

Millets For Health: Awareness Assessment Among College Girls Of Patna Town, Bihar

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Abstract

Background: Millets, ancient crops of India are now getting importance due to immense nutritional contents and health benefits. Presently millets have been cultivated by more than 100 countries and fortunately India occupies first place in millets' production which covers 80 per cent of Asia's production. Declaration of 2018 as "National Year of millets" and further 2023 as "International year of millets" by United Nations popularized millets at national and global level. Goal behind this initiative is to raise awareness about millets and their products among producers and consumers, driving demand and adoption.

Results: Present study aims to explore awareness of college girls on millets and their health benefits. Investigation includes 200 college girls doing graduation and post graduation as study sample. Findings of the study explore that majority of the respondents heard the term millets and familiar about health benefits. But, their awareness is recorded low on different dimensions such as millets' role in managing weight, constipation, diabetes, hypertension, allergen and cholesterol level.

Furthermore major challenges observed in usage of millets include unwillingness to change prevailing eating pattern, dislike of taste, more efforts needed in preparation, not easily available and high cost. The study also discovers that majority of respondents get information about millets through institution followed by T.V./mobile/print media.

Conclusion: Thus it may be concluded from the findings that college students are familiar with millets and health benefits but lack awareness regarding role of millets in managing different health problems. Unwillingness to change prevailing eating habit has been perceived as the most important challenge on the way of less usage of millets at household level. The study suggests need to generate awareness among college girls which can be raised by organizing talks, departmental activities, workshops and seminars etc.

Key terms: Awareness, health benefits, usage, challenges, nutritional content. Millets for Health :Awareness Assessment Among College Girls of Patna Town, Bihar

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I. Introduction

The term "millet" has come from the word "mili or thousand" means large number of grains that can be produced from a single seed. Basically millets belong to a group of small - seeded grains or cereals known as grass family.

Millets are not new for India. They had been grown since very early years and people used to eat as staple food and used as fodders for cattle. But, after green revolution these ancient grains, slowly disappeared from Indian plates. Wheat and rice became main food grains while millets became occasional food grains. But, recently millets are getting attention due to their nutritional values and immense health benefits. Presently millets have been cultivated by more than 100 countries and fortunately India attains first place in millet production as it produces 80 per cent of Asia's production.

With announcement of 2018 as national year of millets by India, these crops came into lime light and started getting importance among almost all section of the population. The Central as well as state government are taking necessary measures to promote millets. Awareness programs and campaigns are being organized at institutional level so that people get familiar with good qualities of millets and adopt millets and millet products at household level. Millets have potential to fight against many life style diseases such as obesity, diabetes, hypertension, gastritis, cholesterol and many more. Millets are health-promoting nutritious crop: Compared to other cereals they have superior micronutrient profile and bioactive flavonoids and have a low Glycaemic Index (GI) and also associated with the prevention of diabetes. They are good source of minerals like iron, zinc, and calcium and millets are gluten-free and can be consumed by celiac disease patients. Millet has a beneficial effect on the management and prevention of hyperlipidemia and risk of CVD and found to be helpful with the

reduction of weight, BMI, and high blood pressure. However, in India, millet is generally consumed with legumes, which creates mutual supplementation of protein, increases the amino acid content, and enhances the overall digestibility of protein (OPEDA,2023).

Millets have incomparable benefits. They are nutritionally healthy and contain many micro nutrients, bioactive substance, phenolic compounds and antioxidants. They are rich in micronutrients such as iron, zinc, calcium and vitamins .Many millets like finger millet, pearl millet, barnyard millet are used in food fortification (Bhumika and Kalpana, 2010).

Durairaj et al. (2019) reported in their study that millets help in improving the height, weight and haemoglobin level of school children.

In addition to numerous health benefits these magical grains are resilient to climate change. They require minimum agricultural inputs in terms of water, fertilizers, pesticides ,advance agricultural implements. Furthermore, millets are generally considered environmental friendly due to their lower carbon footprint. As resilient and adoptable crops they offer an eco - friendly alternative in the quest for sustainable and climate resilient food production system.

The United Nations declared 2023 as the International Year of Millets. The theme of the 2023 International Year of Millets is “Healthy Millets ‘Healthy people’”. The aim was to raise awareness towards nutritional values and numerous health benefits of millets as majority of the population are ignorant and unaware about magical nutritional properties of millets.

School and college students may act as change agent in creating awareness and enhancing usage of millets at household level. Therefore, this study has been carried out to explore awareness of college girls on benefits of millets and identify different challenges in usage of millets at household level.

Need Of The Study

Millets have numerous health benefits but are not being utilized by the households at large scale. Lack of awareness has perceived as one of the important causal factor. Awareness generation among population is essential for promotion and publicity of millets .School and college students are very important target groups who further act as change agents for their family ,community or society . They can play vital role in generating awareness on millets and motivate others to increase usage of millets at household level. This study would also help in identifying important challenges behind less use of millets and millet products at household level.

Objectives Of The Study

1. To study the socio-demographic characteristics of the respondents under study.
2. To explore awareness of college girls on millets and their health benefits .
3. To recognize various challenges observed by the respondents in usage of millets.

Hypotheses

1. Respondents lack awareness on millets and their health benefits .
2. Respondents face some challenges in usage of millets at household level.

II. Review Of Literature

Kothapalli et al. (2024) reviewed millets as nutri-cereals and its health benefits: an overview in which their findings reported that although millets are highly nutritious, their consumption still needs to be improved in the general and poor population due to less awareness regarding their nutritional values and health benefits. Further, the study also reported that besides the usual rice and wheat, many underutilized millets are less consumed, with great potential to replace routine cereal crops. Millets are one of the significantly underutilized crops with a nutri-cereal potential.

Salhotra et al.(2023) in their study on Assessment of Awareness towards Millets Amongst the College going Girls - A Regional Survey reported that girl students possessed some knowledge about millets, but none of the students mentioned that millets could be source of calcium, iron, protein and carbohydrates in their body.

Further, findings of the study also discovered that students were unaware about advantages of millets and suggests to organise workshops to create awareness among the girl students.

Sangeetha et al.(2023) did their work on “Assessment of Millets consumption Among Young Females (18-23 Years) in Tirupati”.Findings of the research unfurled that the study subjects were conscious of benefits of millets intake and yet the subjects were not really consuming millets frequently.

Moreover, the study also emphasized on need of comprehensive education programs to improve millets consumption among the population.

Kumar et al. (2023) studied awareness and consumption of millet products among college students in YRS(Kadapa) District, Andhra Pradesh and discovered that majority of respondents(94.17 per cent) were aware of millet based products among which 87.5 per cent were aware of ragi malt.

The findings also reported that consumption of new millet products like vermicelli and breakfast batter was low. Further, it was also documented that health consciousness and traditional diets were the major factors influencing the consumption of millet based products.

APEDA(2023) in its study report discovers that millets are health-promoting nutritious crop: Compared to other cereals. They have superior micronutrient profile and bioactive flavonoids and have a low Glycaemic Index (GI) and also associated with the prevention of diabetes. Further, it also reveals that they are good sources of minerals like iron, zinc, and calcium and millets are gluten-free and can be consumed by celiac disease patients. It again exposes that millet has a beneficial effect on the management and prevention of hyperlipidemia and risk of CVD and found to be helpful with the reduction of weight, BMI, and high blood pressure. However, in India, millet is generally consumed with legumes, which creates mutual supplementation of protein, increases the amino acid content, and enhances the overall digestibility of protein.

Priya et al.(2023) did investigation on millets: sustainable treasure house of bioactive components which reveals that Millet cultivation would provide twofold benefits. As they would help in conserving resources by limiting the use of water, and the fertility of the soil and would help in ameliorating health benefits to society. These grains are a highly rich sources of carbohydrates, proteins, vitamins, fats, minerals, and antioxidants. These grains are abundant in polyphenols like coumaric acid, sinapic acid, catechins, and tocopherols which have many health benefits against many degenerative diseases. Further this study insists that addition of these grains to the daily diet will help in drawing stupendous health benefits. Furthermore, the unification of millet-based food items in international, national and state-level feeding programs will genuinely help to bridle the subsisting nutrient deficiencies in developing nations.

Gairola et al.(2022) studied effect of nutrition education on knowledge, attitude and practice (KAP) of the tribal and urban respondents on millet consumption ,Telangana State Agriculture University (PJTSAU), Telangana .The study report documents that all the respondents' KAP toward the millets increased after the intervention, which indicates increased awareness and knowledge. Therefore, awareness programs on millet's health benefits should be implemented to prevent metabolic disorders and improve nutritional status. Government initiatives should continue to distribute millets through the PDS and other health-related programs.

Rizwana et al.(2021) Assessed awareness of nutritional benefits of millets amongst women in Bangalore and the study documented that the vast majority of respondents used to consume millet for preserving overall health. Family immunity was the most important factor with 4.11 mean scores and low standard deviation of 0.985. The results further revealed that 80.6 per cent of women in the study were aware of millets but only 62.7 per cent of women were consuming millets. The study also revealed that demographic factors such as age, qualification and income had a direct influence on millet consumption.

Karuppaswamy (2015) in their study "Overview on millets (Nutri -cereals)" mentions that millets are highly nutritious ,non glutanious and non forming foods which make millets soothing and easily digestible. The findings of the study emphasize on need to educate people about the health benefits of millets to increase the consumption of millets and millet based products to save people from health and malnutrition related issues.

III. Research Methodology

Present study has followed an descriptive research design .Female students doing graduation or post graduation had been selected as sample study .Magadh Mahila College and Patna Women's College of Patna town were purposively selected for study .100 female students from each college had been selected through purposive convenient technique. Data have been collected through a self structured questionnaire .Questionnaire had three sections .First section consisted of questions based on socio- demographic characteristics and second part dealt with questions on cognizance and awareness on benefits of millets while third section comprised of questions related to challenges in usage of millets at household level. Respondents had been briefed prior to data collection regarding purpose of the study and those who were willingly ready to participate had been included as study sample. Collected data were entered into excel sheet and was tabulated for analysis and drawing relevant and accurate inferences. Age ,caste ,education of respondents ,education of mothers ,their occupation average annual income of the family , awareness and challenges in usage of millets had been chosen as variables .

Descriptive statistical tests have been used to draw inferences .Percentage, frequency ,Rank, Bar diagram and Pie chart have been used as statistical tools to draw the relevant inferences.

IV. Results And Discussion

Table- 1: Socio- demographic characteristics of the respondents

N=200

Age Groups(Years)	Frequency	Percentage
18	29	14.55
19	62	30.91
20 and above	109	54.54
Caste		
General	76	38.18
BC	105	52.73
SC	19	9.09
Education level of the respondents		
B.A.	120	60.00
M.A.	80	40.00
Education level of mothers		
No formal education	4	1.82
Primary level	22	10.91
Matriculate	76	38.18
Intermediate	58	29.09
Graduate or above	40	20.00
Occupation of mothers		
Home maker	171	85.45
Government job	22	10.91
Private job	7	3.64
Monthly income of the family		
Up to 30000	40	20.00
30000-50000	98	49.09
50000-100000	58	29.09
≥100000	4	1.82

Perusal of table 1 shows socio-demographic profile of the respondents which depicts that 54.54 per cent, 30.91 per cent and 14.55 per cent respondents were 20 years or above, 19 years and 18 years old respectively. Thus, majority of respondents are either 20 years old or above.

Furthermore, data pertaining to caste structure shows that 52.73 per cent respondents belong to backward caste followed by 38.18 per cent and 9.09 per cent who are from forward and scheduled caste respectively.

Again education level of respondents under study reveals that 60.00 per cent are doing graduation and rest 40.00 per cent are the students of post graduation.

Data related to education of respondents' mothers reveals that 38.18 per cent mothers have completed matriculation, 29.09 per cent are intermediate pass and 10.91 per cent respondents' mothers have primary level education. However mothers with graduation or above constitute 20.0 per cent and mothers with no formal education constitute only 1.82 per cent.

Thus, it may be inferred from the data that only one fifth mothers are either graduate or above.

Data showing employment of respondent's mother unfurls that 85.45 per cent mothers are housewives followed by 10.91 per cent and 3.64 per cent who are in government and private jobs respectively. Thus, it may be concluded that majority of respondent's mothers are housewives.

Data pertaining to monthly income of the family shows that 49.09 per cent families have monthly income lie between Rs 30000-50000 followed by 29.09 per cent and 20.00 per cent whose monthly income lie between Rs 50000-100000 and up to Rs 30000 respectively.

However only 1.82 per cent families have monthly income more than Rs 100000.

Thus, data shown in above table reflects that monthly income of nearly 50.0 per cent families lie between Rs 30000 to Rs 50000.

Table -2: Awareness of respondents on millets and their health benefits

N=200

S.no	Particulars	No idea F (%)	Somewhat familiar F (%)	Quite familiar F (%)	Very familiar F (%)
1	Have you heard the term millets	36(18.00)	17 (8.5)	85(42.5)	62(31.5)
2	Do you know millets have many health benefits	54(27.5)	49(24.5)	55(27.5)	42(21.5)
3	Do you know millets are beneficial for weight control	149(74.5)	34(17.0)	07(3.5)	10(5.0)

4	Do you know millets are good for diabetic patient	105(52.5)	42(21.0)	21(10.5)	32(16.0)
5	Do you know millets are helpful in constipation	113(56.5)	45(22.5)	27(13.5)	15(7.5)
6	Do you know millets reduce hypertension	140(70.0)	28(14.0)	17(8.5)	15(7.5)
7	Are you aware of anti allergen property of millets	150(75.0)	19(9.5)	11(5.5)	20(10.0)
8	Do you know millets help in regulating cholesterol level	135(67.5)	27(13.5)	21(10.5)	17(8.5)
9	Are you aware of high amount of iron & calcium possessed by finger millets	123(61.5)	22(11.0)	28(14.0)	27(13.5)
10	Are you familiar with various millet products available in the market	121(60.5)	35(17.5)	25 12.5)	19(9.5)

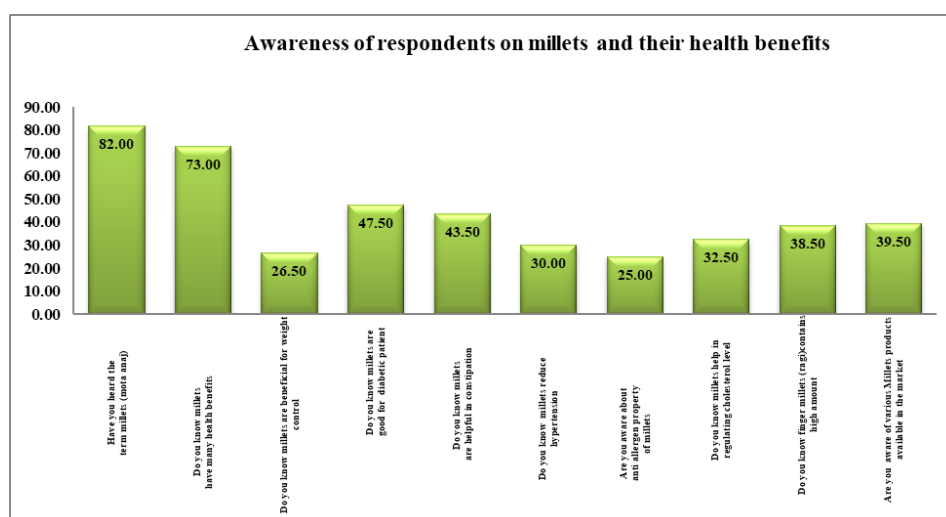


Figure-2.1

Perusal of table 2 depicts that out of 200 respondents ,82.00 per cent study sample heard about millets while rest 18.00 per cent didn't hear the term millets . Out of 82.0 per cent ,31.0 per cent are very familiar while 42.5 per cent are quite familiar with the term millets. Further 8.5 per cent respondents are somewhat familiar with millets.

Furthermore, 39.50 per cent respondents are familiar with millet products available in the market but only 9.50 per cent are very familiar and 17.50 per cent are somewhat familiar. However 12.5 per cent respondents answer that they are quite familiar with availability of millet products in the market .

Furthermore, responses about health benefits of millets, 73.00 per cent respondents show awareness towards health benefits of millets but remaining 27.00 per cent respondents are unaware. .

Out of 73.0 per cent respondents , 21.00 per cent are very familiar and 27.50 per cent are quite familiar with health benefits of millets while 24.5 per cent accept that they are some what familiar with health benefits of millets .

Again 73.50 per cent respondents are not aware of millet's importance in weight control while 26.50 per cent respondents report that millets can be helpful in weight control . However only 5.00 per cent respondents are very familiar with beneficial role of millets in weight management.

Again 47.50 per cent respondents answer that millets are good for diabetics and out of which 21.50 per cent are somewhat familiar and 10.50 per cent are quite familiar with millets benefits in diabetes. However 16.00 per cent answer that they are very familiar with the fact that millets are good for diabetes. It may be inferred from above data that majority of respondents (52.50 per cent) still unaware about millets' benefits in diabetes.

Respondents aware of benefit of millets in constipation constitute 43.50 per cent of sample size and out of which 7.50 per cent are very familiar while 13.50 per cent and 22.50 per cent are quite familiar and some what familiar respectively. However 56.50 per cent respondents are unaware of millets' beneficial property in constipation.

Data pertaining to hypertension shows that only 30.00 per cent respondents are aware of millets' role in hypertension and 70.00 per cent are not aware of the fact.

Out of total respondents who are aware, only 7.50 per cent respondents are very familiar while 8.50 per cent are quite familiar and 14.00 per cent are some what familiar with the fact that millets may play an important role in reducing hypertension.

Out of 200 respondents only 25.00 per cent are aware of anti allergen properties of millets while 75.00 percent don't know .Further ,only 10.00 per cent respondents are very familiar while 9.50 per cent are some what familiar with anti allergen property of millets.

Data shown regarding regulation of cholesterol depict that only 32.5 per cent respondents know that use of millets help in regulating cholesterol level however only 8.50 per cent respondents are very familiar with the fact .

Data pertaining to iron and calcium content of millets reveals that 38.00 per cent respondents are familiar with good content of iron and calcium and 61.50 per cent don't have any awareness . However respondents who are very familiar of this fact constitute only 13.50 per cent .

Thus it may be concluded that majority of respondents heard about millets and aware about health benefits of millets but less awareness is observed regarding specific health problems such as importance of millets in managing weight ,diabetes ,constipation , hypertension ,allergenic reaction and cholesterol level.

Table -3: Sources of awareness towards millets

Sources	Frequency	percentage
Institution	88	53.66
Families	32	19.51
Friends	8	4.88
T.V./mobile/print media	36	21.95
Total	164	100.00

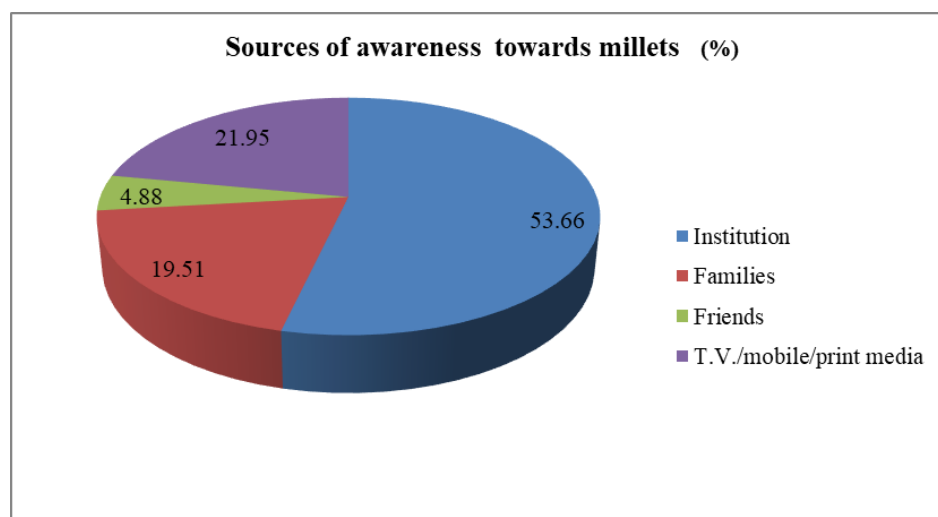


Figure-2

Figure-3.1

From Table- 3 it is obvious that 82.00 per cent respondents who are aware of millets, 53.66 per cent respondent's source of information is institution followed by 21.95 per cent and 19.51 per cent whose sources of information reported are T.V. / mobile /print media and families respectively . However, 4.88 per cent respondents report that their source of information about millets is friends. Thus, more than 50 per cent respondents admit that their source of information about millets is Institution .However nearly one-fifths respondents accept that they get familiar with millets through TV/mobile/print media.

Table- 4: Challenges observed by the respondents in usage of millets and millet products at household level
N=164

Challenges in usage of millets at household level	Frequency	Percentage	Rank
Do not want to change the current eating habit	52	31.67	First
Does not like taste	38	23.33	Second
Preparation needs extra efforts	33	20.00	Third

Not easily available	27	16.67	Fourth
High Cost	14	8.33	Fifth

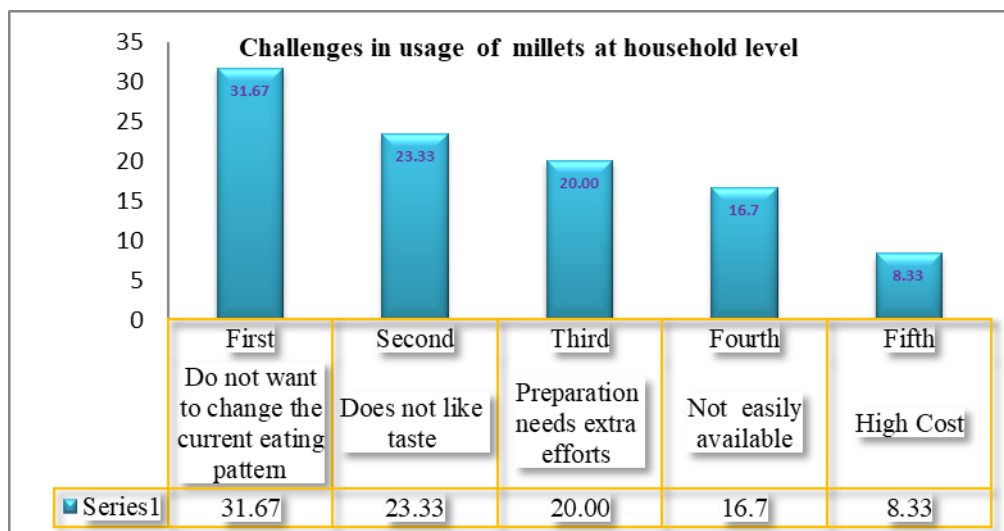


Figure -4.1

Perusal of table-4 shows that 31.67 per cent respondents admit that they don't want to change current eating behaviour and it is recorded as first important challenge while dislike of taste has been reported by 23.33 per cent respondents as second challenge. However 20.00 per cent respondents says preparation of dishes from millets need extra effort which is identifies as third important challenge and 16.67 per cent respondents says millets are not easily available and comes as fourth challenge. Rest 8.33 per cent respondents admit high cost of millets is observed as the fifth challenge.

Thus, unwillingness to change current eating behaviour is perceived as a challenge at first place. Dislike of taste, preparation needs extra efforts and millets are not easily available occupies second, third and fourth place among challenges.

V. Summary And Conclusions

The present study explores awareness of college girls on millets and its health benefits. The study also identifies different challenges felt by the respondents in usage of millets at household level. Majority of respondents are either 20 years old or more studying at graduation or post graduation level. As per social structure more than 50 per cent respondents belong to backward caste. Socio-demographic details reveal that majority of respondents' mothers have intermediate level education and only 20 per cent mothers are graduate or above. Data showing employment of respondent's mother unfurls that 85.45 per cent mothers are housewives.

Data pertaining to monthly income of the family shows that nearly 50.0 per cent families have monthly income of Rs 30000 to Rs 50000.

Again, findings of the study unfurl that more than 80.0 per cent respondents have heard the term millets and nearly three-fourths respondents are aware of health benefit of millets but less awareness has been observed regarding importance of millets in managing weight, diabetes, constipation, hypertension, allergenic reaction and cholesterol level. Furthermore, 39.50 per cent respondents are aware about availability of millet products in the market and 60.50 per cent respondents lack awareness. Majority of respondents (50.00 per cent) get familiar with millets through institution and their next important source of information is T.V/mobile/print media. However 19.51 per cent respondents get informed through their families.

Data pertaining to challenges observed by the respondents reveals that 31.67 per cent respondents admit that they don't want to change current eating behaviour and it is recorded as first important challenge while dislike of taste has been reported by 23.33 per cent respondents as second challenge. However 20.00 per cent respondents says preparation of dishes from millets need extra effort which is identifies as third important challenge and 16.67 per cent respondents says millets are not easily available and comes as fourth challenge. Rest 8.33 per cent respondents admit high cost of millets is observed as the fifth challenge.

The study suggests that there is a need to generate awareness at school and college level and it can be done through organizing talks, department and college level activities, workshops and seminars. This will certainly motivate students and their families to increase usage of millets at household level.

Implications Of The Study

Present study focuses mainly on exploring awareness of college girls on millets and it's health benefits . The study also tries to recognize different challenges observed by the respondents in usage of millets at household level. Efforts are being made at government level to popularize millets and increases production and consumption as well but it is equally important to know the actual usage of millets by the population . Present study would help in knowing the cognizance and awareness of the students on millets and their health benefits .It would also help in understanding the major challenges in usage of millets at household level. This kind of survey will again throw light in finding resolutions to encourage usage of millets and millet products among common population.

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