



A Study on Awareness & Consumption Patterns of Millets in Diet of People of Maharashtra.

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Abstract: India is a major producer and consumer of a diverse range of millets, including finger millet, pearl millet, kodo millet, foxtail millet, barnyard millet, proso millet, and little millet. Additionally, it ranks as the sixth largest producer of sorghum globally. Often termed "smart food," millets are recognized for their nutritional benefits, environmental sustainability, and resilience for farmers. However, despite the rising awareness of millets in Maharashtra, their consumption remains lower than in other Indian states.

A study conducted by the Indian Council of Agricultural Research (ICAR) revealed that while 75% of households in Maharashtra were aware of millets, only 50% actually consumed them. The most commonly consumed millets in Maharashtra were finger millet (ragi), sorghum (jowar), and pearl millet (bajra). Factors contributing to the relatively low consumption of millets in Maharashtra include a perception that millets are less nutritious than cereals like rice and wheat, limited availability, and higher costs compared to other staples. However, millets offer several benefits, being rich in protein, fiber, iron, and calcium, and they are gluten-free, making them suitable for those with celiac disease or gluten intolerance.

Recent efforts to promote millet consumption in Maharashtra are being driven by government agencies, NGOs, and private companies, focusing on educating the public about the health benefits of millets and improving their market accessibility. This study aims to examine the patterns of millet consumption and the level of awareness among Maharashtrians, with the goal of identifying barriers to consumption and providing insights for promoting a greater uptake of millets in the region.

IndexTerms - Millets, Health Benefits, Maharashtra, Awareness & Consumption.

I. INTRODUCTION

Millets are small, round grains grown in warm climates worldwide, known for their nutritional richness and environmental sustainability. They are high in protein, fiber, and essential minerals, and are gluten-free. Additionally, millets offer a variety of antioxidants that help combat free radical damage in the body. Despite their numerous health benefits, millets are under-consumed in many regions, including Maharashtra, India, where awareness is growing but is still behind other Indian states.

The Indian Council of Agricultural Research (ICAR) reports that while 75% of Maharashtra households are aware of millets, only 50% consume them regularly. Popular types of millet in Maharashtra include finger millet (ragi), sorghum (jowar), and pearl millet (bajra). The purpose of this study is to understand the patterns of millet consumption and the factors contributing to their limited adoption in Maharashtra. Despite their

nutritional benefits and versatility, millets face several barriers to broader consumption. Common reasons include misconceptions about their nutritional value compared to other cereals like rice and wheat, limited availability, and higher cost. In addition, some people find millets' flavor and texture less appealing, further hampering their acceptance.

Millets are versatile and can be consumed in a variety of ways, including whole, ground into flour, or sprouted. They can be used in dishes like porridge, bread, pancakes, pasta, and more. They are also a staple in soups, stews, and salads, highlighting their adaptability in various cuisines. To increase the consumption of millets in Maharashtra, awareness programs led by government agencies, non-governmental organizations, and private companies are focusing on the health benefits and sustainability of millets. These initiatives aim to break down the barriers to millet consumption, ultimately promoting healthier diets and supporting sustainable agriculture.

Understanding the consumption patterns and awareness levels of millets among Maharashtrians is crucial for these initiatives to succeed. By analyzing why millets are under-consumed and exploring effective ways to integrate them into everyday meals, this study seeks to provide insights that can guide efforts to increase millet consumption in Maharashtra. This research will not only explore the reasons behind the current consumption trends but also propose practical strategies for increasing millet awareness and incorporation into regular diets.

II. OBJECTIVES

- To study the awareness of millets, consumption patterns, preferred forms and major sources of information amongst people of Maharashtra.
- To explore the major concerns of people for not including millets in diet.
- To ascertain the awareness of health benefits amongst people about millet consumption.

III. LITERATURE REVIEW

Most of the species called millet were initially domesticated in different parts of the world specially East Asia, South Asia, West Africa, and East Africa countries. However, the domesticated varieties have often spread well beyond their initial area. Millets also formed important parts of the prehistoric diet in Indian, Chinese Neolithic and Korean Mumun societies.

India is one of the leading producer and consumer of different types of millets, such as finger millet, pearl millet, kodo millet, foxtail millet, barnyard millet, proso millet, and little millet. India is the sixth largest producer of sorghum globally. When we talk about Indian history of millet then it took to 5000 year ago. It said that Little millet (*Panicumsumatrense*) has history around 5000 before and Kodo millet (*Paspalumscrobiculatum*) around 3700 before present in India subcontinent. It is observed that Various millets have been mentioned in some of the Yajurveda texts, such as foxtail millet (*priyaṅgu*), Barnyard millet (*aṅu*) and black finger millet (*śyāmāka*). Also mentioned that millet cultivation was happening around 1200 BCE in India.

Moreover, numerous research have found that different communities don't know much about millets. According to a survey by Kamble et al. (2019) in rural Maharashtra, India, a sizable majority of respondents were ignorant of millets, their nutritional worth, and their culinary applications. In India, a research by Shukla et al. (2019) revealed that there is little understanding about millets among the general public, with many participants either having never heard of millets or knowing very little about them.

Lack of availability & knowledge is one of the main reasons millets aren't commonly seen in diets. Studies by Patil et al. (2020) and Khade et al. (2020) showed how millet products are frequently difficult to get, especially in metropolitan settings. It is difficult for people to include millet-based items in their diets because of limited access to them.

Millets are consumed in different ways depending on the location and culture. According to research by Reddy et al. (2020), several millet cultivars are popular in various Indian states. For instance, although pearl

millet (bajra) is more popular in Rajasthan, finger millet (ragi) is more popular in Karnataka. The availability, cultural preferences, and regional culinary customs might be blamed for these variances. Traditionally, various foods and beverages were made from these grains in different regions, which consider as a staple food in the local food culture. However, their presence in the Indian food basket has been declining over the years largely due to government policies favoring the production and consumption of fine cereals, such as rice and wheat (Kane-Potaka and Kumar, 2019), also due to rise in income and urbanization. According to Kane-Potaka and Kumar, between 1960 and 2015 in India, wheat production more than trebled, and rice production increased by ~800%; on the contrary, millet production was stagnant at low levels. And according to indiaspend article between 1962 and 2010, India's per capita consumption of millets fell drastically from 32.9 to 4.2 kg, while that of wheat almost doubled from 27 to 52 kg. Similarly Parthasarathy Rao mentioned in his study that A similar declining trend in per capita consumption was reported for sorghum in both rural and urban India from 19.1 to 5.2 and from 8.5 to 2.7 kg per year, respectively, representing 68 and 70% reduction.

This small-seeded grains known as millets have attracted a lot of interest recently because of their possible health advantages, environmental sustainability, and nutritional worth. Hence millets are increasingly being used in processed meals and snack foods in addition to their traditional uses. According to studies by Khade et al. (2020) and Patil et al. (2020), millet-based snacks, morning cereals, cookies, and other processed meals are becoming more and more popular. These products offer easy and creative methods to incorporate millets into contemporary diets, especially in metropolitan regions.

Millets are often referred to as smart food, which is “good for the individual” (nutritious and healthy), “good for the planet” (environmentally sustainable), and “good for the farmer” (resilient). Millets are recognized for their resilience, ability to survive under high temperatures and in degraded soils, and minimum requirements of water, pesticides, and fertilizers (Saleh et al., 2013). Their farming methods leave a lower carbon footprint than the major staples that are grown with greater use of fertilizers and pesticides. Millets complement commonly used legumes in India, such as pigeon pea and chickpea, for amino acid content to form complete protein with improved digestibility upon cooking (Anitha et al., 2019a). Apart from protein, depending on the variety and species, millets are also rich in minerals, such as iron, zinc, and calcium, which deliver health benefits to all age groups and genders. According to research, whole grain millets are preferred over processed varieties. According to a research by Kumari et al. (2021), participants preferred whole millet grains because they were thought to have a better nutritional value and authenticity. However, certain populations are also beginning to prefer processed versions such millet flour, flakes, and ready-to-cook mixes because to their practicality and adaptability.

Moreover, millets are rich in nutrients and plant compounds. Therefore, they may offer multiple health benefits. Hence it is important to add in daily diet.

According to research, social class and education are factors in millet awareness. In India, a research by Santhakumar et al. (2021) discovered a link between education level and millet awareness, with greater awareness levels among those with higher education. Similar findings were found in research by Kumari et al. (2021) and Reddy et al. (2020), which showed that those with higher socioeconomic status were more knowledgeable of millets and their advantages than those with lower socioeconomic status. Hence this research study is aimed at understanding consumption pattern and awareness level on millet amongst Maharashtrians.

IV. RESEARCH METHODOLOGY

4.1 Data collection: Primary data is collected through Questionnaires.

4.2 Sampling Techniques: This topic of research is associated with the local foodies, residents from Maharashtra, so the sampling technique followed is RANDOM SAMPLING.

4.3 Sample Size: Questionnaires targeting responses of over 193 were collected from the population and the analysis for the same is done to support the objectives of this research paper.

4.4 Population: Student, Working, House wife, Retired Person were selected from all over the Maharashtra to understand their awareness level & reason for that preference.

4.5 Limitation: This study is limited to Maharashtra State.

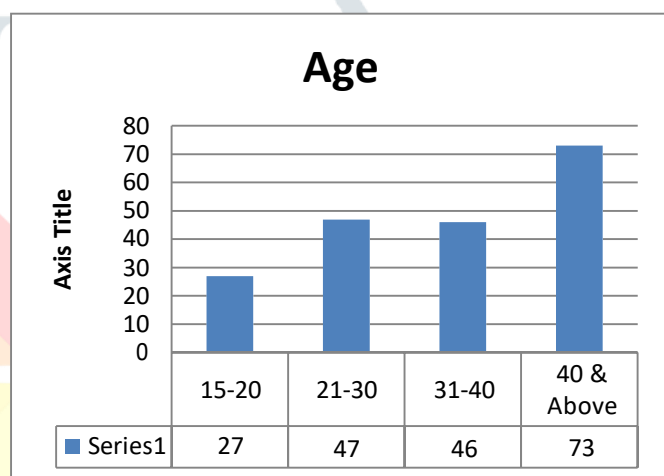
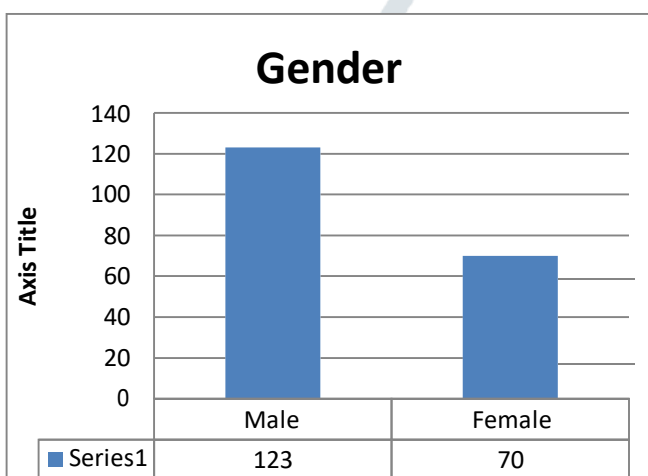
The data collected will then be analyze & interpreted quantitatively with the help of survey method result will be represented in the form of tables, graphs and quantitative tests.

V. DATA ANALYSIS & RESULT

To understand demographic profile of customer we ask few questions these are as follows

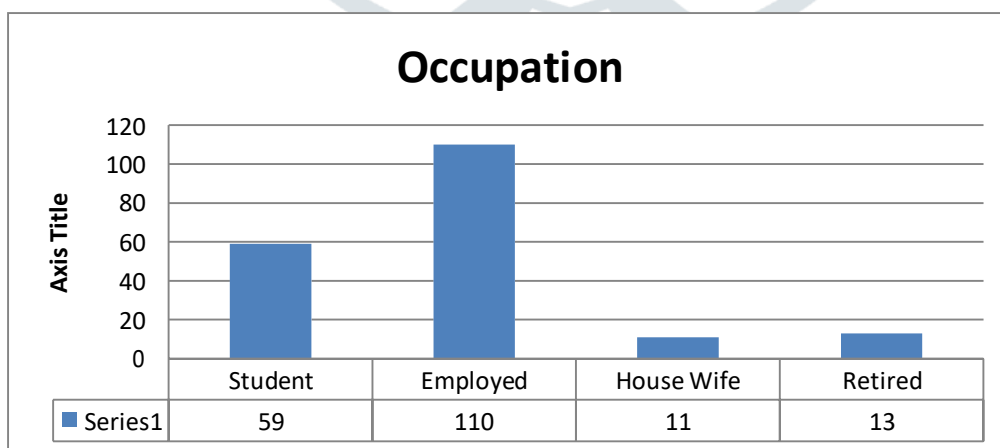
With reference to fig 1.1 and 1.2 our collected sample we see,

- Maximum(64%) respondents are male 36% respondents are female.
- Most(38%) of the respondent are from the age group 40& above where as 24%respondents were found in both age groups i.e from 21 to 30 & 31 to 40. Only 14% respondents were from the age group of 15-20
- Most of the respondents were from employed category, followed by 30 % students and 6-7% were retired and housewife category.



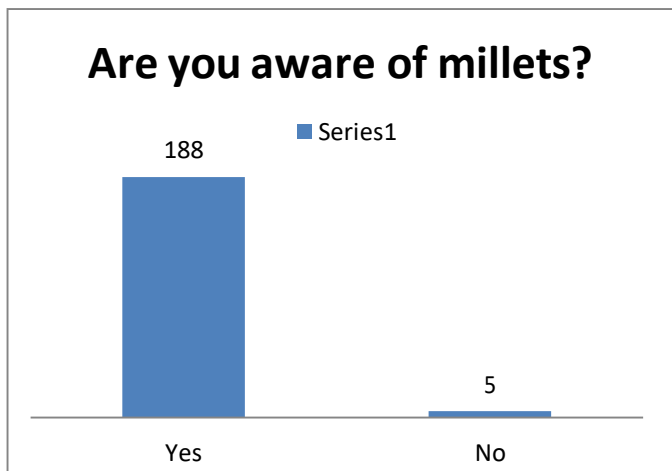
Graph 1.1

Graph 1.2

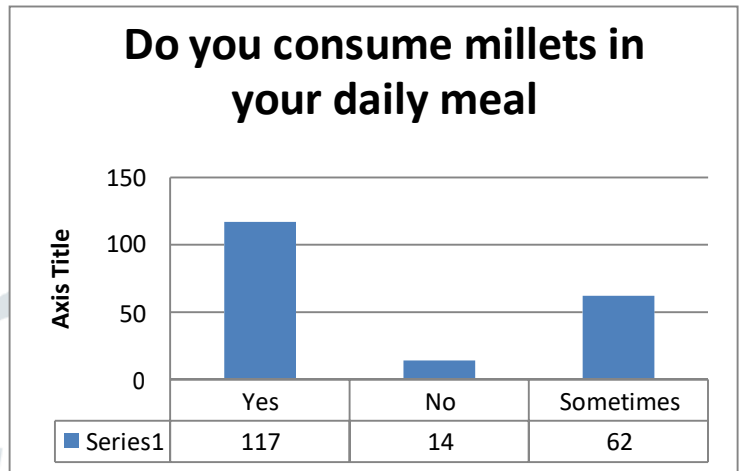


Graph 1.3

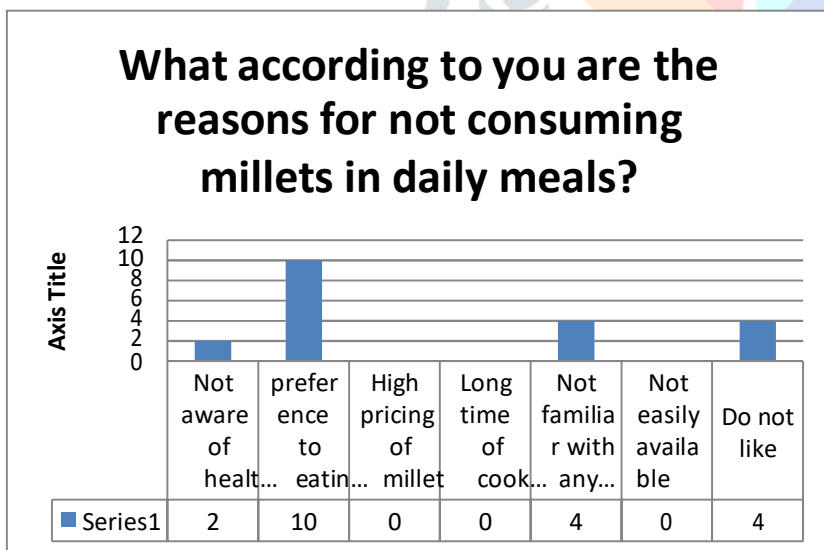
97% of the respondents were aware about the millets& only 3% of respondent were not aware of it. The consumption pattern in daily meal was also studied and it was observed that61% respondent consumed millet in daily meals, whereas 32% consumed it sometimes and 7% respondents do not consume it at all.



Graph 1.4



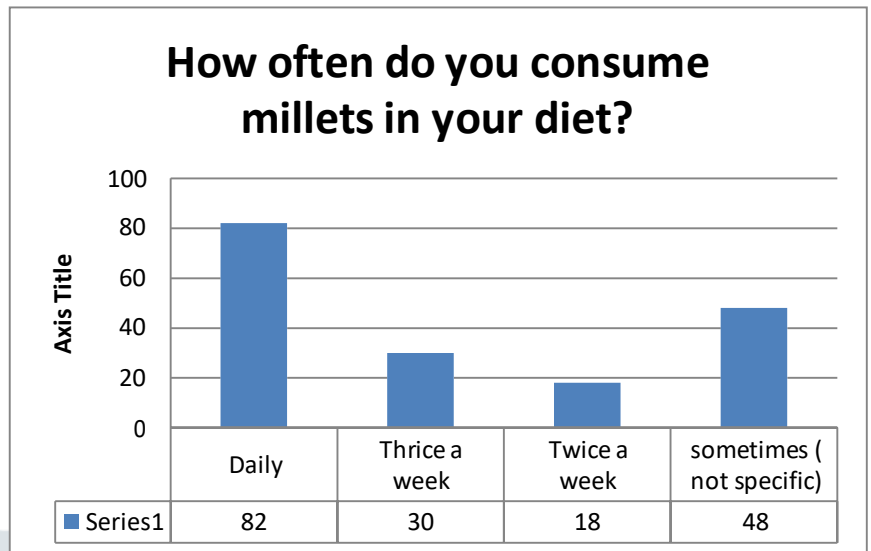
Graph 1.5



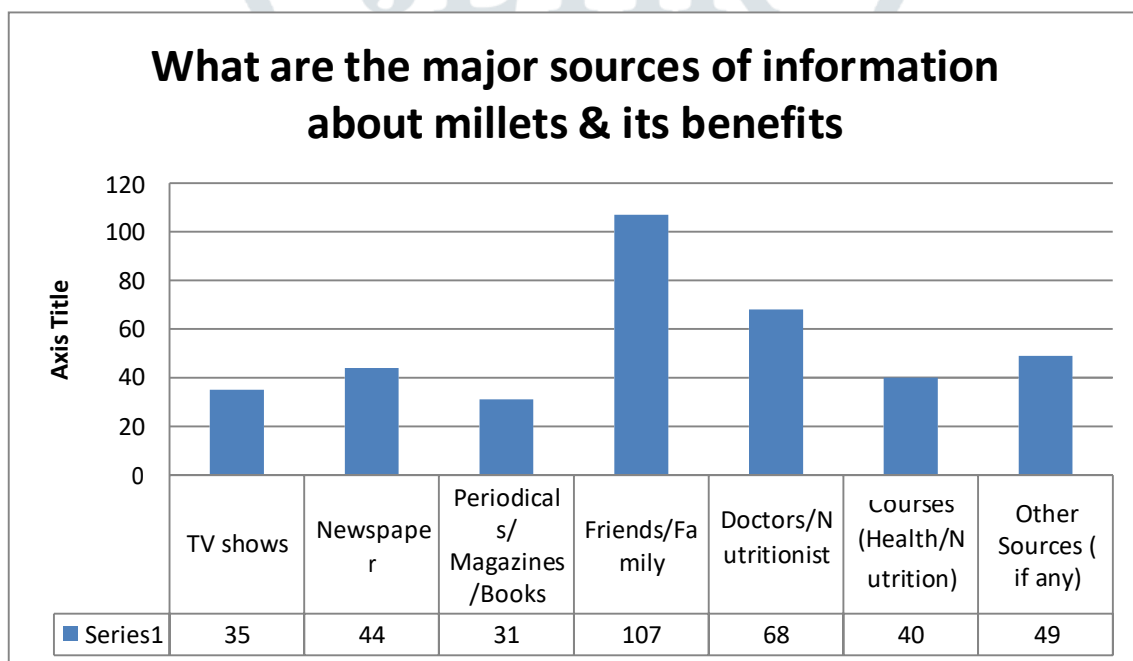
Graph 1.6

Respondents had various reasons of not consuming millets in daily diet.50 % respondents preferred eating traditional meal pattern of chapatti/dal/rice and vegetables in daily meal,20% respondents were not familiar to any particular millet recipe and not aware of any specific health benefits as such and 10% respondents found millet cooking takes long time to cook as compared to wheat and rice.

46% respondents consume millets daily, whereas 27% respondents consume sometimes and 10 to 17% respondents consume thrice and twice a week respectively.

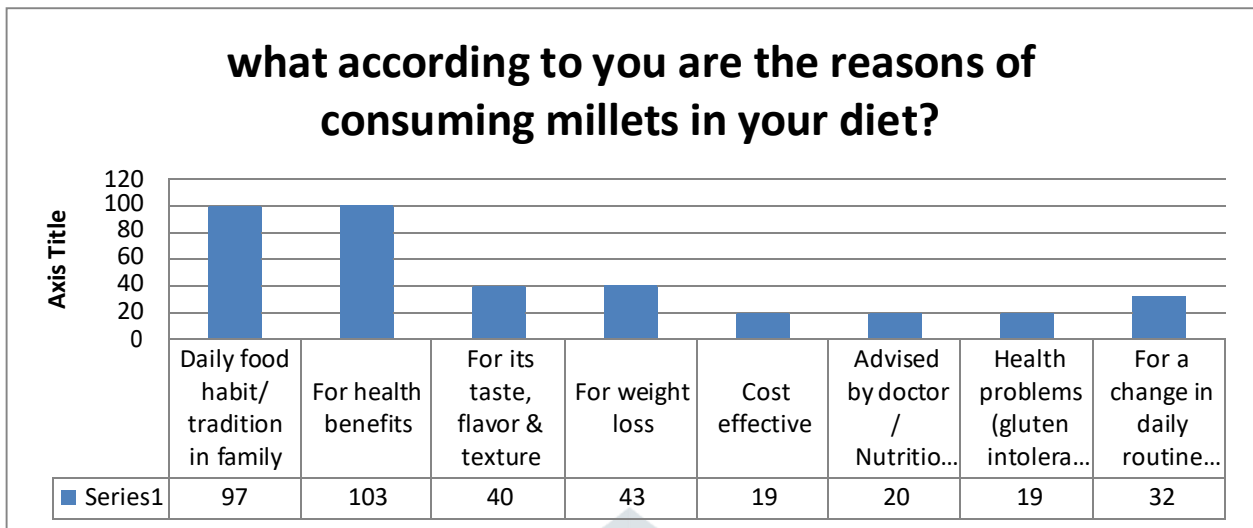


Graph 1.7



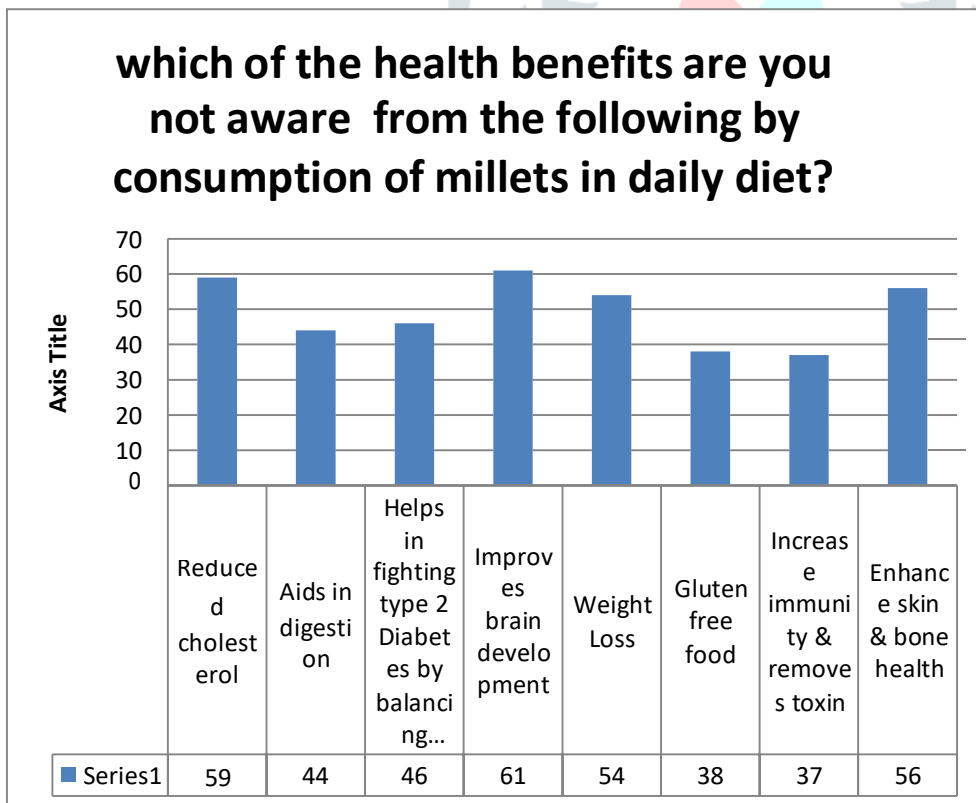
Graph 1.8

TV shows created the major awareness of about 29% about millets amongst people, around 11-13% awareness is created from Health and nutrition courses, newspaper and friends and about 18% awareness is created by doctors and Nutritionist.



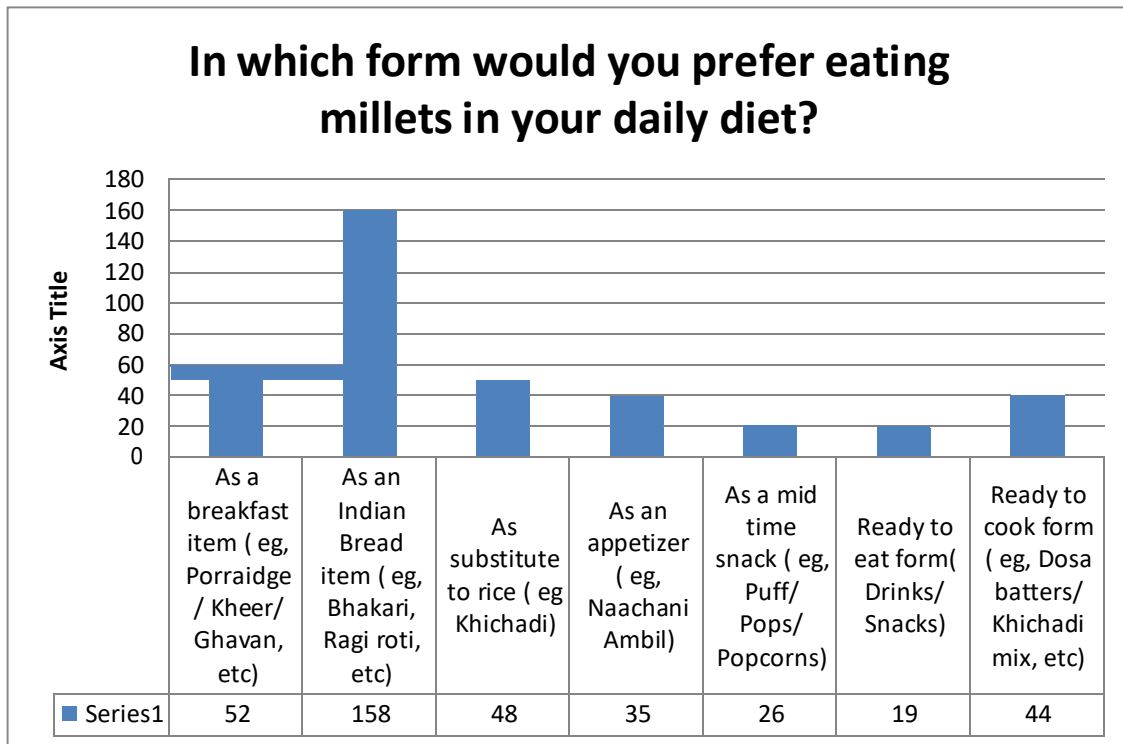
Graph 1.9

Majority of respondents (28%) consume millets as a part of daily food habit or tradition in family and for health benefits, around 11% respondents consume for its taste and flavor and for weight loss purpose and for a negligible 5% respondents consume it for reasons like doctors advise, cost effective, health problems and a change in daily routine.



Graph 1.10

Approx.15% respondents were not aware of the health benefits of consuming millets in diet like improves brain development, reduce cholesterol, weight loss and enhance skin and bone health. Around 9 to 12% respondents were not aware of the benefits like millets being gluten free food, aids in digestion, helps fighting type 2 diabetes and increase immunity and removes toxin.



Graph 1.11

41% respondents preferred eating millets in form of bread (Bhakari,ragi roti etc), 14 % respondents preferred it as substitute to rice and as a breakfast item in form of porridge, kheer,ghavan etc. Around 9-11 % preferred to have it as an appetizer like (NachanaiAmbil) or in ready to cook form (Dosa batter/Khichdi etc). A small 5-7 % respondents preferred to eat in ready to eat form(drinks and snacks) and as a mid-time snack(puffs/pops/popcorns).

VI. FINDINGS

- Maximum (64%) respondents are male 36% respondents are female.
- Most(38%) of the respondent are from the age group 40& above where as 24% respondents were found in both age groups i.e from 21 to 30 & 31 to 40. Only 14% respondents were from the age group of 15-20
- Most of the respondents were from employed category, followed by 30 % students and 6-7% were retired and housewife category.
- 97% of the respondents were aware about the millets& only 3% of respondent were not aware of it.
- 61% respondent consumed millet in daily meals, whereas 32% consumed it sometimes and 7% respondents do not consume it at all.
- 50 % respondents preferred eating traditional meal pattern of chapatti/dal/rice and vegetables in daily meal,20% respondents were not familiar to any particular millet recipe
- 46% respondents consume millets daily, whereas 27% respondents consume sometimes and 10 to 17% respondents consume thrice and twice a week respectively .

- TV shows created the major awareness of about 29% about millets amongst people, around 11-13 % awareness is created from Health and nutrition courses, newspaper and friends and about 18% awareness is created by doctors and Nutritionist.
- Majority of respondents(28%) consume millets as a part of daily food habit or tradition in family and for health benefits, around 11% respondents consume for its taste and flavor and for weight loss purpose and for a negligible 5% respondents consume it for reasons like doctors advise, cost effective, health problems and a change in daily routine.
- Approx.15% respondents were not aware of the health benefits of consuming millets in diet.
- 41% respondents preferred eating millets in form of bread (Bhakari,ragi roti etc), 14 % respondents preferred it as substitute to rice and as a breakfast item in form of porridge, kheer,ghavan etc. Around 9-11 % preferred to have it as an appetizer like (NachanaiAmbil) or in ready to cook form(Dosa batter/Khichdi etc).A small 5-7 % respondents preferred to eat in ready to eat form(drinks and snacks) and as a mid-time snack(puffs/pops/popcorns).

VII. CONCLUSION

It has been observed that 97% of the respondents are aware about the millets & only 3% of respondent were not aware of the millet concept. The consumption pattern in daily meal was also studied and it was observed that 61% respondent consumed millet in daily meals, whereas 32% and around 7% respondents did not consume it at all.

Millets are a healthy and versatile grain that can be incorporated into a variety of dishes. By following various tips and tricks, one can easily add millet to their diet and reap the many benefits it has to offer. Various ways can be practiced to increase awareness of the health benefits of millets amongst people like educating people about the health benefits of millets, providing recipes and meal plans that incorporate millets, making millets more accessible and affordable, promoting millets through social media and other marketing channels. By taking these steps, one can help to increase awareness of the health benefits of millets and encourage people to incorporate them into their diets.

At govt. and private level certain policies can be implemented to increase the awareness and consumption of millets in Maharashtra such as: Government agencies can provide more funding for research on millets, and for programs to promote the consumption of millets. Non-governmental organizations can work with farmers to promote the cultivation of millets. Private companies can develop new products made from millets, and make millets more widely available in supermarkets and other retail outlets.

With the combined efforts of government agencies, non-governmental organizations, and private companies, it is possible to increase awareness and consumption of millets in Maharashtra. This would help to improve the health of the population, and it would also help to support the agricultural sector in the state.

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