An investigative study on correlation between Diet score and Mini Nutritional Assessment of deprived Indian Nomads (Narikkuravar/Gypsy) elderly population in comparison with General Population Residing at Tiruvallur District, India.

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Abstract:

Aim: To assess the nutritional status of the elderly using the MNA tool, and to study dietary pattern influencing their nutritional status and to compare with general population

Objective: To determine the dietary pattern and nutritional status of Indian elderly nomads and to compare with general elderly population at Tiruvallur District, TamilNadu, India.

Methods: A questionnaire for assessing the nutritional status of general and gypsy population. 24 hour diet chart for assessing Dental Health diet score Weight and height were measured by using standardized weighing machine and stadiometer respectively.

Results: overall prevalence of malnutrition between Gypsy and general elderly population was found to be 12.4% in which gypsy population is more (19.0%) when compared to General population. In dental diet score there was an not adequate (sufficient) diet was found to be more in Gypsy population(66.7%) when compare to General population (42.6%).

Conclusion: Multidimensional approach should be implement to improve the nutritional status of elderly population in India.

Keywords: Gypsy, Narikkuravar, elderly people, nutritional status, diet score

INTRODUCTION:

Indian nomads (Narikkuravar) is a primordial tribal community from Tamil Nadu, The word Narikkuraravar is a Tamil word meaning '' Fox people'' this name was given to the nomads due to their ancient occupation hunting and fox trapping. But nowadays hunting is prohibited by the Indian Government they started their new alternative work beaded ornaments for their life to survive. Due to their consumption of animals tabooed by settled Hindu communities and other habits, they are considered untouchable and are excluded from streets inhabited by upper castes, however they are recognized as scheduled tribe by the Indian Government. Due to their deprived status of the nomads the dietary pattern and nutritional status were not good. So it is necessary to investigate their nutritional status and dietary pattern.[1]

India's elderly population also plays a major role in population census in which 8.1% of the total population is elderly people in the year 2011.[2] Such a rapid rise in the elderly population will definitely pose several challenges. Older people are vulnerable to malnutrition for many reasons including physiological and functional changes that occur with age, lack of financial support and inadequate access to food.[3]

Mini Nutritional Assessment is a validated tool for assessing malnutrition in the elderly. The tool was shown to have an accuracy of 92% when it was compared with a clinical evaluation by two physician's specialists in nutrition, and 98% when it was compared with a comprehensive nutritional assessment, including biochemical tests, anthropometric measurements and dietary assessment.[4]

The present study was carried out to assess the nutritional status of the elderly using the MNA tool, and to study dietary pattern influencing their nutritional status and to compare with general population

MATERIALS AND METHODS:

This cross-sectional study was undertaken in Tiruvallur District, Tamil Nadu, India It was a Field work under the Department of Public Health Dentistry SRM Dental College Chennai. The study was conducted from May 201to July 2019.

Study population:
Inclusion criteria
- All the elderly above 60 years of age residing at Tiruvallur district longer than 6 month were included in the study,
- General population who were above 60 years and above were residing in Tiruvallur District were also included for the study.

Exclusion criteria
- Those who were seriously ill, fed by tube and with known neuropsychiatric illness, and living alone were excluded from the study.

A 24-h dietary recall method was used to assess Dental health diet score of the elderly people in which Person recalls food and beverage intake during the previous 24 hours typically conducted through a personal, in-depth interview using an open format. For assessing the dental health diet score we should calculate sweet score, food score and nutrient score. And the scoring ranges from 0 to 96, individuals are categorized as Excellent from 72-96, Adequate from 64-72, Barely Adequate from56-64, Not Adequate from 56 or less.

Nutritional status assessment was done by Mini Nutritional Assessment (MNA tool). This MNA tool comprising 5 close ended questionnaire in relation to declined food intake, weight loss, suffered acute disease for the past 3 months, also regarding mobility, Neuropsychological problems and BMI. MNA was calculated according to their individual perception and then calculated.

Interpretation of scores was done as follows: Score <17: Malnourished, Score 17-23.5: At risk of malnutrition and Score >23.5: Well nourished.[5] All of the elderly in the present study went through the complete MNA assessment irrespective of the MNA screening score. Anthropometric examination was done for height, weight. Weight and height were measured by using standardized weighing machine and stadiometer respectively. Weight was measured to the nearest 0.1 kg and height to the nearest 0.1 cm.

The collected data were analysed with IBM.SPSS statistics software 23.0 Version.To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables.To find the significance in categorical data Chi-Square test was used. In the above statistical tools the probability value .05 is considered as significant level

were taken. From general population there are 59.6% male and 57.1% male and from gypsy population there are 40.4% male and 42.9% female.

Table 2 shows the significant value of Mini nutritional assessment in people suffered psychological stress or acute disease in the past 3 months and daily mobility around their area of Gypsy population and general population of elderly population

Table 3 shows the interpretation of mini nutritional assessment of gypsy and general elderly population, it shows a significant value of .033 between the groups

Figure 1 shows overall analyzing mini nutritional assessment there are 6.4% and 19,0% are malnourished in general and gypsy population respectively and 40.4% and52.4% are at risk from general and gypsy population respectively, and also 53.2% and 28.6% are normal in general and gypsy population respectively and shows a significant p Value between gypsy and normal population

Figure 2 describes Dental diet score for general and gypsy population in which majority of the gypsy population 66.7% are not adequate in their diet score at the same time 42.6% from general population are also had not adequate dental diet. And also majority from general population 23.4% are having excellent dental diet score when compare to gypsy population where only less 14.3% are having excellent dental diet score

RESULTS

Table 1 shows that gender statistics among gypsy and general population. There are 50 samples from each group

**Table: 1 Gender statistics of the population**

		Groups		Total
		General	Gypsy	
Gender	Female	59.6%	57.1%	58.4%
	Male	40.4%	42.9%	41.6%
Total		100.0%	100.0%	100.0%

**Table 2: Mini Nutritional assessment of the gypsy And General elderly population**

		General	Gypsy	Total	P value
Weight loss for the past 3 months	>3kg	2.1%	0.0%	1.1%	0.022
	Don't know	23.4%	50.0%	36.0%	
	B/w 1 &3 kg	23.4%	26.2%	24.7%	
	No loss	51.1%	23.8%	38.2%	
Mobility	Bed or chair bound	0.0%	0.0%	0.0%	0.0005
	Able to get out bed but not goes out	10.6%	50.0%	29.2%	
	Goes out	89.4%	50.0%	70.8%	
Neurophysiologicalproblem	Severe	0.0%	4.8%	2.2%	0.011
	Mild	40.4%	14.3%	28.1%	
	No	59.6%	81.0%	69.7%	
Acute diseases in past 3 months	Yes	10.6%	54.8%	31.5%	.0005
	No	89.4%	45.2%	68.5%	

Table 3: Interpretation of Mini Nutritional Assessment between gypsy and general elderly population

		General	Gypsy	Total	P value
Mini Nutritional Assessment	Malnourished	6.4%	19.0%	12.4%	0.033
	At risk	40.4%	52.4%	46.1%	
	Normal	53.2%	28.6%	41.6%	

Mini Nutritional Assessment
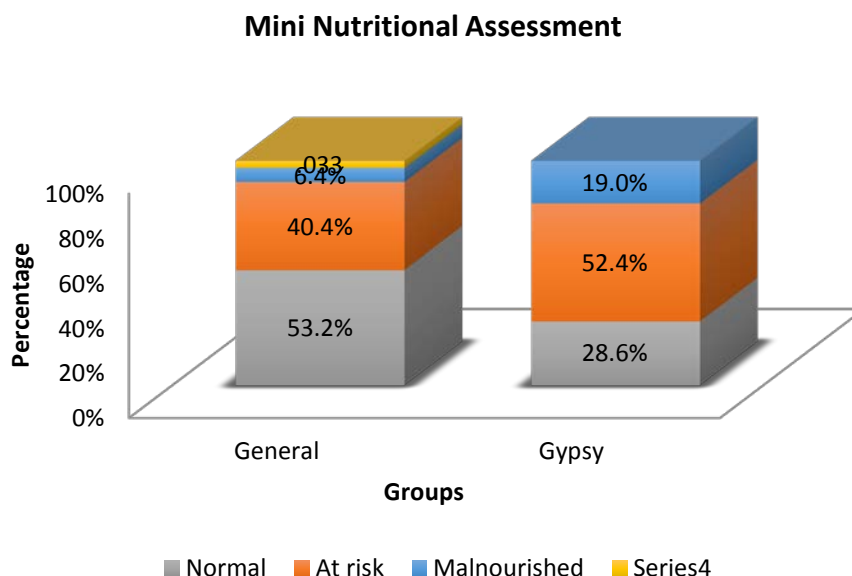
Figure 1: Percentage of Mini Nutritional Assessment between general and gypsy population

Dental Diet Score
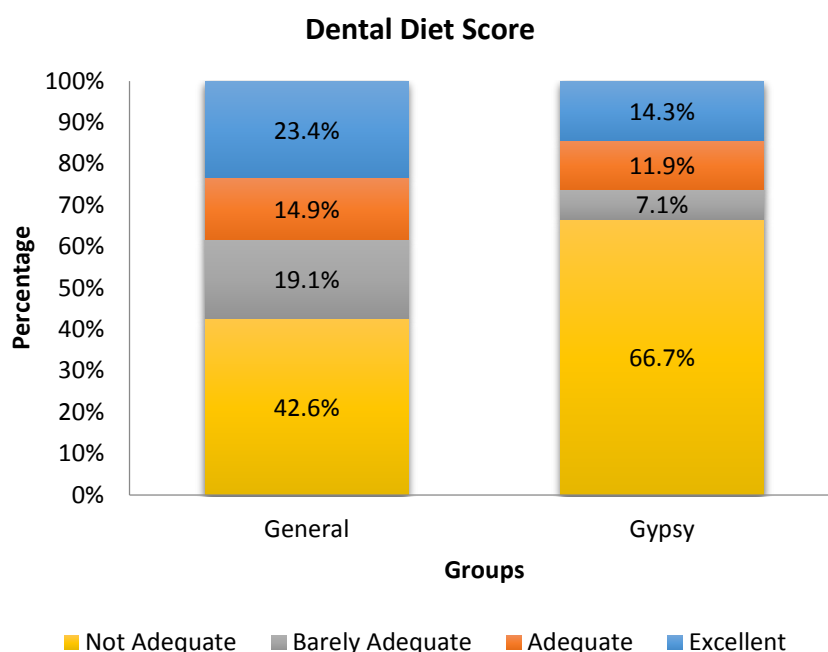
Figue 2: Percentage of Dental Diet Health between general and gypsy population

DISCUSSION:

Narikkuravar population moves from places to places for their occupation because of their living movement they are not able to get their free governmental nutritional supplements as like general population[6], hence it is necessary to check their nutritional status of narikkuravar population and to compare with general population. Aging is coupled with increased risk of malnutrition because of the interaction of various physiological, psychological and socioeconomic factors[7]. A study conducted in southern ethyopia among community dwelling elderly people found that 28.3 % of the elderly were identified as malnourished and more than half, 342 (62.4 %) were at risk of malnutrition[8] this is in accordance with our study that is 52,4% from gypsy population were at risk and 19 % are at malnourished.

There was an significant association was found between gypsy population and general population in Weight loss for the past 3 months, Mobility, Neurophysiological problem, Acute diseases in past 3 months in Mini nutritional assessment tool.

In Dental health diet score more than half of the gypsy people 66.7% were not having adequate dental health diet score when compare to general elderly population were

less than half of the people 42.6% were not having adequate dental health diet score this because gypsy people's lifestyle is different when compared to general population, gypsy population were unaware about their health, and their nutritional status. Their financial status is also one of the reason behind their nutritional and health status. Another reason was their nomadic, because of their occupation they move from places to places hence the governmental nutritional allowances were not accurately reach them because of their not having permanent address, while in general population they were getting their governmental nutritional supplements, and nowadays they were also aware about their nutritional and health status.

On weight loss factor for the past 3 months half of the gypsy population said that they don't know their weight whereas in general population only 23.4% were don't know their weight this because in gypsy population they were unaware that weight (Body mass index) is one of the main cause for many problems.

Movement on their daily routine of the elderly people shows a significant value of 0.0005.in which 89.4% general population goes out and 50.0% goes out, on Neurophysiological Problem there was found to be a significant value .011 in which 59.6% of general population has no Neurophysiological Problem and 81.0% of gypsy population has no Neurophysiological Problem.

Another significant value was found for acute diseases in past 3 months is .0005 in which 89.4% of general population has no problem and 45.2% of gypsy population has no problem. elderly people weight loss for the past 3 months shows 50.0% of the population from gypsy and 23.4% population from general does not know their weight, and also there was 51.1% from general population and 23.8% from gypsy population said that there was no weight loss for the past 3 months.

The main drawback of the study is there is few gypsy study overall in which comparison of the study population were not mentioned.

CONCLUSION AND RECOMMENDATION:

Overall prevalence of malnutrition was found to be 12.4% between gypsy and normal population this is an alarming condition to the nation which is at risk condition too that even more in Gypsy population. And also in Dental diet Score 53.9% of the population has not adequate diet in which gypsy population has more percentage than Normal population. This alarming condition should be noticed and a proper multidimensional program should be implement to improve the present condition for elderly population that too more importance should be given to the Gypsy population for a Healthy practicing live and to improve their nutritional status.

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