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ABSTRACT

Objective: **To assess the elderly's nutritional status, major health and socio-economic problems.**

Design: **A cross- sectional, descriptive study.**

Setting: **Hospitalised care, in Morogoro General Hospital, Morogoro, Tanzania.**

Subjects: **One hundred and twenty one elderly patients admitted in the hospital for various health problems between November 1998 and March 1999.**

Results: **Body Mass Index (BMI) ratios indicated that 26% of the subjects were suffering from Chronic Energy Deficiency (CED) of varying grades. Fourteen percent had CED grade I, 10% CED grade II and two per cent had CED grade III. The study ranked cardiovascular disorders and respiratory tract diseases the most prevalent diseases (30% and 28% respectively). These were followed by malaria (15%). Cardiovascular diseases were more prevalent among women than men while the respiratory diseases were opposite. The general tradition that African elderly people do live with and are taken care by their children seems to hold no longer, as the majority of the subjects (80%) either live alone or with their spouses only, while 14% lived with their relatives (including their children). The majority of the elderly did not have any regular income, and they depended on other people for their living.**

Conclusion: **As Tanzania undergoes demographic and economic transformations, the elderly are increasing while their welfare decreases. This has more effects on their health status. Old tradition of children living with their elderly is declining due to urbanisation, rural urban migration and the trend towards nuclear families. The government is urged to establish specific systems of taking care of this vulnerable group.**

INTRODUCTION

One of the major public health achievements of the twentieth century has been the sharp decline in premature mortality from many communicable and non-communicable diseases. This is largely due to the improvements in sanitation, housing and nutrition, in addition to medical innovations and the discovery of antibiotics. Consequently, life expectancy has risen and is expected to rise in virtually all populations throughout the world. This will lead to a steep increase in the number of people reaching the old age(1). The sharp increases in life expectancy have been followed by substantial falls in fertility world wide in developed countries, mainly due to availability of modern contraceptive methods. This demographic transition from a pattern of high mortality/ high fertility to that of low mortality/low fertility, is commonly known as population aging(2).

Life expectancy at birth in Tanzania at independence in 1961 was 45 years and the population was only 9 million people. By 1988 the total population had increased to 23.2 million with life expectancy at birth of 53 years. Persons aged 60 years could constitute about 1% of the population in 1961 while in 1988 they formed about 4% of the population(3).

Nutritional well being plays an essential role in health promotion and maintenance, disease prevention and normal ageing in older people. The assessment of the nutritional status is an important part of medical examination. Prevention of malnutrition may influence the evolution of non-specific inter-current disease and restore immuno-competence and promote health in order to prevent nutritional deficiencies and to increase longevity(4).

Despite rapid rise in the elderly in Tanzania, the basic information on health and lifestyle of the elderly is limited while that of their nutritional status is lacking. The purpose of this study was to obtain baseline information on nutritional, health and socioeconomic status of elderly people in Morogoro.

MATERIALS AND METHODS

Study area: The study was conducted in Morogoro Regional Hospital which is situated 200 km west Dar-es-Salaam along the Dar-es-Salaam, Dodoma and Iringa road within Morogoro Municipality.

Subjects: The study subjects were obtained by randomly sampling people aged 60 years and above, who were admitted at Morogoro General Hospital between November 1998 and March 1999. A total of 121 elderly patients were included in the study.

Collection of data: Primary data was collected using

questionnaires and by interviewing the elderly patients. Information on morbidity was enquired either directly from the subjects or with the help of medical personnel. Social economic status and the life style were sought using questionnaires and by interview. The variables included education level, whether living alone or with a spouse or children and what they did for a living.

Anthropometric measurements: Body weight was measured to the nearest 0.25 kg using a bathroom scale. Height was measured using a tape measure to the nearest 0.1 cm, with the subject barefoot, standing with feet together, and with head, shoulder, buttocks and heels touching the wall. Body mass index (BMI) was calculated for each subject as the ratio of body weight (kg) and squared height (in metres). The prevalence of energy malnutrition were estimated using the BMI criteria proposed by Ferro-Luzzi(5) and James(6). A BMI of < 16 was regarded as diagnostic of severe chronic energy deficiency (CED grade III); BMI of 16.0-16.9 indicated moderate CED (grade II); and a BMI of 17.0 - 18.4 was considered mild CED (grade I). Values between 18.5 and 25 were taken to mean good energy stores and the BMI of above 25 was considered to reflect obesity.

Statistics: The results obtained were expressed as mean and standard deviation and in some cases data corresponding to males and females are shown separately. In certain cases, variables are categorised and percentages are employed. Unpaired t-test was used to compare anthropometric measurements between men and women.

RESULTS

A total of 121 subjects (67 men and 54 women) were used for the study. The different characteristics of the subjects are presented separately for men and women (Table 1). The men were significantly heavier and taller ($P<0.001$) than women. However, women had a statistically significant higher mean BMI ($p<0.001$) than men during the study period. Distribution of ages between men and women is shown in Table 2. The majority (97%) of the subjects' ages ranged from 60 to 79 years. Only two females and one male were above 80 years.

Table 1

*Age and anthropometric data of the sample**

Characteristics	Men (n=67)	Women (n=54)
Age (years)	70.4 (2.5)	68.2 (3.3)
Height (cm)	162.1 (4.3)	152.6 (5.7)
Weight (kg)	54.3 (8.2)	50.7 (9.2)
MI (kg/m^2)	20.6 (3.2)	22.7 (3.4)

* means and standard deviations

Table 2

Age and sex distribution of subjects

	Age groups in years					
	60-64	65-69	70-74	75-79	>80	Total
Male	39	17	6	4	1	67
Female	31	11	6	4	2	54
Total	70	28	12	8	3	121

Table 3a presents the results of BMI and Table 3b shows nutritional status of the subjects when it was grouped into different categories of chronic energy deficiency (CED). Thirty one subjects (26%) were undernourished (that is, had BMI <18.4) and females were significantly higher ($p<0.001$) than males. The majority of subjects (74%) had a normal nutritional status. No subject was obese. Two subjects (2 %) had a severe chronic energy deficiency (grade III), 14 (12%) had a moderate CED (grade II) and 15 (12%) had a mild CED (grade I).

Table 3a

Values of body mass index

Levels	BMI value	Males	Females	Total
High	>25	0	0	0
Normal	18.5-25	55	35	90
Low	<18.4	12	19	31

Table 3b

Grades of chronic energy deficiency

Level	BMI	Males	Females	Total	%
CED grade III	<16.0	1	1	2	1.7
CED grade II	16.0-16.9	5	9	14	11.5
CED grade I	17.0-18.4	6	9	15	12.4
Good energy store	18.5-25.0	55	35	90	74.4
Obesity	>25	0	0	0	0
Total		67	54	121	100

The morbidity results showed that cardiovascular diseases and diseases of the respiratory tract accounted for 56% of the admissions. Cardiovascular diseases were found more in women than in men, while the latter had more respiratory tract diseases than the former. Malaria was responsible for 15% of the morbidity, while other infectious diseases accounted for five per cent of the admissions (Table 4).

Table 4

Diagnostic categories of the elderly

Diagnosis	Males (n=67)	Female (n=54)	Total (n=121)
Cardiovascular diseases	13 (19.4%)	23 (42.6%)	36 (29.8%)
Respiratory diseases	25 (37.3%)	9 (16.7%)	34 (28.1%)
Malaria	11 (16.4%)	7 (13.0%)	18 (14.9%)
Other infectious disease	5 (7.5%)	4 (7.4%)	9 (7.4%)
Hernia	7 (10.4%)	–	7 (5.8%)
Diabetes	4 (6.0%)	2 (3.7%)	6 (5.0%)
Mental disorder	1 (1.5%)	3 (5.6%)	4 (3.3%)
Accidents	1 (1.5%)	2 (3.7%)	3 (2.5%)
Paralysis	1 (1.5%)	1 (1.9%)	2 (1.7%)
Digestive problem	1 (1.5%)	1 (1.9%)	2 (1.7%)
Sight problem	1 (1.5%)	1 (1.9%)	2 (1.7%)
Blood disorder	1 (1.5%)	1 (1.9%)	2 (1.7%)

A higher number of females (24%) lived alone as compared to males (6%). The number of widows was 19 (16%) compared to widowers (3.3%). The number of males living with spouses was 60 (50%) while the number of females was 25 (21%). The majority of the subjects (80%) lived alone or with their spouses, 14% lived with other relatives including children. Four percent depended on welfare. Widowhood was five times more common in women than in men. A total of five (5%) subjects lived on welfare.

Eighty per cent of the elderly depended on agriculture as their means of obtaining food and other basic needs. The rest depended on someone else to give him/her basic needs. Regarding education, 58 subjects (48%) had standard four education, 58 (44%) had not gone to school at all, and 4% had reached standard eight. None had secondary school education.

Of all the subjects, 15 men and five women could read and write.

DISCUSSION

The results of anthropometric measurement showed that the percentages of subjects with BMI values below 18.5, which is the cut off point for under-nutrition or thinness, was on average 26%. On the other hand, none of the subjects had a BMI >25, which is considered the upper limit of normality(7). These results are different from those reported in Kenya where obesity was reported in 13% of the subjects(8) and 72% in Spain(9).

These findings indicate that quite a large number of the elderly had BMI values which constituted a substantial risk to health. The low body mass index is due to a number of factors: (i) elderly individuals often eat less, due largely to psychological deprivation, physical disability, dental problems and the like; (ii) the absorptive processes do not function optimally and metabolic needs may be increased due to underlying diseases. Nutritional surveys have shown a low-to-moderate prevalence of energy and nutrient deficiencies in both institutionalised and free living elderly groups(10, 11). All these factors could contribute to the progressive loss of bone and lean body mass with no subsequent increase in fat mass.

If the BMI values of our study subjects were fitted to the BMI classifications used for Western elderly populations, the percentages of the group with low BMI would be much higher. The values of body mass index reported for the elderly population in the more affluent Western societies(1,9) are much higher than that observed in our study. The Western elderly population is reported to have higher energy intakes coupled with low physical activity level(11,12) while a greater part of those from the developing countries live under greater nutritional and physical stress(13). This may explain for the higher cut-off points for underweight and overweight used in those countries in relation to the ones used in developing countries.

Although non-communicable diseases were found to be the major reasons for acute admission in the elderly, communicable diseases are still an important cause of morbidity in the elderly, malaria being the leading infection disease. Malaria is now a leading cause of morbidity in many Tanzanian urban areas which were previously malaria free. Dar es Salaam for example reports over 200 000 malaria cases per annum, despite renewed heavy investment in malaria vector control. Due to both parasite and vector resistance to most cost effective drugs (chloroquine) and insecticides, malaria transmission is probably at its worst ever(14).

Due to their low income, elderly patients often cannot afford to pay for the medical services they desparately need. The government of Tanzania has issued a directive for giving free medical services to the elderly (and pregnant women). However, the system is poorly understood even among the health personnel themselves, and it seems to be very bureaucratic. Most elderly do not benefit from it. This even discourages the elderly to go to hospitals if they don't have money, and some resort to traditional medicines. As a result they are likely to die at home. The majority of the subjects lived alone or with their spouses. This shows that the tradition of children living with their elderly holds no more. More women lived alone than men did, while more men lived with spouses than women. Widowhood was five times more common in women than in men. This could be because men tend to re-marry after death of wife and the existence of polygamy could explain the small proportion of the elderly widowers. This could also reflect a longer life expectancy for women found worldwide. A large proportion of the elderly had less education and this reflects low levels of education that existed in Tanzania several decades ago(3).

An insufficient income is the chief economic factor that limits dietary adequacy. The majority of the elderly live below poverty line. There is no social security and pensions are inadequate and vulnerable to inflation. Traditionally, the responsibility of caring for the elderly people has been their "adult children"; and thus the question of getting children during adulthood was seen as an important security during old age. However, the young and economically active people tend to migrate from the rural areas to the cities and towns in search of employment, thus leaving most of the elderly in rural areas with sometimes very little social support (13). There is also a trend towards nuclear families and this affect elderly people than anybody else. The participation of women (the sole caretakers of elderly) in the paid work has also reduced the care for the old people.

In the urban areas some retired people are increasingly finding themselves with no place in the society. This is because they spend most of their lifetime in towns and after retirement they find they cannot live in rural areas as well as in urban areas as they are not working and cannot get support from children due to economic difficulties. Community and government have not yet prepared enough to accommodate these people. As a result the elderly of today deteriorate drastically and most die a short time after retirement due to inadequate care and frustration(15).

Currently there are two government-run centres, which take care of the elderly persons. These are in Mbuharati and Kigamboni in Dar es Salaam. Religious groups have more centres in Mgolole (Morogoro), Msimbazi (Dar es Salaam), Irente, Lushoto and Korogwe in Tanga. All these work without any support from the government.

In conclusion, Tanzania is undergoing demographic and economic transformations. Elderly people are increasing while their income declines. Old traditions of children living with and taking care of the elderly is declining due to urbanisation, rural and urban migration and the trend towards nuclear families. The elderly are becoming more and more vulnerable. The government is requested to establish specific supportive systems for taking care of the elderly, particularly those lacking family support. These include: (i) to initiate the nutrition screening and interventions in the elderly. This will include nutrition counselling and nutrition support; (ii) there are currently non-governmental organisations (NGOs) and churches that offer unique services for the elderly in different areas. These and other possibilities should be explored to provide help to the aged and to keep them active and included as a vital and needed part of the community. It is critical for the health professionals to be aware of the services available in each community. They can serve as a link to the elderly, helping to educate them regarding nutrition and serving as advocates of preventive health care; (iii) due to the break down of the extended family system which cared for the elderly, the government is requested to establish more elderly people's homes to cater for those who cannot look after themselves, or who have no relatives to provide care and; (iv) to establish social security fund for the elderly to help the economically vulnerable ones.

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