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# Assessment of Awareness and Nutritional Status of Rural Community: A Cross Sectional Study

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## ABSTRACT

**Background:** COVID-19 Pandemic had led to an unprecedented emergency which led to many transformations in all aspects of life including dietary practices. A good and balanced diet played a crucial role in prevention of disease and faster recovery. For a good dietary practice, knowledge and awareness is needed. Even the SDG 2 deals with food, nutrition and curbing with hunger. The purpose of this study was to explore the awareness of good dietary habits and the nutritional content of everyday meals among rural communities as well as to assess the nutritional status and physical activity.

**Methods:** This was an observational cross-sectional study conducted amongst the community of from two rural zones in Jalgaon district, Maharashtra in April to June 2022. Convenience sampling with the sample size as 40 households residing in the community was used. The head of the family of each household were surveyed using a pre-designed and pre-tested structured questionnaire. The tool used to explore the daily food consumption, assessment of nutritional status and physical activities of the participants. The study also determined at people's awareness of what a balanced diet is and the concept/effects of malnutrition in addition to anthropometric measurements. Data was entered in spreadsheet and analysis was done with the Microsoft excel using descriptive statistics.

**Results:** Of those surveyed, regarding nutritional awareness, it was found that 92% and 82% of the subjects have not even heard of the term "Balanced diet" and "Malnutrition" respectively. The BMI ranges of the study subjects, showed that majority (22, 55%) of the study participants had normal BMI, followed by (13, 32.5%) as underweight i.e. BMI below 18.5 and (5; 12.5%) as pre-obese category, i.e. BMI above 25. It was observed that the individuals used to undertake around 8 hrs of physical activity per day on an average. Regarding the diet pattern, it was noted that rural communities still follow traditional wisdom of a balanced diet from ancestral roots. Due to poverty and lack of resources, they tend to stick to whatever is affordable and locally available.

**Conclusion:** Considering the significant unawareness regarding nutrition and balanced diet as observed, we conclude that the Government's plans and efforts around food security will be more successful if raising public awareness about the significance of nutrition and food is the first step in this regard. The right to food and the right to health can only reach the rural areas when the awareness index in these areas is enhanced by utilizing all available tools and approaches.

*Keywords: Affordability; awareness; nutrition; traditional food habits.*

## 1. INTRODUCTION

**Background:** The World Health Organization on March 11, 2020, has declared the novel coronavirus (COVID-19) outbreak a global pandemic [1]. During the pandemic, we were all forced by the unprecedented circumstances to focus on our bodies' immune systems, so as to combat against the deadly virus strain. In response, people focused on diet and healthy eating habits, a simple and cost-effective measure, as a remedy to target the situation [2].

This was the moment when many began to think more deeply about it. There came a question concerning urban vs. rural responses to this increased knowledge of diet and nutrition [3]. An urban resident with many resources could have learnt about the current dietary trends, however it was intriguing to see how rural places handled the problem with far fewer resources, financial assistance, and several other obstacles.

**Rationale:** Nutrition is a distinct part of the culture of the people, especially in Indian rural

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setting. Diet and nutrition plays a role not only in personal identity but also power and social relations. However people's dietary patterns keep changing due to influences and factors from all parts of the world. This is more evident with the rapid urbanisation of population and reach of technology to each household [4].

Food and nutrition is essential for reducing hunger, undernutrition, and other nutrition diseases. Achieving "zero hunger", is one of the 17 Sustainable Development Goals established by the United Nations in 2015 (SDG-2) [5].

Amongst various determinants for nutrition and hunger, lack of awareness and information about good or adequate nutrition, lack of active lifestyle are the few major. Awareness about food and nutrition among the respondents are very essential for maintaining the food and nutrition security of the family. Each member of the every family should be aware about food and nutrition and healthy dietary habits which ultimately influences their nutritional status.

As compared to urban population, the rural area have a greater risk of preventable death, sickness and disability due to poor social determinants like poverty, nutrition, lack of education, lack of access to safe drinking water and sanitation [6]. With this context, the present study was conducted to identify the awareness level food and nutrition and assess their nutritional status in rural communities.

**Objectives:** The present study was undertaken with the objectives as under-

- 1) To study the sociodemographic profile and awareness of the study population regarding nutrition and balanced diet.
- 2) To assess the nutritional status and physical activity of the study population using anthropometric measurements.
- 3) To determine the dietary frequency, pattern and addiction (if any) amongst the study population.

## 2. METHODS

The present study was a observational cross-sectional study which was carried out at two villages in Jalgaon District named 'Kharchi Khurd' and 'Ravanje Budruk' [7] from April to June 2022 (Fig. 1).

**Study Participants:** The survey was undertaken amongst the adults, who were the head of the family, residing in the selected households.

*Inclusion criteria:*

- i) Adults above 18 years of age and head of family and member of the selected household
- ii) Willing to participate in survey and provided consent

*Exclusion criteria:*

- i) The head of family who were not available at home, in spite of paying two consecutive visits
- ii) Adult members who were chronically ill and/or on therapeutic diet

**Sampling method and sample size:** By using convenience non-random sampling, a sample of 40 households, 29 from Kharchi Khurd and 11 from Ravanje Budruk, was surveyed.

These 40 households consisting of the adults as head of family including both male and female were included in study.

**Study tool:** A pre-designed and pre-tested structured questionnaire was used. The necessary modifications were done in tool after pilot testing and also after validation from subject expert. The questionnaire is made both in English and local language- 'Marathi'.

**Data collection:** Data was collected by interviewing the study participants in local language using the validated questionnaire. Questions were asked to explore the daily food consumption, assessment of nutritional status and physical activities of the participants. The study also determined at people's awareness of what a balanced diet is and the concept/effects of malnutrition.

Data was collected to help understand and research crucial factors such as daily dietary consumption, the number of hours spent engaging in strenuous physical activity, and so on. Anthropometric measurements, like height and weight were also undertaken to assess the nutritional status. Body mass index is calculated using the formula weight of an individual in Kg and height in meters square.

The survey sample was designed to represent a variety of family types, genders, and ages to cover a wide range of lifestyles and eating habits.

Data was compiled and entered in spreadsheet. descriptive statistics. Analysis was done the with Microsoft excel using

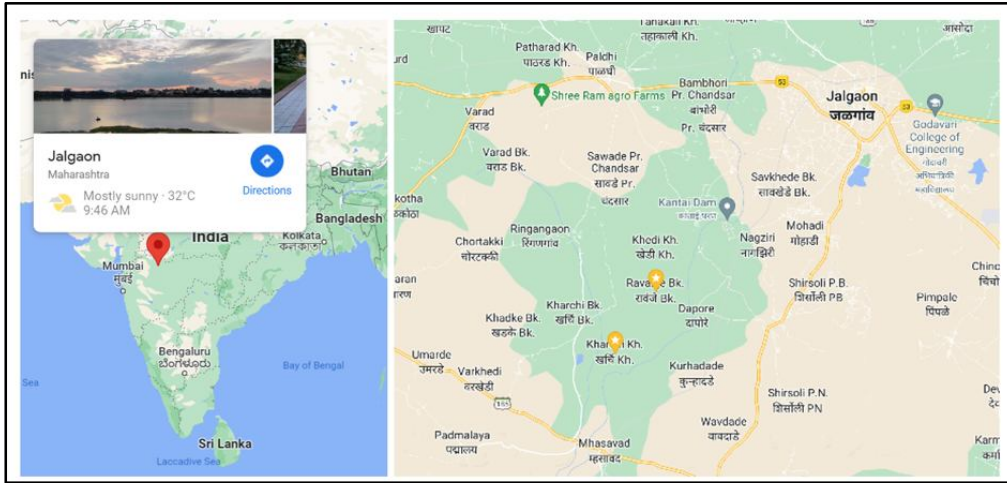


Fig. 1. Location of study area Kharchi and Ravanje, Jalgaon, Maharashtra as located on the map

### 3. RESULTS

Based on the survey following were the key observations.

**Socio-demographic profile:** Out of surveyed sample, 85% were nuclear and rest 15% joint family. Gender wise profile showed that around 80% were male and 20% were female. Age wise distribution showed that the individuals ranged from 24 years to 82 years. Majority of the individuals (12, 30%) were of in the age group of 40 to 50 years with mean age  $45 \pm 8.5$ .

Education wise profile of the surveyed households showed that, majority (14, 35%) had the education up to Primary schooling, followed

by Secondary (11, 27%). Around (8, 20%) were illiterate.

**Awareness:** It was found that around 92% and 82% have not heard of the phrase ‘Balanced Diet’ and ‘Malnutrition’ respectively. (Table No. 2). Even for the other questions like regarding nutritional disorders, food items/components promoting health, the awareness was not satisfactory.

**Nutritional status and Physical activity:** Majority (22, 55%) of the study participants had normal BMI, followed by (13, 32.5%) as underweight i.e. BMI below 18.5 and (5; 12.5%) as pre-obese category, i.e. BMI above 25 (Table 3).

Table 1. Socio-demographic profile of study participants

Variable		No. (n=40)	%
Type of Family	Nuclear	06	15
	Joint	34	85
Age (Years)	< 30	4	10
	30 to 40	5	12.5
	40 to 50	12	30
	50 to 60	9	60
	60 to 70	6	15
	>70	4	10
Gender	Male	32	80
	Female	08	20
Education	Illiterate	8	20
	Primary	14	35
	Secondary	11	27.5
	Higher secondary & above	07	17.5%

**Table 2. Awareness of study participants on nutrition**

Sr. No.	Parameter	Yes	No
i)	Did you come across the term 'Balanced diet'	03(8%)	37 (92%)
ii)	Did you come across the term 'Malnutrition'	07(18%)	33 (82%)
iii)	Do you know any disease or sickness that occurs due to nutrition/nutrient deficiency?	11(27.5%)	29(72.5%)
iv)	Do you know any disease or sickness that occurs due to nutrition/nutrient excess?	08(20%)	32(80%)
v)	Do you know any food item/component to be consumed in less amount for health promotion?	12(30%)	28(70%)
vi)	Do you know any food item/component to be consumed in excessive amount for health promotion?	09(22.5%)	31(77.5%)

**Table 3. BMI wise distribution of head of family of each household**

BMI Range (Kg/mt2)	No.	Percentage (%)
Underweight (BMI Below 18.5)	13	32.5%
Normal (BMI 18.5 to 25)	22	55%
Pre-Obese (Above 25)	05	12.5%

It was noted that the individuals used to undertake around 8 hrs of physical activity per day on an average. (Fig. 2). The nature of the physical activity, was moderate to vigorous farming related work, brisk walking, etc for majority (27, 67.5%).

**Addiction to tobacco and alcohol:** Around 27.5% and 31% of the study participants were found to be addicted to tobacco and alcohol respectively.

**Dietary frequency and pattern:** It was observed that rural communities still follow traditional wisdom of a balanced diet from ancestral roots. Due to poverty and lack of resources, they tend to stick to whatever is affordable and locally available (Fig. 3).

A typical Indian, carbohydrate-rich diet pattern has been observed with the consumption of Rice or Wheat almost for every meal along with vegetables. Consumption of protein is as per availability and affordability. Due to the affordability factor, it is well observed that expensive items like Fruits, Curd, or Salads have been consumed mostly occasionally or never (Table No. 4).

#### 4. DISCUSSION

The National Nutrition Monitoring Bureau (NNMB) and the National Institute of Nutrition (NIN), Hyderabad have carried out extensive diet and nutrition surveys in 12 states of the country. These surveys indicate that the diets of the rural

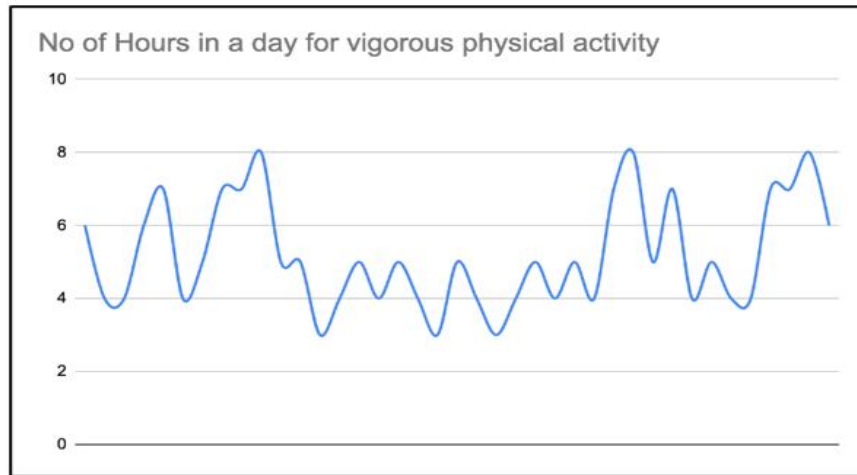
population are inadequate and deficient in most of the nutrients [8]. In concordance to the above study, it was too found in our survey study that the diets of the sample subjects are not balanced and lack the necessary nutrients.

In a study by Babitha Aila [9] conducted in a rural community of Guntur District with an objective to study nutrition related Practices, it was observed that 89.7% families had poor knowledge about food related diseases. In line with it, in the present study too, a low awareness was noted amongst the study population regarding the balanced diet and malnutrition. Similarly in a study by BS Payghan et al [10], it was found that, the nutritional knowledge and practices of urban mothers are high compared to rural mothers.

Meludu, N.T. and Ajibade, O.Y. [11] conducted a study amongst rural dwellers to study the knowledge of nutrition and their food consumption pattern in Oyo state, wherein they observed 'Carbohydrate based foods' as the major consumed foods with few protein and insufficient vitamin. In tandem with it, in the present study, the study population was found to have a carbohydrate-rich diet with the consumption of Rice or Wheat almost for every meal and consumption of protein is as per availability and affordability.

The study [9] observed that, dietary practices like daily intake of fruits in only 26.0%. In the present study too, it was seen that consumption of Fruits, Curd, or Salads was less or occasional. The low purchasing power and lack of awareness about

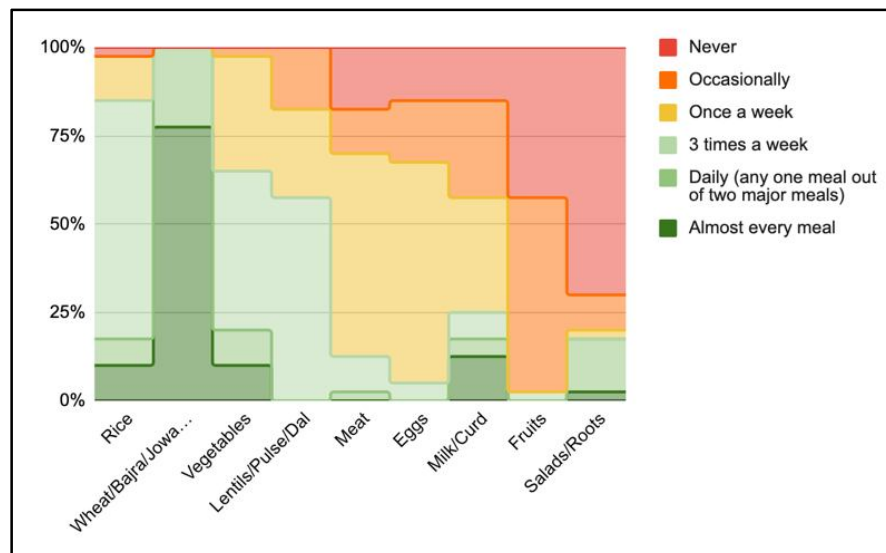
its vital role in health may be the factor behind the low uptake.



**Fig. 2. Number of hours of physical activity done by subjects**

**Table 4. Surveyed sample consuming a particular food item with a certain frequency**

	Rice	Wheat/Bajra/ Jowar	Vegetables	Pulse/ Lentil	Meat	Eggs	Milk/Curd	Fruits	Salad/ Root
Almost every meal	10%	77.5%	10%				12.5%		2.5%
Daily (any one meal out of two major meals)	7.5%	22.5%	10%		2.5%		5%		15%
3 times a week	67.5%		45%	57.5%	10%	5%	7.5%	2.5%	
Once a week	12.5%		32.5%	25%	57.5%	62.5%	32.5%		2.5%
Occasionally			2.5%	17.5%	12.5%	17.5%	27.5%	55%	10%
Never	2.5%				17.5%	15%	15%	42.5%	70%
	High Carbohydrates		High Nutrients	High protein			High Nutrients		High Fiber



**Fig. 3. Frequency of food items consumption by the surveyed sample**

The government of India has been concerned about these conditions and has taken many initiatives like National Nutrition Policy [12], National Food Security Act [13] and the latest National Nutrition Mission or POSHAN Abhiyan. [14]

POSHAN Abhiyaan is a multi-ministerial convergence mission with the vision to ensure the attainment of a malnutrition-free India by 2022. The objective of POSHAN Abhiyaan is to reduce stunting in identified Districts of India with the highest malnutrition burden by improving utilization of key Anganwadi Services and improving the quality of Anganwadi Services delivery. It aims to ensure holistic development and adequate nutrition for pregnant women, mothers, and children [14].

There are several schemes directly/indirectly affecting the nutritional status of children (0-6 year's age) and pregnant women and lactating mothers. Despite these, the level of malnutrition and related problems in the country is high. There is no dearth of schemes but a lack of creating synergy and linking the schemes with each other to achieve a common goal. POSHAN Abhiyaan through robust convergence mechanism and other components would strive to create synergy.

It is observed that though major national level Abhiyan is going on in the country, there is a lack of awareness of the scheme and the overall importance of nutrition and food habits.

## 5. CONCLUSION

Rural households, despite a daily average of 4-6 hours of strenuous exercise, lack the understanding of the significance of a balanced diet. Few people are aware of the negative impacts of poor nutrition, but due to a scarcity of resources, they are not paying attention to their daily dietary requirements.

People in the nation need access to local, traditional, and economical nutrition options. Government programs may have offered aid by subsidizing food, offering supplements, or even supplying one meal at schools, but there has been a general lack of information and access to inexpensive nutrient-rich food recipes, balanced diet, nutrition, and consumption of seasonal foods/fruits.

With the support of the newest technological tools and techniques, an awareness campaign will work hand in hand with government initiatives

to achieve multi-fold penetration of people-centric programs to realize the goals of food security and everyone's right to health.

## CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

## ETHICAL APPROVAL

It is not applicable.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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