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A Comparison of anthropometric measurements of elderly male living in old age homes and residential homes aged 60+

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Abstract
The purpose of the present leading assessment was to compare the body mass index, waist to hip ratio in older adults living in their own homes and old age care homes. A total of 75 males from residence and 75 males from old age homes aged 60+ selected for the study. The parameter used for the study weight in (kg), height in (meters) waist circumference which were recorded once during the study tenure. There was a non-significant correlation with Body Mass Index and waist circumference in the older male people. A significant positive correlation of waist circumference was the good indication of the obesity.

Keywords: body mass index, waist circumference, anthropometric measurement

Introduction
Anthropometric measurements (weight in Kg and height in m^2) gives the authentic and most accurate level to measure the obesity level. Amongst the older people BMI greater the 30 is considered and linked with elevated blood pressure and up the risk of getting non-insulin diabetes mellitus (NIDDM) and coronary artery disease. The best way to clinically diagnose the abdominal fatness amongst the male is being the use of waist circumference once. The waist is the prominent location for deposition of fat in males. A high indication i.e. more than 40 inches has been directly linked to hypertension, joint pain, low back Pain, hypercholesterolemia obesity waist circumference reading is considered more accurate than BMI.

Research method: - A total of 150 elderly aged 60 +from residence and old age home were taken for the study. The parameters used for the purpose &assessment were height, weight &waist circumferences using standard procedures suggested by jelliffe (1966).

a. **Anthropometric Measurement**
   Weight was calculated with the help of weighing machine detachable weight were used. A reading was taken in the light examining gown and when the bladder is empty in the morning empty stomach and the reading were noted down.
b. **Height**
   The fixed measuring scale was used to taken the height. The respondents removed the shoes, cap & standing against the wall with head buttocks, shoulders, heels touch the walls and reading recorded.

BMI FORMULATION = weight/height ^{2}

BMI CLASSIFICATION PRESUMPTION DIAGNOSIS
<18.5 Undernourished
>18.5 – 25.0 Normal
25.0 – 30.0 Obese grade I
>30.0 Obese grade II

The category of obesity was judged by BMI slab.

c. **Waist Circumference**
   A non-stretchable measuring tape were used to taken the waist measurement computed & compared.

Reference range male > 40 inches.

Calculations
Chi ^{2} – Chi square-A chi square test is used to compare two variables in a contingency table. It also states that observed value fits into expected value and results into insignificant and significant.

1. Research findings & discussion

The result interpreted are as follows:

Table 1: BMI Level of Male Subjects Living in Residential Homes & Old Age Homes

Classification (BMI Range)	Male elderly in Residential Homes		Male elderly in Old Age Home		Statistical Value
	No. of Respondents	%age	No. of Respondents	%age	
Underweight (≤18.5)	6	8.00	6	8.00	$X^2 at\ 5\% = 9.49$ $X^2 = 2.733$ df = 4
Normal (18.6-24.9)	20	26.67	25	33.33	
Over-weight (25.0 - 29.9)	30	40.00	15	20.00	
Obese (30.0-39.9)	17	22.76	12	16.00	
Morbidly Obese (≥ 40)	12	16.00	7	9.33	
Total	75	100%	75	100%	P=.09 Non-significant

P<0.05 statistically significant p>0.05 statistically non-significant

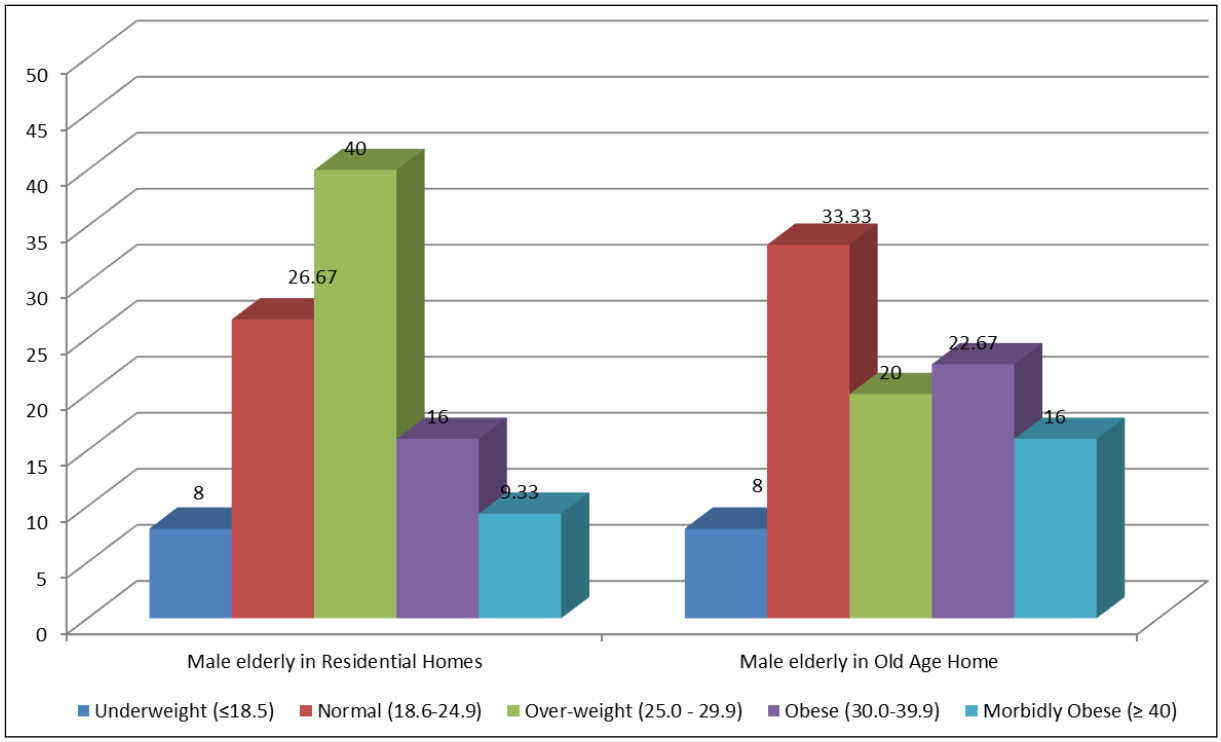

Fig 1

The above table and graph shows the BMI states of male respondents living in residential homes where 8% of subjects were weighing lower than the normal and were categorized undernourished whereas 26.6% of respondents were normal in weight 40% of male subjects were overweight due to lack of physical activity and consumption of high energy foods and 16% of the respondents were obese having unhealthy weight which restricted in even doing their routine tasks and developed joints pain too while 22.77% subjects were obese and 16% were morbidly obese. 8% male subjects living in old age homes were underweight where as 33.3% of subjects were made in normal BMI range 20% were overweight and 16% of male subjects were obese and 9.33%of male subjects were morbidly obese3% of respondents were extreme obese which give rise to various pathological condition.

Table 2: Waist Circumferences of Male Subjects living in residential homes & old age homes.

Waist Circumstances Range	Male elderly in Residential Homes		Male elderly in Old Age Home		Statistical Value
	No. of Respondents	%age	No. of Respondents	%age	
<40 inches	39	52.00	53	70.67	$X^2 at\ 5\% = 3.84$ $X^2 = 5.510$ df = 1
>40 inches	36	48.00	22	29.33	
Total	75	100%	75	100%	P=.01 Significant

P<0.05 statistically significant p>0.05 statistically non-significant

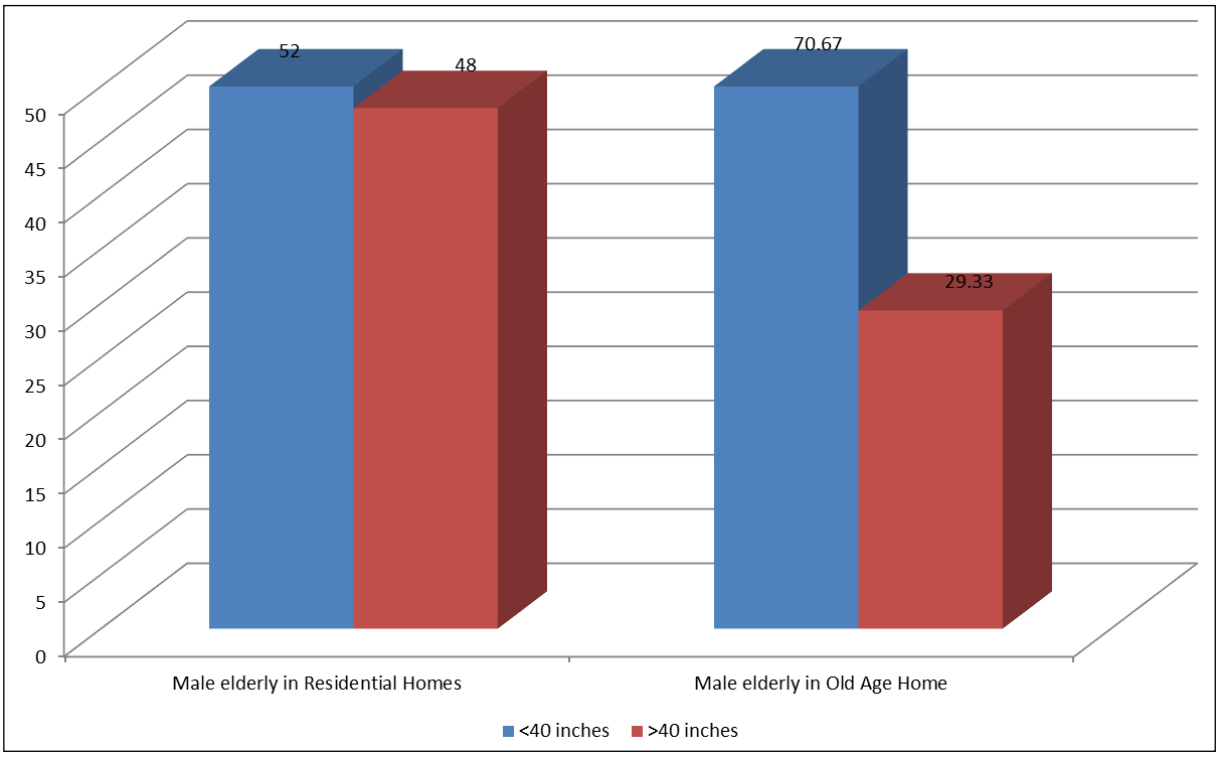

Fig 2

The above table and pie chart distribute the division of waist size amongst the male subjects living in residential homes where 52% of subjects heavy waist size less than 40 and 48% of subjects having waist circumference more than 40 inches which shows the predominance of fat deposition. The above and graph illustrated that male subjects living in old are homes having waist circumference less than 40 inches were 70.6% and more than 40 inches were 29.3% considered obese.

Conclusion

The study is conducted to explore the health illness linked with disturbed BMI and high or low waist circumference. It is clearly visible from the Anthropometric measurements that males from the residence were more highly disturbed BMI levels which shows major concern of life style disorders amongst them like hypertension, coronary artery disease, diabetes mellitus, obesity and various linked disorders. Similarly, higher percentage of waist circumference fallen under male category from the residence that is highly associated with non-insulin dependent diabetes mellitus, obesity, joints pain and so on. It is concluded from the above research that males from the residence are more at risk of getting life style disorder due to over eating and lack of physical activity. The family of older persons should be cautious and government should provide free counselling to educate and awareness of family members regarding the appropriate diet and form to be given to older persons.

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