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Perception and consumption pattern of millets among female young adults

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Abstract: Though millets are three to five times nutritionally superior to the widely promoted rice and wheat in terms of proteins, minerals and vitamins and antioxidants, the consumption of rice and wheat rates higher than millets. The present study was aimed to know the attitude, preference, and consumption pattern of millets among the female young adults. The study participants were the female young adults between **20** to **28** years of age who pursued their post-graduation and research in various disciplines. Data regarding the preference, attitude, reasons for their preference, frequency, and form of millet consumption among female young adults were collected using the Google questionnaire through WhatsApp and around 100 students submitted the forms completely. Incomplete forms were excluded from the study. It was found that **89%** of the respondents consumed millets, majority of the respondents **(58%)** consumed millets as it is healthier and **26 %** loved the taste, **90%** of them recorded millets as nutritious, three percent considered it as expensive and six percent of them looked millets as rural food. Only four percent of the respondents were recorded for daily consumption of millets and **23%** consumed millets weekly 3/4 times. The millet-based food products consumed among the respondents were kichadi **(16%)**, roti **(25%)**, snacks **(20%)**, bread **(6%)**, traditional sweets **(7%)**, kali/porridge **(7%)**, and dosa/adai **(8%)**. Majority of the respondents (91±2.3) knew about millet cookies, little millet vermicelli (88±4.4), multi millet noodles/pasta (82±5), millet biscuits (92±2.1), multi-millet idli/dosa/adai mix (85±3.4). It was revealed that the respondents were aware about the nutritional benefits of millet consumption, and they were not actually consuming millets regularly. To increase the consumption of millets, ease of availability should be made explicitly among the children and young adults. Further, like the major cereals like rice and wheat, millets could be supplied through the Public Distribution System.

Keywords: Millets, rice, wheat, nutritional benefits, consumption pattern

INTRODUCTION

Amidst this pandemic and the growing junk food industry, eating healthy is very essential. Millets are now becoming a buzz. The population of central and southern India would consume millets almost regularly as a staple food until the Green Revolution made rice and wheat more accessible. Millets are traditionally grown and eaten in the Indian subcontinent for the last 5000 years. Millets have the tag of "poor man's food grain" due to its sheer affordability. However, it has come into the notice of fitness-centric youngsters who are learning the wellness potential of this humble food. The important millets cultivated and consumed in India include sorghum, pearl millet, finger millet (ragi), foxtail millet (kangni), kodo millet (kodo), proso millet (cheena), barnyard millet (sawan) and little millet (kutki) (NAAS, 2013). Millets are considered as ideal food to human beings because of their high nutritive value. Millets contain high level of proteins, minerals, vitamins, antioxidants, and they are non-glutinous and non-acid forming diets compared to other cereals and therefore called as 'nutritious millets' or 'nutri-cereals'. Specifically, pearl millet and finger millets provide protein at the rate of 11.8 and 7.4 g per 100-gram grain, respectively, and the fat content is low in these millets (around 1.3 g per 100 g grain) (Muthamilarasan et al. 2015). The millet is highly nutritious and contains important amino acids, niacin, beta-carotene and has several health benefits such as anti-diabetic, anti-tumorigenic, atherosclerotic-genic effects. Millets are known as dry crops since they need very little water for their production. Millets are low in simple carbohydrates and high in complex carbohydrates, making it a low-glycaemic index (GI) food. Millets are rich in dietary fibre- both soluble and insoluble (prebiotic). Nearly 100-gram (3 ½ ounce) reference serving of raw millet provides 1,580 KJ of food energy and it is a rich source of protein, fibre, B vitamins and many dietary minerals, particularly manganese at 76%. Raw millet is 9% water, 73% carbohydrates, 4% fat and 11% protein. Some commonly used millets in South India are Ragi, Bajra, Green millet, Foxtail millet, Sorghum, Kodo millet, barnyard millet etc.

The reason for the decline of millet intake is over dependency on rice and wheat, which may provide over 50 percent of the average Indian household's caloric intake. In recent times, notable changes in the dietary pattern of households across

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the state have been observed from cereals to high value food commodities such as livestock products, fruits, vegetables, and beverages (Kumar et al. 2011)

Millets play an important role in rainfed region of the country which contributes 60 percent of the total area. Especially minor millets are very rich nutrients and are minerals and resistant to drought and stress in rainfed farming. Anbukani et al (2017) studied the consumption pattern of small millets and finger millet and was examined by using NSSO unit level data. Assam (18.82 kg/hsh/m) and Bihar (18.69 kg/hsh/m) states have highest consumption of small millets found in all India and rural areas. Madhya Pradesh has highest area of small millets (32.4%) followed by Chhattisgarh (19.5%), Uttarakhand (8%), Maharashtra (7.8%), Gujarat (5.3%) and Tamil Nadu (3.9%). Uttarakhand has highest productivity of 1174 Kg/ha followed by Tamil Nadu (1067 Kg/ha) and Gujarat (1056 Kg/ha). Structural breaks were estimated based on bai-person method for both finger millet and minor millet. In case of area under minor millets structural break was observed in the year 1998 and between 2000 and 2002. In comparison to sorghum, pearl millet and finger millet limited varieties of small millet have been developed.

Several studies have reported that such a transition in food consumption pattern is influenced by increasing growth in income and employment, availability of expected fresh and processed food products in the market, improvements in transportation and storage facilities and rise of supermarkets (Vasileska and Rechkoska, 2012). Hence a short study was conducted to know the attitude and preference towards millets among the female young adults.

METHODOLOGY

The study took place at Coimbatore and the study participants were the female young adults between 20 to 28 years of age who pursued their post-graduation and research in various disciplines. With background information, data regarding the preference, attitude, reasons for their preference, frequency, and form of millet consumption among female young adults were collected using the questionnaire. The questionnaire was framed in Google form and the link was sent to the female young adults through WhatsApp and around 100 students submitted the forms completely. Incomplete forms were excluded from the study. The received responses were analysed using Microsoft Excel sheets and the results were expressed in percentage and mean with standard deviation.

RESULTS AND DISCUSSION

1. Background information of the respondents

1.1 Age Group: Among the selected subjects, **50%** of the subjects were at the age of 21 years, **26%** belongs to 20 years of age, **nine percent** belongs to 22 years of age, **six percent** belongs to 25 years of age, **five percent** belongs to 23 years, **three percent** with 24 years of age, and **one percent** were at 28 years of age. It was recorded that all the respondents were sedentary workers as they were college students and not involved in any regular physical activities.

1.2 Diet Preference of the selected subjects: Nearly **72%** of the study participants were non vegetarians, **26%** vegetarians and the only **two percent** belongs to ova vegetarian.

2. Millet consumption pattern among the respondents

2.1 Millet consumption: It was found that **89%** of the respondents consumed millets and around **11 %** did not consume millets. Consumer awareness is more due to social media and peer group.

2.2 Intention towards consumption of millets

To know the intention towards millet consumption the statement "millets superior to cereals and brown rice" was examined among the respondents. Nearly **60%** of the respondents agreed the above statement, **three percent** disagreed and **37%** opted the maybe option. The below table displays the motive of respondents towards millet consumption.

Table 1

Intention towards consumption of millets

Intention towards consumption of millets	**No of respondents (n=89)**		**Intention towards not consuming millets**	**No of respondents (n=89)**	
	No	**%**		**No**	**%**
Healthier diet	58	58	Dislike the taste	4	4
Love the taste	26	26	Cooking requires more time	2	2
To lose the weight	5	5	Unavailability of Millets foods	5	5
Total	**89**	**89**	Total	11	11

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From the table 1 it is clear that majority of the respondents **(58%)** consumed millets as it is healthier and **26 %** loved the taste, **five percent** for reducing their weight. Among the respondents who were not consumed millets, four percent reported that they don't like the taste of the millets, two percent felt that millets require more cooking time and five percent recorded that they face the unavailability of millet foods.

2.3 Attitude towards millet consumption

From the below figure 1 it was clear that among the total respondents **90%** of them recorded millets as nutritious, **three percent** considered it as expensive, **six percent** of them looked millets as rural food, and only **one percent** reported as gluten free food.

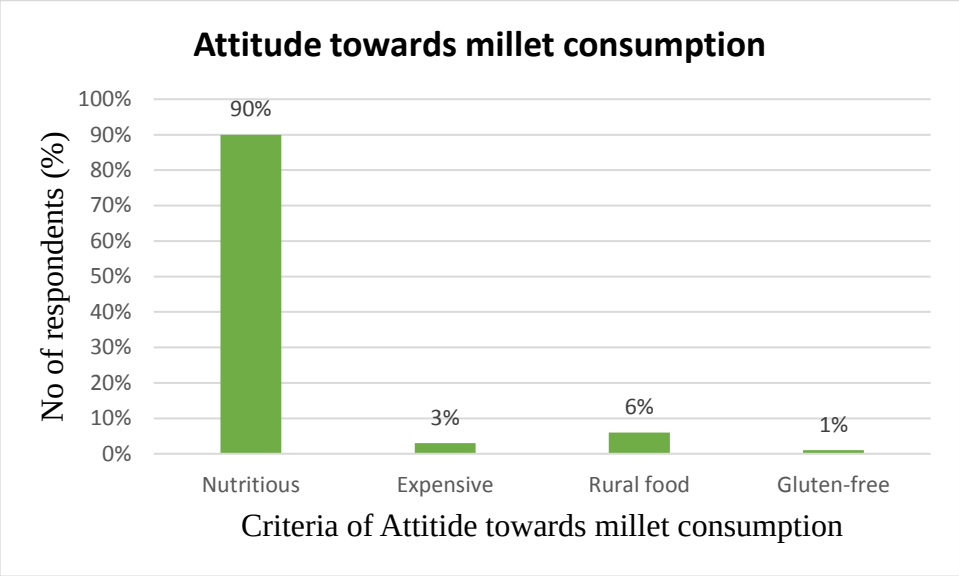

Figure 1 Attitude towards millet consumption

2.4. Frequency of millet consumption

Umanath et al., (2018) in their study revealed that the prices of millets and other food commodities had statistically significant effect on both millet consumption probability and the quantity demanded of millets while per capita income was not an important determinant. It is confirmed that the millets continue to be treated as inferior goods in India. Besides, age of household head has a positive relationship with the millet consumption, whereas larger household size and higher educational level decreased the probability of millet consumption and quantity demanded. Table 2 shows the frequency of millet consumption among the respondents.

Table 2

Frequency of millet consumption

Frequency of millet consumption	No. of respondents (n=100)	
	No.	**%**
Daily	4	4
Weekly 3/4 times	23	23
Weekly once	24	24
15 days once	14	14
Monthly once	24	24
Never	11	11
Total	100	100

Regarding the frequency of millet consumption only **four percent** of the respondents recorded as they consumed millets every day, **23%** consumed millets weekly 3/4 times, **24%** consumed weekly once, **14%** consumed 15 days once,**24%** consumed monthly once and **11%** of the total respondents never consumed it.

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2.5 Food products preferred based on millets

Table 3

Food products preferred based on millets

Millet based foods	No. of respondents (n=89)	
	No.	%
Kitchdi	16	16
Roti	25	25
Snacks	20	20
Bread	6	6
Traditional sweets	7	7
Kali/Porridge	7	7
Dosa/Adai	8	8
Total	**89**	**89**

The millet-based food products consumed among the respondents were kitchidi **(16%)**, roti **(25%)**, snacks **(20%)**, bread **(6%)**, traditional sweets **(7%)**, kali/porridge **(7%)**, dosa/adai **(8%)**. Millet contains essential amino acids, fatty acids, and dietary fibre thus its health benefits were the most influencing factors for buying millet-based products.

2.6 Awareness about new millet-based products in the market

The production of biscuits, beverages, weaning foods, beer and confectionery uses mostly millets as an industrial raw material. Due to high protein and fibre content millets are highly consumed as well as highly acceptable with pleasant aroma, excellent taste, and crisp texture. Millets available at a lower cost but giving higher nutritional benefits thus called as miracle grains. They are also simply digestible, least allergic and is the most excellent food for gluten sensitive patients. The awareness on availability of millet based instant food products available in the market were examined among the respondents and the details were displayed below in table 4.

Table 4

Awareness on new millet-based products in the market

Millet foods	No. of respondents (n=100) Mean ± SD
Millet cookies	91±2.3
Little millet vermicelli	88±4.4
Multi-millet noodles/pasta	82±5.1
Multi-millet biscuits	92±2.1
Millet muesli	84±2.3
Multi- millet energy drink mix	86±3.2
Multi – millet idli/dosa/adai mix	85±3.4

It was recorded that **91±2.3** respondents knew about millet cookies, **88±4.4** respondents aware on little millet vermicelli, **82±5** respondents reported multi millet noodles/pasta, **92±2.1** for millet biscuits, **84±2.3**, **86±3.2** respondents millet muesli, **86±3.2** multi millet energy drink mix and **85±3.4** respondents were familiar about multi-millet idli/dosa/adai mix.

CONCLUSION

More emphasis is being placed on production and consumption of millets in recent times for its health benefits and profit. The nutritional benefits of millets have brought millets to the centre stage as a major contributor to the nutritional security of the households. Present study has tried to understand the attitude and consumption pattern among female young adults. It was revealed that the respondents were aware of benefits of millet consumption and yet the respondents were not actually consuming millets regularly. To increase the consumption of millets, ease of availability should be made explicitly among the children and young adults. Besides, like the major cereals such as rice and wheat, millets could be supplied in the Public Distribution System (PDS).

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