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A study on consumption pattern of millets among NTR district of Andhra Pradesh

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Abstract
Millets are small seeded grains and belongs to the family grass. Majorly this crop cultivation is suitable to dry lands and also can cultivate in rain fed areas. Millets, an ancient food grain for the human consumption. It was spreaded in 131 nations and majorly 9 types of millets are known to all. Millets are a staple diet for 59 crores of people in Asia and Africa. Millets are the only crop that will be able to overcome challenges in the future related to food, feed, fuel, malnutrition, health, and climate change. These are the millets are good source for nutrients which are helped in giving good health to human beings. A recent study found that millets diet is the best for suffering with diabetic, cardiovascular disease, constipation, over weight and malnutrion.

Keywords: Consumption, millets, malnutrition, awareness, ragi, factors

Introduction

Millets are nutritionally stuffed a small-seeded annual grasses that are grown in degraded soils, and least necessities of water, pesticides, and fertilizers (Saleh et al., 2013) [7]. It has been consuming by majority of the people around the world from ancient time. They are a hub of nutrients. Further millets are good source of iron, calcium, fiber, Niacin, folacin, riboflavin, and thiamine and phosphorus and this is also a right diet who wants reduces their overweight and control diabetic. Millets have regained popularity recently due to their miraculous health benefits, low environmental effect and climate change resistance. Millets come in two varieties: Major and Minor, based on the size of the grain and the regions in which they are grown. Major millets include pearl millet, sorghum, finger millet, foxtail millet, little millet, and kodo millet. Pearl millet is the most macronutrient-rich and notably rich in resistant starch, soluble and insoluble dietary fibres of all the millets and moreover among the all millets finger millet has thirty times more calcium than rice. In their Iron content, foxtail and little millet are so rich that rice is nowhere in the race (Kalaiselvi A et al., 2016) [3-4]. Sorghum is abundant in minerals and B vitamins and is a significant tropical cereal crop for food, feed, and fodder in semiarid climates. Finger millet is the best source of amino acids high in sulphur and calcium and has strong antioxidant properties. Minor millets include foxtail millet, little millet, and kodo millet. Kodo millet is the coarsest grain of all grains and has high lecithin content. The consumption of millets in India has significantly increased over the past ten years due to growing knowledge of their health advantages and the availability of millet-based products on the market. According to Kumar et al. (2021), millets have rich content of fiber and calcium than rice and wheat. India is the world's largest producer of millets and growing of awareness in consumption of millets due to it is a good source of complex carbohydrates, dietary fiber, vitamins, and minerals, as well as a reserve of phytochemicals that are good for health. Millet is becoming increasingly popular due to rising interest in foods with good nutritious content. As part of research on "Assessment of the State of Millet Farming in India," millets have strong root systems that enable them to withstand extreme temperatures, droughts, and floods. Behera (2017) [2] found that millets were consumed less frequently than other cereals, with wheat and rice being the favoured cereals. Bhagavatula et al. (2020) found that eating millets was linked to a lower body mass index (BMI) and a more varied diet. Further these millets contain vitamins, minerals, vital fatty acids, phytochemicals, and antioxidants that can helps in reduction of nutritional problems. All the millets are amazingly greater with phytochemicals and are therefore, the solution for the malnutrition and obesity that affects a vast majority of the Indian inhabitants (Mounika et al., 2022) [5] among people.

Methodology

The study was undertaken to access the Perception, Consumption pattern and consumption frequency of millets among NTR district. The collection of primary data was carried out by perceiving the views of the respondents regarding millets. The Sample size of 60 respondents was taken randomly for the proposed study, those who were willing to participate in the study. The data was further statistically analyzed by presenting the information through frequency, and percentages. An observational study was used in the assessment of general background information and assessed the consumption pattern of millets among NTR, district in Andhrapradesh.

Results

Results a brief background on the respondents was collected based on their religion, type of family, age, occupation, education, income and place or address of the family

Majority number of respondents of religion was Hindu when compared with other religions of muslim noted only 2 (3.34%) and in Christian and others category of religion no one were noticed among all the samples (Table). Then more 46(76.66%) number of respondents had nuclear family than joint families' number 14(23.34%). Kalaiselvi et al., (2016) [3-4] reported that 64.9% belongs to the family type was nuclear (64.9%).

The age of the respondents was categorized into five groups ranging from 18-24, 25-34, 35-44, 50-60, 45-54 and 55 and above years. The highest percentage of respondents were in the age group of 25-34 years, followed by 18-24 and 45-54 years. From the elder generation of 55 and above and 45-54 yr, only 7% and 8% of the respondents were recorded (Table1). Highest per cent of respondents were practicing agriculture, only less percentage of samples were housewives and few percentage was identified for private employees, business and any other category. However, government employees were not notified. Further, forty percent of respondents education of primary schooling, 30% recorded for secondary schooling, senior secondary-inter was 21.66%, only 8.33 percentage of samples were studied degree and no PG holders were not recorded in this study.

From the data it was an evident that majority of respondents (81.66 per cent) have low income of Rs.10,000-20,000. Kalaiselvi et al., (2016) [3-4] reported that 46.4% respondent's monthly income was Rs.10,001-20,000 and their type of family is nuclear (64.9%). As per the results of the study most (75percent) of the respondents were selected from the rural area than urban (16.66 percent) and semi-urban (5percent) areas of the NTR district (Table 1).

Table 1: Socio economic status of the family

S. No.	Particulars	No. of. Respondents (n:60)	% percentage
Religion			
1	Hindu	58(96.66)	
2	Muslim	2(3.34)	
3	Christian	-	
4	Others	-	
Type of family			
1	Nuclear	46(76.66)	
2	Joint	14(23.34)	
Age			
	18-24	15(9.0)	
	25-34	17(28.33)	
	35-44	13(21.66)	
	45-54	8(13.33)	
	55 and above	7(11.66)	
Occupation			
	House wife	9(15.00)	
	Govt. Employee	-	
	Private employee	6(10.00)	
	Business	2(3.34)	
	Agriculture	41(68.33)	
	Any other	2(3.34)	
Education			
	Primary schooling	24(40)	
	Secondary -8th -10th	18(30)	
	Senior secondary –inter	13(21.66)	
	Degree	5(8.33)	
	PG+	-	
Income (Monthly)			
	Rs.10,000- 20000	49(81.66)	
	Rs.21000-30000	8(13.33)	
	Rs.31000- 40000	3(8.33)	
	Rs.41000-50000	-	
	Above Rs.51000	-	
Place or address			
	Rural	45(75)	
	Urban	10(16.66)	
	Semi urban	5(5)	

Distribution of respondents on the basis of different types of millets and millet products in market they are aware about

Hundred per cent of subjects awared about ready to Eat & Ready to Cook, biscuits 58.33%, cakes 13%, rotis 96.66%, Sweets 6.66%, Millet flour was 61.66%, dosa mix was 20%, roti 96.66%, idly mix 30%, upma mix 91.66%, pongal mix 88.33%, and vermicelli 6.66% which are available in the market. Whereas, the products available in the market are grain soup, cookies, muffins and bread with millets were not

known among the subjects in the study area (Table 2 & Fig.1).

Table 2: Distribution of respondents on the basis of different types of millets and millet products in market they are aware about

S. No	Parameters	No. of. Respondents (n=60)	%
1	**Ready to Eat & Ready to Cook**	60	100
2	Bread	-	-
3	Cakes	08	13.33
4	Biscuits	35	58.33
5	Cookies	-	-
6	Muffins	-	-
7	Sweets	04	6.67
8	Millet flour	37	61.67
9	Roti	58	96.67
10	Dosa mix	12	20
11	Idly mix	18	30
12	Upma mix	55	91.67
13	Grain soup	-	-
14	Pongal mix	53	88.33
15	Vermicelli	04	6.67

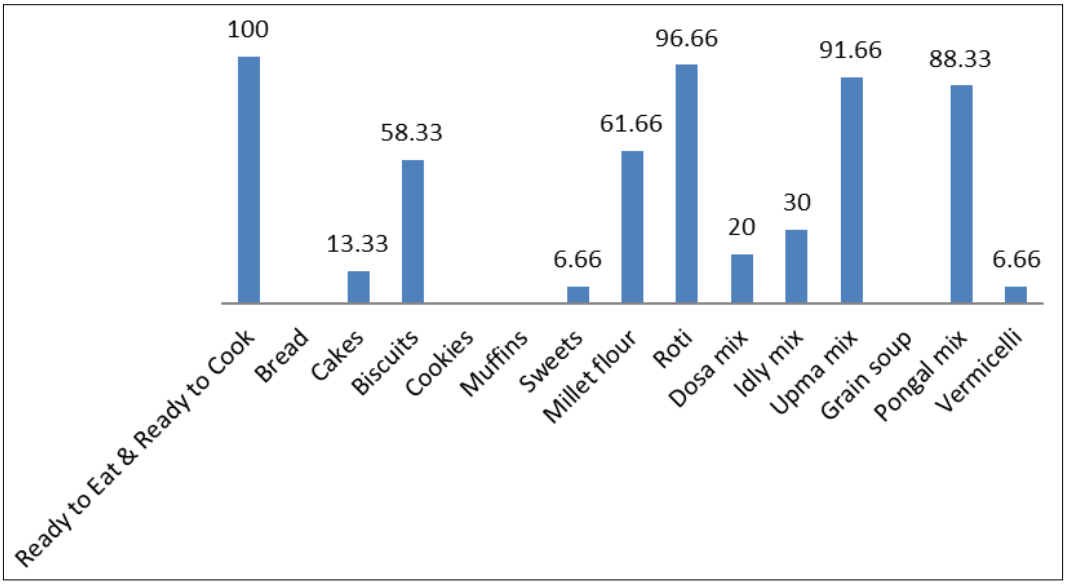

Fig 1: Distribution of respondents on the basis of different types of millets and millet products in market they are aware about

Frequency of millet consumption pattern

In the Present study (Table 3 & Fig. 2) subject's majority, they are consuming occasionally except finger millet. Finger millet consumed daily (9.5%), weekly once (26.8%) and twice (13%) while sorghum milled consumed was weekly once (16.2%) and monthly once (12%). Senthamarai selvi et al., 2019 reported that majority of millets were consumed monthly once while kodo millet, finger millet and barnyard millet were consumed monthly twice. Sorghum was consumed weekly once by 28% subject's. The figure 2 showed that more than half of respondents consume finger millet which is 60.00%. The study (Sangeetha, et al, 2022) [8] stated that majority of the subjects consuming ragi (78.7%) while compared to other millets. Then 33.33% consume pearl and foxtail millet, 10.00% little millet and proso millet, 30.00% sorghum and 25.00% barn yard millet on occasional basis, on monthly basis 25.00% consume Sorghum (Jowar or Jonnalu), 23.33% consume Pearl millet (Bajra) (sajjalu), 20.00% consume and 16.67% consume finger millet and nobody showed to consume Kodo millet (Arikelu), Little millet (Samalu), Foxtail millet (Korralu), Barnyard millet (Udalu) and Proso millet (Varigulu) on monthly basis. As per the Senthamarai selvi et al., 2019 majority of millets were consumed monthly once while kodo millet, finger millet and barnyard millet were consumed monthly twice. Sorghum was consumed weekly once by 28.00% subject's. According this table almost 90.00% of the respondents never eat Little millet (Samalu) and proso millet, 75.00% udalu, 46.67% korralu, 36.67% jowar and 23.33% ragi millet respectively. In this study no one identified to consume millets at daily and weekly basis.

Table 3: Frequency of millet consumption pattern (n=60)

S, No.	Millet	Daily		Weekly		Monthly		Occasio nally		Never	
		F	%	F	%	F	%	F	%	F	%
1	Sorghum (Jowar or Jonnalu)	0	0.00	0	0.00	15	25.00	18	30.00	22	36.67
2	Pearl millet (Bajra) (sajjalu)	0	0.00	0	0.00	14	23.33	20	33.33	26	43.33
3	Finger millet (Ragi)	0	0.00	0	0.00	10	16.67	36	60.00	14	23.33
4	Foxtail millet (Korralu)	0	0.00	0	0.00	12	20.00	20	33.33	28	46.67
5	Kodo millet (Arikelu)	0	0.00	0	0.00	0	0.00	0	0.00	0	00
6	Little millet (Samalu)	0	0.00	0	0.00	0	0.00	06	10.00	54	90.00
7	Barnyard millet (Udalu)	0	0.00	0	0.00	0	0.00	15	25.00	45	75.00
8	Proso millet (Varigulu)	0	0.00	0	0.00	0	0.00	6	10.00	54	90.00

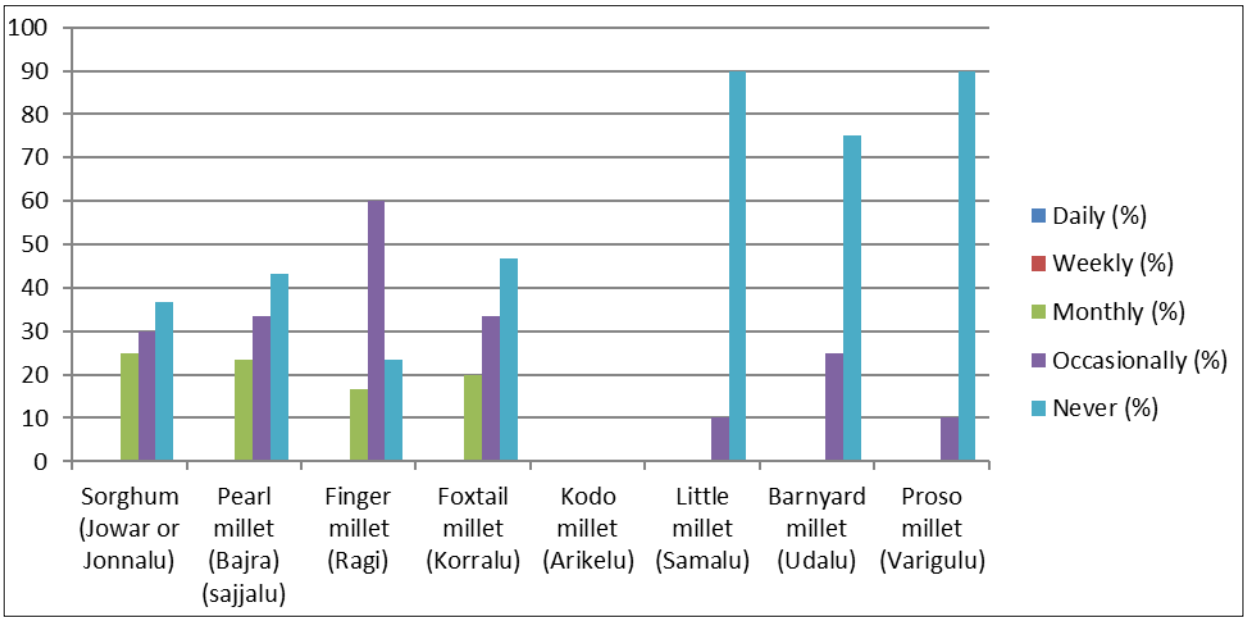

Fig 2: Frequency of millet consumption pattern

Factors influencing consumers for the consumption of millet/millet products

The Table-4 revealed that some of the factors influencing consumers for the consumption of millet/millet products in form of percentages. A total of 60 subjects 47 subjects noted low priority, 10 subject medium priority and only 3 subjects for high priority rank to availability of millet RTE & RTC foods in the market. Taste wise millet diet was ranked medium priority by highest subjects and very few subjects ranked high and low priority. The Influence of neighbor's & friends were most affected in consumption of millets and its products. Almost 37 subjects selected the rank high priority, 19 subjects by medium priority rank and only 4 subjects by low priority rank in consumption of millets and products due to the Influence of neighbor's & friends. In this study the consumption of millets among subjects were influenced by the reason to show interest towards innovative products. Here, 28 subjects given the rank medium priority followed by 14 subjects marked the rank low priory and a small number indicated the rank high for the particular reason of Interest towards innovative products with millets.

Table 4: Factors influencing consumers for the consumption of millet/millet products

S. No	Reasons	Ranking					
		High priority		Medium priority		Low priority	
		No. of. Respondents (n=60)	% Percentage	No. of. Respondents (n=60)	% Percentage	No. of. Respondents (n=60)	% Percentage
2	Availability of RTE & RTC foods	3	6.66	10	16.66	47	78.33
3	Taste	2	3.33	42	70.00	6	10.00
4	Influence of neighbor's & friends	37	61.66	19	31.66	4	6.66
5	Interest towards innovative products	8	13.33	28	46.66	14	23.33
6	As a part of traditional diet	31	51.66	21	35.00	8	13.33
7	Suggestion by doctor	22	36.66	28	46.66	10	16.66
8	Promotional activities by the sellers	14	23.33	37	61.66	9	15.00
9	Competitive price in comparison to similar food products	07	11.66	41	68.33	12	20.00
10	Availability of number of variety	09	15.00	31	51.66	20	33.33
11	Others	-	-	-	-	-	-

Conclusion

Millets are a main diet for 59 crore people in Asia and Africa. These come in two varieties like major and minor. Research has been revealed that millets are climate change-resistant crops, and contain vitamins, minerals, essential fatty acids, phytochemicals and antioxidants. A study was conducted in NTR district to assess the consumption pattern of millets among rural and urban families among 60 respondents. The data showed cent percent of respondents were aware of products prepared with millets were Ready to Eat & Ready to Cook followed by roti, upma mix, pongal mix, millet flour, etc. Frequency of consumption of millets at home table shows that majority of the respondents consume ragi, korralu, sajjalu and only 25 consume udalu occasionally. As per this result most of them known which are familiar millets like ragi, jonnalu, sajjalu and udalu, korralu nly. Other millets not being consumed by the respondents awareness is more among people but less interest in consumption was recorded more in many studies. To change the attitude in consumption of millet, popularization in the broader range is essential.

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