



## Rural Women Empowerment through Nutritional and Health Education on Consumption of Millets and its Processed Products

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### ABSTRACT

Millets are agrarian resilient, sustainable, healthy and nutritious small cereal crop that opens up new avenues in the production of value-added nutritional products and thereby have great potential for income generation. Towards this objective, value added nutritious flakes, a lifestyle matching contemporary supplemental food was developed and produced and their capacity was enhanced through rural women in the outskirts of the Coimbatore city. Intervention of them with nutritional and health education on consumption of millets and its processed products was done to empower them to improve nutrition for the benefit of overall well-being of the family. It was observed that there was a significant improvement in the nutritional knowledge due to intervention on rural women of selected villages of Coimbatore district.

**Key words:** Millet, Flakes, Women, Empowerment, Health education

Malnutrition existence among women and children is a huge nutritional challenge despite nutritional interventions both at the national and global level. The prime reason is limited nutrients intake through consumption of major staple food crops. On the contrary, millets being nutrient-rich crops with ensured food and nutritional security are underutilized in food basket due to less availability of processing technologies and more availability of staple food crops. However, by no means, millets are minor in terms of nutritional and income generation opportunity asserts Upadhyaya and Vetriventhan (2018). They act as the treasures for future India with great potential for food security, nutrition, dietary and culinary diversification, health and income generation (Monika *et al.* 2014). Women play a decisive and crucial role in food security, health and nutrition and hence they must be empowered to improve nutrition and build a sisterhood of success and ultimately to scale up the nutrition in practice (Lasbennes 2016). Hence, the current study was focused on imparting nutritional and health education to semi urban-rural women residents of Coimbatore district, thereby

enabling them to be nutritionally empowered which in turn will ensure the overall wellbeing of the family and on a larger perspective the community. Evidence of rural women empowerment through value addition of finger millet brought a positive impact on livelihood security (Vijayalakshmi *et al.* 2012).

### MATERIALS AND METHODS

A well-designed interview schedule was used to collect the demographics and socio-economic status of the rural women residing in and around selected villages (n = 20) of Coimbatore district. A quasi survey design with nutritional and health education intervention was carried out. During this survey, their knowledge about millets was assessed with its current usage pattern in their day to-day life, health benefits on consumption were also collected from respondents before and after intervention. The randomly selected sample population comprised of 107 respondents. Two senior research fellows undertook the field trips under the leadership of the Investigator with coordination and

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rapport of the village coordinator. This was conducted during March 2019- June 2019 as part of empowering drive of semi-rural women home makers through intervention with nutrition and health education of millet and its products. As part of empowerment, these population were intervened with various modes of training methods to impart nutritional knowledge on both macro and micronutrients availability in millets along with their health benefits in addition to lectures, demonstrations and field visits on the production and popularization of millet flakes and its value addition.

The data was analyzed with SPSS ver 20. For categorical study variables, a simple percentage calculation was done and for continuous variables mean and standard deviation was calculated for the analysis and interpretation. For paired nominal data of pre post intervention McNemar's test was used.

## RESULTS AND DISCUSSION

### *Socio-demographic pattern of the village women respondents in the skill training program*

The socio-demographic details of the rural women participants are represented in (Table 1).

Demographics (n=107)	N (%)
Age Mean (SD)	38.61 ± 8.96
Education	
Graduates	15 (14)
Diploma Holders	11 (10)
High school	27 (25)
Secondary	15 (14)
Primary	21 (20)
Illiterates	18 (17)
Income	
< 6, 323	15 (14)
= 18,000	38 (35)
> 19,000	54 (51)
Occupation of the Family Head	
Skilled workers	30 (28)
Start-up business	36 (24)
Farmers/ Agriculture	8 (8)
Craftsman	11 (10)
Other official jobs	22 (21)
Religion	
Hindu	96 (90)
others	11 (10)
Marital status	
Unmarried	3 (2)
Married	97 (91)
Type of Family	
Nuclear	42 (39)
Joint	65 (61)

The data revealed that participants belonged to the middle-aged adult group of 36-55. Among them 17 per cent were illiterates, about 59 per cent have completed their schoolings and about 11 percent have completed their diploma degrees and 15 percent completed their graduations

(Roopa 2012). Less number of illiterates among the respondents gave us a positive scope of intervening them to make them skilled and empowered for their better future.

Only 15 percent of the study respondents had a low monthly income of about ₹ 6,000 whereas 38 percent of them had a decent living with a monthly about 18,000. Ninety seven percent of the study rural women were married and among them 61% were from joint family and among them 27% were from families with 6-7 members. Occupational study of respondent's family revealed that 28% were skilled; 21% were craftsman; 8% agriculture related, 21% clerical and office related jobs and others 22%.

### *Nutritional knowledge on millet consumption*

Data depicted in (Table 2) represents the millet consumption pattern before and after intervention with nutritional awareness whereby their nutritive value, their important amino acid and micronutrient contents along with their increased dietary fiber were outlined to the study respondents. This nutritional intervention had significantly increased the consumption pattern of all the millets among the village respondents (Shanthakumar *et al.* 2010).

The highest consumption was noticed for finger millet followed by foxtail and pearl millet consumption and the least consumption was found to be kodo millet after intervention. Also, their level of awareness also increased their knowledge on health benefits to 95 per cent from 35 per cent among the respondents. Also, among the millet recipes consumed, the contemporary lifestyle matched flakes consumption had increased among the village respondents. They were also very eager in enquiring the market availability of the same. Also, the likeliness towards other conventional millet recipes increased indicating their enhanced knowledge with intervention in preparing delicious flavour and healthy millet recipes. Hence, this study augments the reports by Padulosi *et al.* (2015) that claims minor millet as a key element for sustainable livelihoods through rise in income levels, empowerment and nutrition.

These rural women groups were empowered about nutritional value of millets and the hike in economic benefits on processing it into flakes form. Different modes of food process technology training were employed to impart knowledge about the machinery and process involved in foxtail millet flakes production, value addition methodologies and marketing strategies. Among which the most preferential method included video clippings (98%), followed by demonstration (96%) and lectures (65%). The product was popularized by giving a free and freshly packed 250g of roasted foxtail millet flakes to each of the rural women respondents. They were also demonstrated using laptops about the different type of recipe formulation with the same in 20 minutes.

Thus, the rural women were empowered about the nutritional knowledge of the millets and their health benefits through educational intervention using various modes of technological developments. In addition, their increase in self-confidence to become an entrepreneur was enhanced by providing knowledge about the process and the machineries

involved in the production of flakes from millet source especially using foxtail millet grains. By providing a free packets of foxtail millet flakes an interest among them was

induced to make them a future marketing agent. Thus, various modes of empowerment were built among rural women to develop a self-sustaining society.

Table 2 Effect of training intervention on nutritional knowledge and health benefit assessment and consumption pattern of millets

Study variables	Baseline N (%)	Post intervention N (%)	p Value*
Millet Consumption			
Finger millet	54 (51)	96 (90)	<0.001**
Pearl millet	43 (40)	66 (62)	<0.001**
Barnyard millet	32 (30)	54 (50)	<0.001**
Foxtail millet	27 (25)	70 (65)	<0.001**
Little millet	21 (20)	37 (35)	<0.05*
Kodo millet	10 (9)	20 (19)	<0.012*
Sorghum	48 (45)	54 (50)	<0.05*
Awareness level of Health benefits on millet consumption	37 (35)	102 (95)	<0.001**
Millet recipes consumed			
Chappathi	45 (42)	54 (50)	NS
Dosai	81 (76)	86 (80)	NS
Sweet Snacks	20 (19)	21 (20)	NS
Porridge	39 (36)	58 (54)	<0.001**
Uppma	37 (35)	43 (40)	< 0.05*
Payasam	27 (25)	29 (27)	NS
Halwa	10 (9)	9 (8)	NS
Nutrient health mix	38 (35)	43 (40)	NS
Pongal	40 (37)	56 (52)	<0.001**
Millet rice	13 (12)	54 (50)	<0.0001**
Snacks	16 (15)	21 (20)	NS
Flakes	1(1)	105 (98)	<0.001**

McNemar's test significant at  $p \leq 0.001$  \*\*or  $p \leq 0.05$ \*; NS – Non-significant

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