (Fanelli & Abernathy, 1986; Hutchings & Tinsley, 1991; Mann *et al.*, 1988;) where gender differences were not observed. Since women have traditionally purchased and prepared food

for the family, one would also expect the females to be more knowledgeable in nutrition than the males. This assumption was not supported in this study. This can be explained by the level of education which is probably higher in the males than females. Educational level was also significantly related to nutrition knowledge scores. Respondents with higher level of education had higher nutrition knowledge scores. Previous research (Fanelli *et al.*, 1987; Hutchings & Tinsley, 1991) among elderly Americans also supported this conclusion.

Newspapers being the most readily available and widely read printed materials provide an important source of nutrition information to the elderly in this study. Similar findings have also been reported in other studies (Fanelli et al., 1987; Kivela & Nissinen, 1987). The popularity of printed materials, including articles in magazines makes it especially important that reliable, appropriate and accurate information are published for public consumption. Physicians were also considered as an important source of nutrition information and were also rated as the most reliable and trustworthy. A study of elderly New Zealanders also supports this finding (Silvester & Horwath, 1990). It thus appears that physicians can and should play an important role in providing nutrition information, especially during visits by their elderly patients at the clinics or health care settings.

Although, previous participation in a nutrition education programme was very minimal, there was a general willingness and eagerness of the elderly to participate in future programmes. This provides an excellent opportunity for nutrition educators and health professionals to design and formulate appropriate programmes to benefit the elderly population. Such efforts should be regarded as useful and will help improve the quality of life of the elderly.

The range of nutrition education topics considered as important by the elderly were quite varied. Most of the topics were related to maintenance of good health and reduction of risk factors of various chronic

diseases. This response might be expected from a group who are more likely to be suffering from some of the chronic ailments or has the potential of facing such a bleak prospect. The variation in the interest and concerns of various nutrition education topics between the males and females should also provide guidance to nutrition educators to develop programmes appropriate to the need of the target audience.

CONCLUSION

The results of the study revealed that the elderly were still keen and interested to know more about certain nutrition topics to improve and maintain their nutrition and health status and they are still willing to learn. Therefore, nutrition education programmes and strategies among the elderly should be encouraged. 'Interventions aimed at promoting health and preventing disability should never be dismissed as too late' (Svanborg & Selker, 1993) and such efforts may have potential benefits for the elderly. In developing such educational programmes, health professionals and nutritionists need to recognize the heterogeneity of the elderly population and take into consideration factors such as gender and socioeconomic differences. Health professionals have a real challenge to face in providing readily accessible, accurate and practical information about nutrition and health-related issues. There may be a need to be creative and innovative in reaching the elderly, perhaps through channels and sources they are more likely to use such as printed materials, media and physicians.

As Malaysia is moving rapidly towards an industrialized economy, the future elderly population are expected and most likely to be better educated and more health conscious than their parents or grandparents. Therefore, innovative health promotion and nutrition education approaches will be needed to keep pace with these changes. Although the findings do not represent the nutrition education needs of all elderly population in Malaysia, but some of the information may be useful for planning strategies to meet food and nutrition education needs of other elderly group with similar background and characteristics.

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