



## COMPREHENSIVE ASSESSMENT OF GERIATRICS LIVING IN TWO DIFFERENT FAMILIAL CONDITIONS

**Mrs. Vinaya Vaishampayan\***

Ph. D Research Scholar, College of Home science, Nirmala Niketan, University of Mumbai and Faculty of Dr. B. M. N. College of Home Science\*Corresponding Author

**Dr. Veena Yardi**

Former Associate Professor, College of Home Science, Nirmala Niketan, University of Mumbai

### ABSTRACT

The secrets of not just longevity but healthy meaningful lives need to be researched more as the world silvers. Most studies on geriatrics focus only on one or two parameters of good health which is insufficient as health encompasses physical, mental, social, emotional, and nutritional domains. This study aimed to measure all domains of health within two familial conditions in which the elderly live in India - living alone and with family. 456 geriatrics, more than 60 years of age, living in Mumbai and categorized into two familial groups- living alone and with family were assessed comprehensively using anthropometry, food frequency, Geriatric depression scale, mini mental status assessment, and instrumental activities of daily living protocols. A detailed validated questionnaire was used for data collection. BMI was computed and compared with the WHO and Asian standards. Subjective sleep quality and social connectedness were scored. The mean age of the participants was 70.8 years  $\pm$  8.9. 30.9 percent lived alone. Using the Asian BMI standard only 18 percent were normal. Intake of foods high in fat, sugar, and salt was observed in both groups. Elderly living with family took more number of meals as compared to living alone participants ( $p < 0.05$ ) ensuring adequate food intake. 56.5% of those who lived with the family had lower scores for mobility measured with the IADL scale but slept better than those who lived alone. Surprisingly elderly who lived alone had better social connectedness scores. Educational status was also an important factor significantly affecting living conditions. While it is not possible to change living conditions, specific need-based education can be designed to increase both awareness and knowledge so that the elderly live not just longer but lead healthier lives.

**KEYWORDS :** Geriatric, Comprehensive, Nutritional status, familial

### Introduction

Growing old is a physiological phenomenon and may bring with it a lot of Physical, Psychological, Nutritional, Social, Motor, and Mental capacity changes.

Statistical values throughout the world depicting different age structures show that between 2000 and 2050 the proportion of the world's population over 60 years will double from 11% to 22%. In absolute numbers, it would mean from 901 million to 1.4 billion going up to 2.1 billion by 2050.

The Elderly in India and specifically in larger cities like Mumbai face multiple challenges which may affect their health. A large percent of these elderly live alone or with only their spouses and gender statistics show that an increasing number of them are females.<sup>1</sup>

Changing family structures, whereby a large number of them live alone or may be institutionalized or be a part of a larger family poses separate challenges in their care and support.

Where the elderly lives or in which familial conditions is an important criterion but is an area that studies do not really focus on and therefore many gaps in knowledge exist. This study therefore focused on assessing the geriatrics in their familial living conditions to highlight factors that are important for good nutritional status, independent living and thereby longevity.

### Materials and methods-

**Study Sample-** 496 Males and Females 60 years and over, with no hospital admissions two months before answering the research questionnaire were recruited through Purposive sampling from all parts of Mumbai. Geriatrics were grouped depending on their familial conditions. Those living alone and /or only with their spouse or with another adult 60 years and over were categorized as free-living or living alone. Those living with one or more members of the family as living with family.

A detailed validated questionnaire was prepared and was pretested before data collection. The questionnaire was sectioned into three parts- Part I- helped to collect data related to **Sociodemographic aspects** Part II- helped to collect data to assess **Dietary intakes** and included a specially prepared semi quantitative food frequency table.<sup>2</sup> A healthy eating score was formulated from the frequencies. Height and weight measurements were taken (Using an anthropometric kit

consisting of stadiometer and calibrated weighing scale) and the body mass index was calculated. The BMI values were compared with The WHO standards and also the Asian standards.

Comprehensive assessments include not just physical health and mobility but also aspects related to cognitive health, emotional health, sleep and social health. Mobility was assessed by using the Instrumental Activities of Daily Living (IADL) protocol. Maximum possible score was 8. The Mini-Mental State Examination (MMSE)- was used to assess cognitive decline. emotional health was assessed by the Geriatric Depression Scale- A score of more than 5 is suggestive of depression. A section of questions also helped to find whether the sample has adequate social interaction and support and studied social connectedness. Scores were allotted on a 4-point scale where zero indicated very limited social interactions and 3 indicated extremely social.

The collected data was coded and statistically analysed. Using the SPSS version 21. A trained biostatistician was consulted for the same.

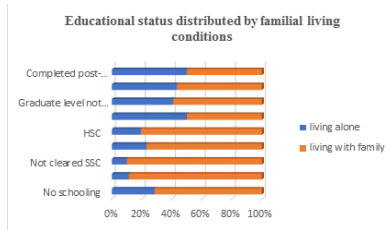
### Results-

**Sample Characteristics-** A total of 496 geriatrics living in two different familial conditions were recruited into the study. Study participants were informed of the study objectives and protocol and with written consent were included in the study.

30.9 percent of the sample lived alone and 26 lived all alone. This number is seen to be increasing. In a recent report, reporting the findings of the National sample Survey of India it was observed that as compared to data released in 2004 geriatrics living with only their spouse has increased in both Urban as well as rural areas in the country. (From 10.4 % in 2004 to 15.5 % in the latest report). 61. 73 percent of the study population were females and 38.06 percent were males. The mean age of the Female participants of the study was 70.20 years (Std. Deviation= $\pm$  7.976). the youngest female participant was 60 years old and oldest was 102 years old. In males the mean age was 71.14 (Std. Deviation= $\pm$  7.575). The youngest Male participant was 60 years old and the oldest was 89 years.

A large number of studies reports that working condition and financial status of the geriatric is an important criterion when familial living conditions are assessed. It was observed that in both groups large number of the participants were retired. 23.9 percent of males and 7.5 percent of the females were still working. Males who were still working were either self-employed or into consultancy projects.

Females on the other hand were more often conducting tuitions at home. More number of Females (26.1 percent) had just basic schooling as compared to 11.9 percent males.



**Fig-1- Graph showing familial living conditions and Educational status**

Fig 1 clearly shows that educational status was higher among the participants who lived alone rather than those who lived with family. A chi square test of independence was performed to examine this relationship and was found to be significant,  $p < .001$ . Participants who lived alone were more likely to be better educated than those who lived within the family.

Pengpid, S. et al. in their recent study included 21,343 individuals ( $\geq 65$  years) from the Longitudinal Ageing Study in India (LASI) Wave 1 in 2017-2018 and found that among all the factors educational status was one of the factors important for successful aging. 11

Height and weight measurements-A Stadiometer was used to Measure height to the nearest 0.1 cm. Weight measurements were obtained using a calibrated weighing scale.

**Table 1. Mean Height and Weights of the study population**

Height and Weights of the study population (n=356)								
category	Mean height (m) and SD	Height Percentiles			Mean weight(kg) and SD	Weight		
		25	50	75		25	50	75
Total participants	1.6025 ±12810	1.5200	1.6000	1.6700	68.448 ±13.9687	60.00	67.00	76.00
Female	1.5637 ±.07536	1.5200	1.5700	1.6100	65.208 ±12.0330	57.60	64.00	72.25
Male	1.6602 ±16403	1.6200	1.6700	1.7500	73.230 ±15.2417	63.00	72.00	80.25

SD- standard deviation

Female participants of the study were shorter as compared to males. Large percent of both males and females had higher than normal weights. The deviation from the mean was quite large and it was observed that study populations had both underweight and overweight and obese patients. This dual phenomenon of malnutrition is a challenge for all health professionals to manage and increases the need for individual assessment and counselling.<sup>3</sup>

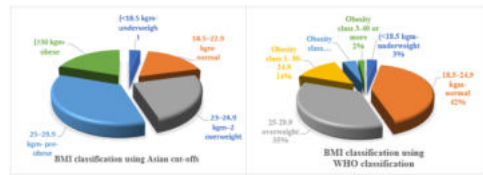
Body mass Index was computed as weight in kg divided by height in meter square. Values were then used to classify participants as undernourished, normal, overweight and obese. The mean values in both males and females were similar as is shown in table<sup>6</sup>.

**Table 2 . Mean values of Body Mass Index**

Mean values for BMI segregated by Gender ( n=356)				
category	Mean BMI and SD	Percentiles		
		25	50	75
Total participants	26.098 ±5.965	23.178	25.535	28.999
Female	26.424 ±5.3444	23.498	26.171	28.959
Male	25.617 ±6.771	22.983	24.793	29.104

An attempt was made to classify study population using both the WHO classification and Asian cut offs for BMI and the following observations were made.

**Fig-2 classification of study population using Asian and WHO cut offs for BMI**



Only 3 percent of the study population were classified as underweight. According to the Asian cut offs only 18 percent were normal as against the 42 percent labeled normal by the WHO classification. Lower cut offs have been suggested for Asians to be used for screening as the risk for type 2 diabetes and cardiovascular disease is substantial.

Chi square test to check for significant difference among groups showed no statistically significant difference when classified by gender or living conditions. On the whole the study population had higher than normal BMI values.

**Assessment of Food Habits, Meal Patterns, and Nutrient Intakes-**

Food frequency tables are an important source of assessing nutritional adequacy and for the geriatric it is highly recommended as a method of collecting dietary data as short-term memory loss is common among aging population and therefore studies report that FFQ then becomes a more reliable method. Using this data diet scores were formulated for intake of healthy as well as unhealthy foods.<sup>4</sup>

Food frequency distribution analysis showed that cereals were a part of everyday diet. More than 75 percent reported intake of rice more than chapati or bhakri/ Rotla as it was easier to chew and soft. Biscuits were commonly consumed as snacks and in between meals. In terms of vegetable intake, it was observed that though frequency of leafy (Spinach and Fenugreek) and protective vegetables was more frequent (3-4 times a week) the amounts were not very high. Also, consumption patterns did not include a variety of vegetables.<sup>7</sup>

30.22 percent reported intake of protective fruits at least once a week but intake of other fruits like banana, chikku were more common and reported to be taken at least 3-4 times a week.

Sprouted legumes were consumed more often and by a larger number of participants, at least once a week. Though the frequency of consumption of milk and milk products appeared almost daily (42.72%) for a large number of study participants its intake was majorly restricted to it being added to tea or Curds as a part of the meal. Data on Meal patterns in terms of vegetarian and non-vegetarian intake of foods was also collected and analysed. An interesting fact was observed that among the participants of the study certain participants reported that despite they being non-vegetarians, they in the recent few years commonly consumed vegetarian food. Reasons given were varied and included digestive difficulty, price of the food and also preparation process taking longer time.

**Table-3. Distribution showing Meal patterns of study population**

Meal patterns- vegetarian / non vegetarian (n=)				
Meal pattern	Living alone		Living with family	
	Number	Percentage	Number	Percentage
Vegetarian	63	43.1	126	40.6
Non-Vegetarian	48	32.8	107	34.5
Non-Vegetarian but Commonly Consuming Vegetarian Food	32	21.9	65	20.9
Data Not Available	3	2.05	12	3.87
Total	146	100	310	100

An attempt was also made to assess frequency of intake of unhealthy foods in the diet. The intake of calorie dense foods was observed to be higher in the study population ( 20.45 percent consuming fried foods at least once in a week). This was especially significant as in general, food intake reported by study participants was less. Intake of these foods that may not be nutritionally adequate was observed to more and has implications for further action in terms of education and preparation of snack items that can be nutritionally adequate.<sup>9</sup>

Roberts, S. B. et. al in their study had similar observations that middle-

aged and older adults are vulnerable to unhealthy dietary patterns, and typically consume diets with inadequate servings of healthy food groups and essential nutrients, along with an abundance of energy-dense but nutrient-weak foods that contribute to obesity. 12 similar observations were made in our study.

Using these frequencies, diet scores were developed for the participants in order to assess their nutrient intakes as another alternate method of nutritional status assessment.

Number of meals consumed per day- Traditional settings in Indian households warrant 4 meals to be consumed. According to principles of nutrition also it is highly recommended that 4 meals comprising of breakfast, lunch, snacks and dinner be consumed to meet nutritional requirements. When Geriatric population of the study was asked how many meals in a day they consumed following observation was made.

**Table-4. Distribution of showing number of meals consumed (n=456)**

Number of meals	Total participants		Living alone		With family	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
4 meals- breakfast, lunch, snacks and dinner	216	47.4	61	38.85	155	51.8
3 meals- lunch, snacks and dinner	53	11.6	57	36.30	102	34.1
3 meals- breakfast, lunch, and dinner	159	34.9	26	16.56	27	9.0
2 meals - lunch and dinner	26	5.7	12	7.64	14	4.7
Any 2 meals	2	0.4	1	0.636	1	.3
Total	456	100.0	157	100.0	299	100.0

\*\* significant difference (p<0.05)

Distribution shows how living with family, more number of meals were consumed. It was observed among the meals skipped breakfast was commonly skipped in both groups. The difference in number of meals consumed within the two groups was statistically significant with p<0.05.

Comprehensive assessment of geriatrics is the need of the day. A large number of studies only do single assessments and very often nutritional status assessment is not a part of their protocols. This study therefore has made an attempt to include all the parameters important for good health.

A cross-sectional study conducted among 133 elderly aged > 60 years in five community health center across Jakarta province by Fauziyana, N. et.al reported that a Higher level of nutrition status was associated with better cognition, lower depression symptoms, and better social engagement of the healthy ageing domains but found no association to functional ability.<sup>5</sup>

**Table-5. Measured Parameters used for comprehensive assessment of the study population**

Assessment protocol	Measures of other Parameters of Good Health				Inference
	What it Measures	Score details	Living alone (%)	Living with family (%)	
Instrumental Activities of Daily Living (IADL)	Mobility	Score Lower than 6	17.83	56.5	Higher percentage of Study participants who live with the family show lower scores.

Mini-Mental State Examination (MMSE)-	Cognitive health	Lesser than 23	40.12739	51.83946	Higher percentage of Study participants in both groups had lower scores
Geriatric Depression Scale (GDS)	Emotional health	score more than 5	17.19745	19.3	Scores slightly higher in the live with family group
Sleep Quality	Subjective Sleep quality	Scores of 3 which indicates fairly bad quality sleep in the last one month	11.46	9.4	participants who live in a family sleep better than those who live alone.
Social connectedness	Social Health	Score of 0 which indicates poor connectedness is given	12.73885	28.8	participants who live with the family are socially not well connected.  Social connectedness was significantly correlated to A low GDS score indicating better well being at p<.001.

**Conclusion-**

In conclusion in which familial condition a geriatric resides seems to have an effect on certain parameters like IADL, number of meals taken, social connectedness. Educational status was also observed to be an important factor significantly affecting living conditions.

While it is not really possible to change living conditions, specific need-based education can be designed to increase both awareness and knowledge. Extending life span of human beings is exciting, but it is necessary to make this extended life span as healthy as possible with an emphasis on holistic approach of assessment and support for all domains which encompasses physical, Nutritional, social, emotional and functional capacities of the elderly helping to them to lead not just longer but healthier and more productive lives.

**REFERENCES-**

1. Alam, M., & Karan, A. (2011). Elderly Health In India: Dimension, Differentials and Determinants. doi:10.13140/2.1.4232.5128
2. Allès, B., Samieri, C., Lorrain, S., Jutand, M. A., Carmichael, P. H., Shatenstein, B., Gaudreau, P., Payette, H., Laurin, D., & Barberger-Gateau, P. (2016). Nutrient Patterns and Their Food Sources in Older Persons from France and Quebec: Dietary and Lifestyle Characteristics. *Nutrients*, 8(4), 225. <https://doi.org/10.3390/nu8040225>
3. Dent, E., Chapman, I., Piantadosi, C., & Visvanathan, R. (2015). Nutritional screening tools and anthropometric measures associate with hospital discharge outcomes in older people. *Australasian journal on ageing*, 34(1), E1–E6. <https://doi.org/10.1111/ajag.12130>
4. Domini, L. M., Scardella, P., Piombo, L., Neri, B., Asprino, R., Proietti, A. R., ... Morrone, A. (2013). Malnutrition in elderly: Social and economic determinants. *The Journal of Nutrition, Health & Aging*, 17(1), 9–15. doi:10.1007/s12603-012-0374-8
5. Fauziyana, N., Prafiantini, E., & Hardiany, N. S. (2021). Association of nutritional screening score and healthy ageing domains among urban elderly in Jakarta, Indonesia. *Nutrition and Healthy Aging*, 6(3), 199–210. doi:10.3233/nha-210120
6. Global database on Body Mass Index, The International Classification of adult underweight, overweight and obesity according to BMI, Adapted from WHO, 1995, WHO, 2000 and WHO 2004 Geneva, 8–11 December 2008 NEVEVA, 8–11 DECEMBER 2 ISBN 978 92 4 150149 1 (NLM classification: QU 100)008
7. Kojima, G., Iliffe, S., Jivraj, S., & Walters, K. (2020). Fruit and Vegetable Consumption and Incident Pre frailty and Frailty in Community-Dwelling Older People: The English Longitudinal Study of Ageing. *Nutrients*, 12(12), 3882. <https://doi.org/10.3390/nu12123882>
8. Lau, R. S., Johnson, S., & Kamalanabhan, T. J. (2012). Healthy life expectancy in the context of population health and ageing in India. *Asia-Pacific journal of public health*, 24(1), 195–207. <https://doi.org/10.1177/1010539510376663>
9. Lim, K.-Y., Chen, I.-C., Chan, Y.-C., Cheong, I.-F., Wang, Y.-Y., Jian, Z.-R., ... Yang, F.

- L. (2021). Novel healthy eating index to examine Daily Food Guides adherence and frailty in older Taiwanese. *Nutrients*, 13(12), 4210. doi:10.3390/nu13124210
10. McDougall, K. E., Cooper, P. L., Stewart, A. J., & Huggins, C. E. (2015). Can the Mini Nutritional Assessment (MNA) Be Used as a Nutrition Evaluation Tool for Subacute Inpatients over an Average Length of Stay?. *The journal of nutrition, health & aging*, 19(10), 1032–1036. <https://doi.org/10.1007/s12603-015-0665-y>
11. Pengpid, S., & Peltzer, K. (2021). Successful ageing among a national community-dwelling sample of older adults in India in 2017–2018. *Scientific Reports*, 11. doi:10.1038/s41598-021-00739-z
12. Roberts, S. B., Silver, R. E., Das, S. K., Fielding, R. A., Gilhooly, C. H., Jacques, P. F., Kelly, J. M., Mason, J. B., McKeown, N. M., Reardon, M. A., Rowan, S., Saltzman, E., Shukitt-Hale, B., Smith, C. E., Taylor, A. A., Wu, D., Zhang, F. F., Panetta, K., & Booth, S. (2021). Healthy Aging-Nutrition Matters: Start Early and Screen Often. *Advances in nutrition (Bethesda, Md.)*, 12(4), 1438–1448. <https://doi.org/10.1093/advances/nmab032>