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## Research Paper

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**STUDY ON NUTRITIONAL STATUS, FOOD HABITS AND PHYSICAL ACTIVITY OF INMATES RESIDING IN OLD AGE HOMES (OAHs) IN MYSORE****Tokpam Reshma Chanu<sup>1</sup>, Swapna J S<sup>1</sup> and Vanitha Reddy P<sup>2\*</sup>***\*Corresponding Author: Vanitha Reddy P, ✉ vanithareddy@jssuni.edu.in*Received on: 17<sup>th</sup> January, 2019Accepted on: 15<sup>th</sup> February, 2019

**Introduction:** On account of demographic transition, elderly population has increased and it has been observed that there has been a transition in terms of caregivers. Although there's uniformity in institutional setting, heterogeneity in terms of social, economic, physical and the food frequency among the elderly population is observed. Thus, it is necessary to assess the nutritional status of the inmates in institutional setting. **Objective:** To assess nutritional status, food habits and physical activity of inmates above 60 years residing in OAHs in Mysore. **Methods:** A sample size of 100 inmates (male-38 and female-62) was assessed. The tool used for assessment included anthropometry and food frequency questionnaire. **Results:** According to the BMI, around 30% of both the gender was in overweight to pre-obese condition. Around 45% of the inmates were suffering from Hypertension, Arthritis and Diabetes Mellitus. Physical activity followed was only walking. The major observation of the study was, menu followed was not fulfilling the nutritional requirement and disease specific menu was not served for the subjects with health issues such as Diabetes and Hypertension. No regular medical check-up was provided. **Conclusions:** The study indicated that there is a need to develop nutritional awareness; promote health care and better dietary practices for the inmates especially disease specific subjects.

**Keywords:** Old age homes, Inmates, Nutritional status, Dietary practices, Physical activity**INTRODUCTION**

India is the second largest country in the world, with 72 million elderly persons above 60 years of age as of 2001 (Sharma, 2007). According to projections, the elderly in the age group 60 and above is expected to increase from 71 million in 2001 to 179 million in 2031. According to India Ageing Report 2017, by the United Nations Population Fund (UNFPA), the share of population over the age of 60 could increase from 8% in 2015 to 19% in 2050. The increasing number and proportion of elderly will have a direct impact on the demand for health services and pension and social security payments (Irudaya Rajan *et al.*, 2003).

India has three types of caregivers; spouse, adult married children with their families and institutional care. The National Sample Survey Office (NSSO) report about three-fourth of the elderly is supported by their own children, 7% and 11% of women were supported by their spouses and 8% and 12% were supported by institutional care. Another study reported 71% of the elderly live with their children (family care), 26.3% live by themselves and with spouse and about 2.73% live with institutional support (Jamuna, 2008).

Nutrition plays an important role in determining the health and well-being of the elderly (Khole and Soleti, 2018).

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In the present day scenario as the younger generation due to their fast life style, having problems in coping up with special needs of the elderly and require resources for special care are not able to give their time to elders which had developed a situation for the need of Old Age Homes (OAH). As the years passed there is increase in the number elderly population residing in OAH which should provide not only shelter but also provide nutrition and health care to the elderly. The health of the elderly population at large is determined by the economic and human development of the place where they live in. Similarly, facilities in OAH, especially of healthcare vary with the amount paid by the inmates (Magdalena Krondl *et al.*, 2008).

Studies have been reported on the assessment of nutritional status of elderly under institutional care. Factors like anthropometric measurements, socio-demographic factors, social network variables, functional and health status were measured. It was observed that with the number of elderly living in any kind of 'institutional setting' had an impact on their nutrition status. The elderly faced weight loss, limited capacities and reduced functional capability which controls social network, health and functional status (WHO Nutrition for Older Persons, 2018).

The studies conducted by Centres for Disease Control (CDC) and other groups have carried out substantial research for proving a significant relationship between nutritional choice (intake) and health ailments like hyperinsulin-anaemia, hypertension, dyslipidaemia, coronary heart disease and type 2 diabetes. This proves that nutrition is now acknowledged as an important aspect in determining the health status of the individual (Genius, 2005).

There is an urgency to study the health and nutrition care given or provided at OAH. At OAH, elderly population of healthy and malnutrition reside with physiological conditions such as diabetes, hypertension, obesity, hyperlipidaemia, etc. (Payette, 2000). At the institutes a pre decided menu for whole week is served which is not planned neither keeping in view the health or the nutritional status of the inmates nor with the advice of a nutrition expert. The facilities provided vary according to the finance given by the inmates at different OAH, however, no difference was observed in menu pattern according to the physiological condition (Komal *et al.*, 2014).

## MATERIALS AND METHODS

**Study Location:** The present study was conducted on inmates residing in Old Age Homes (OAH) of Mysore, Karnataka.

**Study Duration:** Four (4) months.

**Sample Size:** 100 individuals of both the gender

**Inclusion Criteria:** Inmates aged 60 years and above were included residing in OAH

**Exclusion Criteria:** Inmates with completely bed ridden in OAHs.

## Collection of Data

After availing permission from the OAH and written consent of the respondent the study was initiated. During the study period the inmates was given with a structured questionnaire which was made in the language understood by the inmates (Kannada, Hindi and English). The questionnaire contains two sections as follows:

**Section A:** This part includes the questions related to demographic profile of subjects such as name, age, gender, religion, education, etc.

**Section B:** This part of questionnaire recorded information pertaining to Health, Nutritional status, Physical activity and Dietary habits of the subjects.

**Under Anthropometric Measurements:** Height, Weight, Skin Fold Thickness (SFT), Mid Upper Arm Circumference (MUAC) was measured. All the measurements were assessed by using standard tools. Body Mass Index (BMI) was calculated by using standard formulae and Asia Pacific cut-off points. Clinical symptoms, communicable and non-communicable disease condition were recorded. The physical activity such as walking, yoga, gardening performed by inmates was noted. The details of dietary habits were collected from food frequency questionnaire.

## RESULTS

A total of 100 residents (n = 100) were included in the study out of which 62 were females and 38 were males. The range began with 60 years and the oldest elderly was 90 years. Detail age wise distribution of inmates is given in Table 1, where around 80% of the population were between 60-80 years of age.

## Anthropometric Measurements of Inmates

The Body Mass Index (BMI) of the male and female inmates is given in Table 2, categorized according to Asia Pacific classification. Figure 1 shows the Percent distribution of inmates according to the BMI. Female inmates were more

**Table 1: Age Wise Distribution of Inmates Residing in Old Age Homes**

Age (Years)	Male (38)		Female (62)	
	Frequency (n)	%	Frequency (n)	%
60-70	12	31.5	23	37
71-80	16	42.1	28	45.1
80 above	10	26.3	11	17.7

**Table 2: Body Mass Index of Inmates Residing in Old Age Homes**

BMI	Male (38)	Female (62)
Underweight (<18.5)	(17.6±0) 2	(15.1±2.6)11
Normal (18.5-22.9)	(20.5±1.0)12	(20.1±1.5)9
Overweight (23-24.9)	(23.6±0.5)9	(24.1±0.9)16
Pre obese (25-29.9)	(27.0±1.5)11	(26.7±1.3)17
Obese (30-39.9)	(32.2±3.5)4	(32.6±1.5)9

**Note:** Values in parenthesis indicate BMI and value outside brackets are no of inmates.

undernourished than male and 31% of the male inmates BMI were normal which is double to the female, i.e., 14.5%. However, 60-66% of both the inmates BMI were above overweight to obesity. 30% of male and female inmates

**Table 3: SFT Measurement of Inmates Residing in Old Age Homes**

SFT	Male (n = 38)	Female (n = 62)
Normal	39.4% (13.8 ± 0.8)	41.9% (19.2 ± 1.8)
Malnourished	60.5% (10.8 ± 1.0)	58.0% (12.9 ± 1.7)
MUAC	Male (n = 38)	Female (n = 62)
Normal	73.6% (29.5 ± 3.7)	50% (25.9 ± 1.9)
Malnourished	26.3% (17.9 ± 1.9)	50% (19.4 ± 1.6)

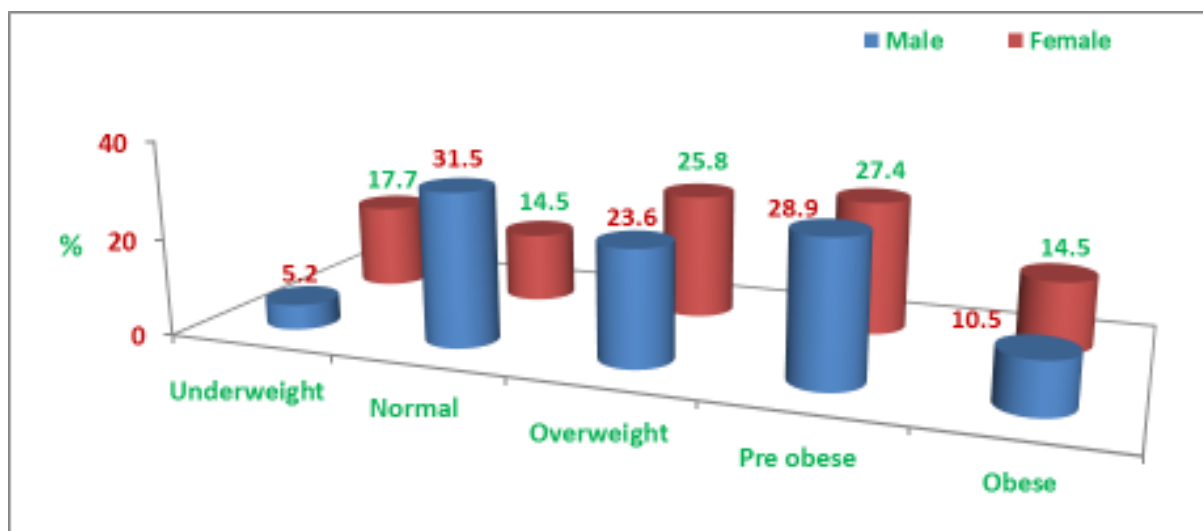
**Note:** (Normal Male-12.6 mm and Female-16.5 mm: SFT) (Normal Male-≥23cm and female-≥22cm: MUAC).

BMI were between overweight to obese. It can be observed in Table 3 that around 40% of the inmates (male 39.4% and female 41.9%) were following under normal range of SFT. The MUAC of 73.9% male inmate was normal and in case of females only 50% were falling under normal.

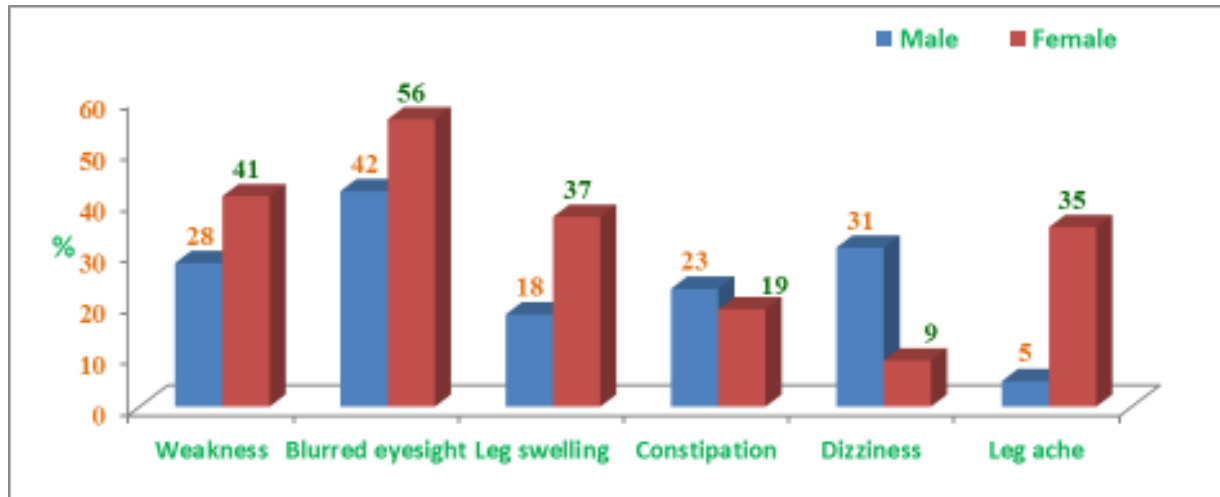
### Clinical Symptoms and Disease History of Inmates Residing in Old Age Homes

Clinical symptoms of the inmates observed were weakness, blurred vision, leg swelling, constipation, dizziness and joint pains (Figure 2). The most common symptoms observed was blurred vision which may be due to cataract. Other common symptoms were weakness

**Figure 1: Percentage of Male and Female Inmates Falling Under Different BMI**



**Figure 2: Clinical Sign and Symptoms of Inmates Residing in Old Age Homes**



and leg swelling. Most of the female inmates were suffering from joint pains, as most of them have the history of Arthritis. More than 70% of the inmates were suffering with Diabetes, Hypertension and Arthritis (Table 4).

**Physical Activity of Inmates Residing in OAH**

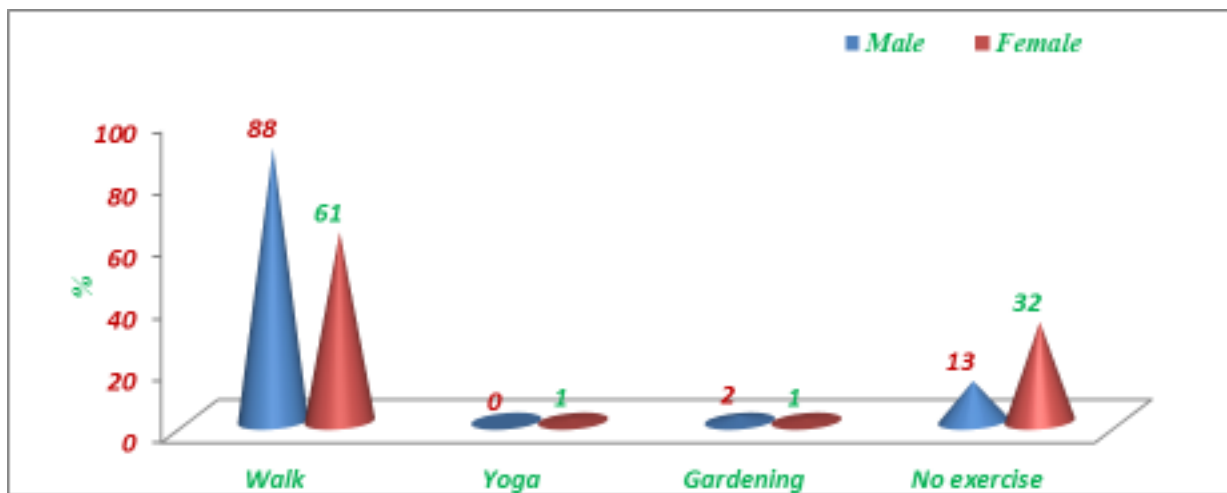
Walking was the only physical activity performed by the inmates comparatively more male inmates were active. Among female inmates one of reason for not following physical activity was Arthritis. According to health

**Table 4: Disease History of Inmates Residing in Old Age Homes**

Disease	Male (%)	Female (%)
Diabetes Mellitus	43	31
Hypertension	45	41
Arthritis	40	47

condition and age related factors yoga is very important in our daily activity which is not conducted in the old

**Figure 3: Physical Activity of Inmates Residing in OAH**





age homes by keeping the trainers. No inmates were having habits of smoking and consuming alcohol.

### Food Frequency of Inmates Residing in Old Age Homes

It can be observed from Table 5, that cereals were consumed on daily basis. Among fruits only banana was provided occasionally. Inmates with different physiological conditions like hypertension, diabetes, were not given food according to the diet prescribed for that particular condition. One of the observation from food frequency data was milk is given four times a day however the inmates were not consuming all the four times and were preferring beverages such as tea and coffee. This may be due to indigestion and

lactose intolerance. One of the positive observations was no bakery or deep fried items or carbonated beverages were served. Another observation of the study was no proper planned menu according to the disease status was followed and no individual attention to the subjects with health issues such as diabetes, hypertension, obesity was given.

### DISCUSSION

Ageing is process which begins right from the time of birth and the process cannot be altered, but it can be regulated and monitored for a better health outcome. Health outcome can be observed through the social, physical and mental well-being of any individual (Wunderlich, 2013).

The present study was conducted on 100 inmates residing in OAH of Mysore. The study involved the assessment of nutritional status, physical activity, food frequency and disease history of the inmates. Most of the inmates BMI were falling towards overweight and obesity which may be due to less physical activity. Although inmates were doing walking regularly, it was brisk walking for less than 15 minutes which was not showing any impact on the weight management of the inmates. Other physical activities such as yoga, gardening and exercise were not performed by inmates as the provision was not available and the campus was not spacious enough to maintain the garden. Another major reason for less physical activity was joint pains, arthritis and some of them were lethargic. Low protein and fat status was observed in Inmates. Pulses were served in regular basis, however, the quantity was not fulfilling the requirement of RDA and also other rich sources of protein such as eggs, paneer, meat, etc., were not served. Although milk was served the preference was given for tea or coffee. Oil added during cooking process is the major source of fat and no other fat based foods were served in the OAH. However occasionally family, friends and outsiders would visit and serve sweets or homemade fried items. Similar results observed in a study conducted in Pune OAH inmates, where percentage of the macronutrients intake is not within the prescribed RDA. In a study conducted in Kathmandu, Nepal showed similar results and recommended the respective institutions or Old Age homes taking care of inmates should arrange for regular health checkups screening the nutritional status by trained professionals. Monitoring their physiological condition such as diabetes, hypertension, dyslipidemia, arthritis, etc., periodically is also recommended<sup>11</sup>. The results of the present and previous studies indicate there is need for a special care in inmates related to their environmental

**Table 5: Food Frequency of Inmates Residing in Old Age Homes**

Food Groups	Frequency of Consumption	% of Subjects
Cereals	L- occasionally	0
	M- weekly 2-3times	0
	H- daily	100
Pulses	L- occasionally	0
	M- weekly 2-3times	10
	H- daily	90
Vegetables	L- occasionally	0
	M- weekly 2-3times	90
	H- daily	10
Roots & tubers	L- occasionally	10
	M- weekly 2-3times	80
	H- daily	10
Milk & milk products	L- occasionally	5
	M- weekly 2-3times	10
	H- daily	85
Fruits	L- occasionally	80
	M- weekly 2-3times	40
	H- daily	0
Fried foods	L- occasionally	90
	M- weekly 2-3times	10
	H- daily	0

**Note:** Mo: month; wk.: week; L: low; M: medium; H: high.

surrounding, health profile and their nutrition. No menu or special food was served according to the health status of the inmates. The regular health check-up was not followed in any of the OAH and personally inmates were going out for their regular health check-up and medications. Especially nutrition or diet related education was not given to inmates to take care of their physiological condition.

## CONCLUSION

Major observation in the present study was inmates were not aware of the maintenance of proper nutritional care and importance of physical activity. However, it is not possible to give separate individual diet pattern in OAHs. Some modification in their menu pattern and educating the inmates related to dietary care can be given regarding their physiological condition. To prevent overweight and obesity inmates physical activity should be their daily routine. Regular monitoring and intervention can improve the health condition of the inmates. The OAH management should provide proper menu and well-nourished food according to their health condition. Minimum counselling should be specified to inmates about preferring their food. Further studies on developing awareness by giving nutritional education, health management in inmates residing in OAH are recommended.

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