



Consumption Patterns and Perceptions of Nutri-Cereals: A Study among Urban Households in Bhubaneswar, Odisha

Suryamani Patro, Vijayeta Priyadarshini, Tanmayee Mousumee Maharana* and Rupal Singh
Department of Home Science, Rama Devi Women's University, Bhubaneswar (Odisha), India.

(Corresponding author: Tanmayee Mousumee Maharana*)

(Received 11 August 2024; Accepted 16 November 2024)

(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: Millet is an important global food crop with a significant economic impact in developing countries. Millets are considered nutritious, energy-efficient foods that help in fighting malnutrition. Millet-based foods are considered potential prebiotics and probiotics with potential health benefits. Due to this reason, a research study was conducted to know the perception and consumption pattern of millets among urban women residing in Bhubaneswar city. Around one hundred women in the age group of 18 to 57 years were selected randomly for the study. Data regarding frequency of consumption of millets, types of dishes prepared, knowledge, attitude and practices related to use of millets were collected. Mailed questionnaire was used to collect the desired information. The findings of the study revealed that most of the respondents were in age group of 18 to 35 years. Majority of the respondents were found to have average knowledge, attitude and practices regarding millets.

Keywords: Nutri Cereals, Millet, Knowledge, Attitude and Practice, Prebiotics and Probiotics.

INTRODUCTION

Nutri-cereals, encompassing a variety of coarse grains such as millets, sorghum, ragi, bajra are increasingly recognized as critical components of sustainable food systems due to their resilience to climate change, low water requirements, and high nutritional value. These cereals are rich in essential nutrients, including dietary fiber, protein, iron, calcium, and other micronutrients, making them an excellent option to address malnutrition and lifestyle diseases such as diabetes, hypertension, and obesity (Saleh *et al.*, 2013). Large amounts of nourishment may be found in millets, and eating millets regularly can have a number of positive effects on a person's health (Devi and Bindiya 2022).

Despite their benefits, the consumption of nutri-cereals remains limited in urban households, where dietary patterns are often shaped by convenience, taste preferences, and the widespread availability of polished grains like rice and wheat (Kane-Potaka *et al.*, 2021). Nutrition education on millets needs to be undertaken to create awareness among the students, thus, it may further can help in millet consumption (Prashanthi *et al.*, 2022).

Bhubaneswar, the capital city of Odisha, provides an intriguing case for examining the consumption and perception of nutri-cereals among urban households. As a city with a mix of traditional and modern food practices, Bhubaneswar reflects the shifting dynamics of dietary behaviour influenced by socio-economic status, education, health awareness, and cultural factors. Nutri-cereals, once a staple in Odisha's rural diets, have gradually lost their prominence in urban settings due to changes in lifestyle and a lack of awareness about their nutritional advantages. This study seeks to explore the

consumption patterns and perceptions of nutri-cereals in urban households of Bhubaneswar. It examines key factors such as awareness of nutritional benefits, affordability, accessibility, and the role of cultural attitudes in shaping dietary choices. Furthermore, it identifies barriers to the adoption of nutri-cereals, such as misconceptions about their taste and preparation complexity. Understanding these aspects is essential for formulating effective strategies to revive the popularity of nutri-cereals and integrate them into urban diets.

The findings of this research can inform policymakers, health professionals, and agricultural stakeholders to design targeted interventions that promote the adoption of nutri-cereals. This includes awareness campaigns, incentives for farmers to cultivate these crops, and the development of convenient, nutri-cereal-based food products to align with urban dietary preferences. By addressing these gaps, nutri-cereals can be reintroduced as a sustainable, nutritious, and accessible dietary component in urban households, contributing to both public health and sustainable agriculture.

OBJECTIVES OF THE STUDY

- To assess the socio-economic status of the respondents
- To find out the knowledge and awareness of millets by the respondents in their day to day life.
- To record the millet consumption pattern among the respondents.

MATERIALS AND METHODS

Study Area and sample. The study was conducted on women of the age group of 18-57 years residing in different locations of Bhubaneswar city, Odisha.

Study Design. The study has adopted a cross sectional and descriptive research design. As the study aims to describe the consumption millets among a particular population in urban women in Bhubaneswar city, the researchers affirm that a descriptive research design is more appropriate.

Sampling Method. Around 200 women of the age group of 18-57 years were selected randomly from different locations of Bhubaneswar. Data were collected by personal interview method by using pre tested structured schedule

The Questionnaire consists of three parts. The first part of the questions is to test the socio economic background of the respondents, the second part is about the millet consumption pattern of the respondents and the third part includes questions related to knowledge and awareness of respondents about millets.

RESULTS AND DISCUSSION

The Table 1 shows that thirty two percent of the respondents are under the age group 15-25, 52% are under the age group 26-35 years, 7 % are under 36-45 years and 46 and above years age group. It was found that 86 % of the subjects belong to Hindu, 6 % are Muslim and 8% are Christian. It was found that majority of the study participants 70 % belong to nuclear family, 30 % belong to joint family. The table shows that 41.0 % of the respondents have 3 or less family members, 48.0 % have 4-6 members, 11.0 % have more than 6 members and. Most of the respondents are married (55.0%), 43% respondents are unmarried and only 2 % of the subjects were observed to be widows.

Table 1: Demographic Profile of the Respondents.

Particulars	Categories	Frequency	Percentage
Age	15-25	64	32.0
	26-35	104	52.0
	36-45	14	7.0
	46 and above	14	7.0
Religion	Muslim	12	6.0
	Hindu	172	86.0
	Christian	16	8.0
Type of Family	Nuclear	140	70.0
	Joint	60	30.0
Size of family	3 or less	82	41.0
	4-6	96	48.0
	Above 6	22	11.0
Marital Status	Married	110	55.0
	Unmarried	86	43.0
	Widow	4	2.0

Table 2: Educational Qualification & Occupation of the Respondents & the Head of the Family.

Particulars	Categories	Frequency	Percentage
Educational Qualification of the Respondent	+2	72	36.0
	Graduation	68	34.0
	Post Graduation	36	18.0
	Other	24	12.0
Income of the Respondent	10,000-20,000	96	48.0
	21,000-39,000	64	32.0
	40,000-60000	22	11.0
	Above 60, 000	18	9.0
Educational Qualification of the Head of the Family	10 th	24	12.0
	12 th	30	15.0
	Graduation	117	57.0
	Other	32	16.0
Occupation of the respondent	Home Maker	124	62.0
	Business	42	21.0
	Professional	22	11.0
	Government Officer	12	6.0

It was observed from the Table 2 that 18 % of the respondents have done post-graduation, 36.0 % have studied +2, 34% have a qualification of graduation and 12% have studied in other courses. The above table shows that 48% of the respondents income is in between 10000 to 20000, 32 % income is in between 21000-39000, 11 % income in between 40000-60000 and 9.0 % income is 60000 or above. It was found that

12 % of the head of the household have completed 10th, 15 % have a qualification of 12th, 57% have Graduation and 16 % have studied in other courses. The above table shows that 26.6% of the respondents are home makers, 33.3% have businesses, 26.6% have professional jobs and 13.3% are working at Government office.

Table 3: Millet consumption pattern among respondents.

Particulars	Categories	Frequency	Percentage
Diet Preference	Vegetarian	128	64.0
	Non vegetarian	72	36.0
Frequency for Consumption of Millets	Everyday	57	28.5
	Once in a week	82	41.0
	Once in a month	49	24.5
	Sometime	12	6.0
Dishes prepared using Millets	Dosa	61	30.5
	Kheer	27	13.5
	Roti	07	3.5
	Other	105	52.5

It is clearly visible from the Table 3 that 64% respondents belong to the vegetarian dietary habits and 36% belongs to non-vegetarian. About 28.5% of the study participants consumed millets everyday, most of the respondents (41%) consumed millets once in a week, 24.5% of the respondents consumed millets once in a month and only 6% of the subjects were having millets rarely. It was shown in the table that 30.5%

prepared dosa using millet, 13.5% prepared kheer, 3.5% prepared roti and most of the respondents (52.5%) prepared other dishes like bara, upma. Arora and Singh (2024) found that 78.9% of middle-class women consume millets at least once a month, compared to 64.9% of lower-class women. 70.9% of the women who were aware of millet significantly consumed it.

Table 4: Knowledge and Awareness about different Millets among the study Participants.

Particulars	Categories	Frequency	Percentage
Awareness for different Millets	Finger millet	24	42.1
	Pearl millet	10	17.5
	Sorghum	6	10.5
	Other	17	29.8
Reasons for consumption of Millets	High in iron and calcium	36	63.2
	Good for bone, skin	18	31.6
	Good for cancer patients	3	5.3

The Table 4 shows that 42.1% respondents used finger millet commonly at their home, 17.5% used pearl millet, 10.5% used sorghum and 29.8% used other. Majority of the study participants (63.2%) consumed millet because of High in Iron and Calcium, 31.6% because of Good for bone, skin and 5.3% because of Good for cancer patients. Padmalini *et al.* (2023) concluded that the majority of respondents consume millet for maintaining overall health. Millets, being the rich source of fiber is good for diabetic individuals. Low level of fiber intake leading towards diabetes mellitus was observed among the study population of Bhubaneswar, Odisha (Maharana *et al.*, 2024). On the other hand, the study has proved that, in spite of having awareness about millet, people still show their reluctance towards its consumption due to inhibiting factors like “Lack of awareness about nutritional benefits” and “Non-availability” and “Expensive than rice and wheat”.

CONCLUSIONS

India is endowed with hundreds of nutritious crops whose research and development is still poorly addressed. Production of millets has numerous benefits in promoting food and nutrition security, providing fodder, fiber, health, livelihood and maintaining ecology. Millets are store house of dozens of nutrition in large quantity and long term consumption of millets may bring several health benefits in the people. Production and consumption of millets is highly essential. Communication remains the major inhibitor

on various fronts starting from producers to consumers. Low market demand has forced farmers to reduce the ICRISAT. Production of millet reported by Raj and Shanmugam (2013) and on the other hand consumers' awareness and interest to adopt it as a staple is dismal due to a lack of knowledge and motivation to consume millets as daily meals. The social media platform is emerging as a major source of information dissemination increasing awareness about millet. There is a need to identify the right social media tools, customized communication messages and influencers such as opinion leaders, celebrities, chefs, and peers to develop the motivation to consume millet Subsidizing the price for farmers will boost its production, ensure availability and would also be affordable for consumers to buy as it is not preferred over rice and wheat due to their high price. It is also desirable to proliferate its consumption by involving influencers like bloggers, chefs, doctors, and fitness instructors to discuss the health benefits of millet and share new recipes among the public.

FUTURE SCOPE

- Extending the research to other cities in Odisha and rural areas to compare consumption trends and challenges across different demographics.
- Studying variations in awareness and affordability among urban, semi-urban, and rural populations.
- Assessing the effectiveness of government initiatives such as the promotion of millets under the National

Food Security Mission (NFSM) and Odisha Millet Mission (OMM).

- Conducting clinical or dietary intervention studies to evaluate the actual health benefits of nutri-cereal consumption among different age groups.
- Assessing the impact of increased millet consumption on addressing malnutrition and lifestyle diseases such as diabetes and obesity.
- Exploring consumer preferences in terms of product formats (whole grains, ready-to-eat, processed foods) to guide industry stakeholders.

Acknowledgement. We acknowledge the contribution of Department of Home Science, Rama Devi Women's university for the resources, facilities, and encouragement provided by the institution which played a crucial role in the successful completion of this study.

Conflicts of Interest. None.

REFERENCES

- Arora, P. & Singh, V. (2024). Awareness, acceptance, and consumption pattern of millets among ever-married women in an urban area of Delhi: A cross-sectional observational study. *Indian Journal of Community Health*, 36(3), 459-462.
- Devi, G. Padmini & Bindiya, Y. (2022). A Study on Awareness and Consumption of Millets in Urban Area of Guntur City of Andhra Pradesh. *Biological Forum – An International Journal*, 14(5), 80-86.
- Kane-Potaka, J., Anitha, S., Tsusaka, T.W., Botha, R., Budumuru, M., Upadhyay, S., Kumar, P., Mallesh, K., Hunasgi, R., Jalagam, A. K. & Nedumaran, S. (2021). Assessing Millets and Sorghum Consumption Behavior in Urban India: A Large-Scale Survey. *Front. Sustain. Food Syst*, 5, 680777.
- Maharana, T. M., Nanda, S., Patro, S. & Nanda, A. (2024). Assessment of food consumption pattern and lifestyle profile of pre-diabetic and type 2 diabetic adults in Bhubaneswar City, Odisha. *Biological Forum – An International Journal*, 16(11), 95-101.
- Prashanthi, A., Reddy, R. G., Rani, R. N., Devi, T. S. & Meena, A. (2022). Awareness and Consumption of Millets among School Children in Rural and Urban Areas of Telangana State, India. *Biological Forum – An International Journal*, 14(4), 64-70.
- Padmalini, S., Rizwana, M., Mohanasundaram, T., Mustafizul, H. & Vetrivel, S. C. (2023). Traditional food consumption in the modern era: assessing the millet consumption behaviour among south Indian urban women. *Food Research*, 7(3), 22-28.
- Saleh, Ahmed & Zhang, Qing & Chen, Jing & Shen, Qun (2013). Millet Grains: Nutritional Quality, Processing, and Potential Health Benefits. *Comprehensive Reviews in Food Science and Food Safety*, 12, 281–295.