

# Nutrition Education Based Millets Consumption Analysis of Children in India

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Received: 10-04-2024

Revised: 29-04-2024

Accepted: 23-05-2024

## ABSTRACT

Hidden hunger and MNDs are predominant epidemic among children, particularly in developing nations like India. A sample of 400 parents & respective preschool children (3 - 6 years) were investigated. Knowledge assessment of parents shows, during pre-test, 23.3% parents had good knowledge, 63.2% had average knowledge and 13.5% had poor knowledge, which improved after intervention, and during post-test, 68% parents had good knowledge, 22.3% had average knowledge and 9.8% had poor knowledge. Results of millets consumption of children shows that, during pre-intervention, consumption of millets was 8.8% on daily basis, 9.3% on alternately basis, 7.5% on weekly basis, 6.3% on monthly basis, 6.8% on occasionally basis and 61.5% never use to consume millets. After administration of educational intervention on parents for 6 months, the consumption of millets improved and during post-test the millets consumption was 14.5% on daily basis, 24% on alternately basis, 22.8% on weekly basis, 15.3% on monthly basis, 5.3% on occasionally basis and 18.3% continued to never consume millets.

**Keywords:** nutrition education, parents, millets consumption, preschool children

**Abbreviations:** NFHS – National Family Health Survey, GNR – Global Nutrition Report, U5 – Under 5 years, UP – Uttar Pradesh, MNDs – Micro Nutrient Deficiencies, NDDs – Nutritional Deficiency Diseases, CNNSC – Comprehensive National Nutrition Survey of Children, TBM – Triple Burden of Malnutrition, U/W – Under-weight, O/W – Over-weight, MM – Mild Malnutrition, MoM – Moderate Malnutrition, SM – Severe Malnutrition, S - Significant

## I. INTRODUCTION

In Bharat, today's India, consumption of millets was well written along with its health impacts in ancient texts like Yajur Veda, etc. which had also been the indicative of millet consumption from the times of early civilizations and periods like Bronze Age. Through ages Bharat had been the key producers of millets and millet products.<sup>1</sup> Millets have numerous nutritional benefits, but specifically for growing children they are greatly beneficial as they maintain blood glucose levels (low glycemic index), supply dietary fiber and probiotics fiber, reduces inflammation and improves immune response & immunity by reducing triglycerides and C-reactive proteins, improves gut health and digestion, are alkaline in nature, and are very high in iron, magnesium, potassium, calcium, manganese, phosphorus, tryptophan, B-vitamin complex and various antioxidants.<sup>7</sup>

With growth in economies of developing countries the hidden hunger prevalence also took a steep rise, and the condition in India, as world's most populous nation, became even more worse.<sup>3</sup> Comestible impasse has also been shot by the TBM and various other NDDs among descendants of all ages.<sup>5</sup> GNR 2021 report revealed that, 105 nations are exchanging blows for malnutrition and MNDs across globe.<sup>6</sup> As per CNNSC report, in Indian kids (0 – 19 yrs.), 19%, preschoolers and 32% adolescents are struggling with zinc deficiency, while 23% preschoolers and 37% adolescents are tussling for folate nutritional deprivations in their bodies. Vit. B12, A, and D deprivations varies between 14 – 31% and both age groups.<sup>2</sup> The reports of NFHS-5 reveals that 32.1% U-5 children are U/W and among them 28.2% are in urban and 33.1% are in rural. Besides this, 3.1% children are O/W in which prevalence in urban (3.6%) is more than rural (2.9%). The anemic status is at shocking levels of 66.4% in U5 children (65.3% in urban and 66.7% in rural) in UP.<sup>8</sup>

Studies conducted on children have reported that children due to being primarily dependent on parents they greatly follow parental habits and behaviors, and also imitate and practice the food and nutritional behaviors adopted by parents & family; therefore parental participation plays a decisive role in nutritional status of these children.<sup>4</sup> Hence, the present study was conducted to investigate the impact of nutrition education of parents on millet consumption among preschool aged children.

## II. OBJECTIVE OF STUDY

1. To assess the pre & post intervention knowledge of preschooler's parents
2. To assess the millets consumption among children before & after intervention administration on parents.

**Study Design:** School-based pre-experimental one group pre and post test design was adopted.

**Study Area and Population:** The investigations for the study were done in schools of Meerut city of western UP (India). Parents and their respective preschool aged children of 3 – 6 years of age were investigated.

**Sample Size & Technique:** Purposive random sampling was used to select the sample of 400 parents and their respective 400 preschool children.

## III. INCLUSION CRITERIA

1. Preschool children of 3 - 6 yrs. age of upper, middle & lower income groups of every religion.
2. Preschool children (3 - 6 years) who were studying in the selected schools during the study period and whose parents signed the informed consent form for the participation & successful completion of the study.
3. Parents who signed the consent to participate till successful completion of the study.

## IV. EXCLUSION CRITERIA

1. Parents who were not knowing Hindi and English or either languages
2. Individuals who were single parents and their respective children
3. Preschool children with severe disease condition or long term medication.
4. Children whose parents did not signed the consent form to participate in the study

## V. DATA COLLECTION PROCEDURE & METHODS

The study was conducted in the area of Meerut city of western UP. 10 schools were randomly selected from the study area. All the parents and their respective preschool aged children of 3 – 6 years of age were purposefully randomly selected based on inclusion & exclusion criteria of the study. All the concerned school authorities & parents whose children were investigated were briefed out for about the study objectives and purpose.

A structured and validated nutrition education intervention was demonstrated and administered on parents for the period of 6 months. All the selected parents and their children were assessed before and after intervention administration. Pre-structured and validated food frequency questionnaire was used to assess the dietary intake of children. All the parents and children were assessed before and after intervention administration.

## VI. DATA ANALYSIS

The tabulation of data was done in MS-Excel 2007 version. The statistical analysis of the data was done using the MS-Excel 2007 version and IBM SPSS Advanced Statistics 29.0 (5725-A54) Version.

## VII. RESULTS & DISCUSSION

In the present study, the impact of nutrition education of parents on millets consumption among preschool children was assessed.

**Table 1:** Distribution of socio-demographic profile of parents & children

Variables	F (N=400)	%
<b>Residential Area</b>		
Urban	351	87.75
Rural	49	12.25
<b>Type of Family</b>		
Nuclear	239	59.8
Joint	161	40.3
<b>Socio-Economic Status</b>		
Upper Income Group	61	15.3
Middle Income Group	239	59.8
Lower Income Group	100	25
<b>Food Habit</b>		
Vegetarian	196	49
Non-Vegetarian	106	26.5
Eggetarian	98	24.5
<b>Age Group of Children</b>		
3 – 4 years	179	44
4.1 – 5 years	92	23
5.1 – 6 years	132	33
<b>Gender of Children</b>		
Male	174	43.5
Female	226	56.5

Table no. 1 presents the distribution of socio-demographic profile of parents & children. The above table shows that, 87.75% respondents were urban residents and 12.25% were rural residents. Regarding type of family, 59.8% were living in nuclear family and 40.3% were living in joint family. Regarding socio-economic status, 15.3% were from upper income group, 59.8% were from middle income group and 25% were from lower income group. Regarding food habits, 49% children were vegetarian, 26.5% were non-vegetarian and 24.5% were eggetarian. Regarding age of children, 44% were of 3 – 4 years, 23% were of 4.1 – 5 years and 33% were of 5.1 – 6 years. And regarding gender of children, 43.55 were males and 56.5% were females.

**Table 2:** Distribution of knowledge levels of parents (pre & post)

Knowledge Levels	Pre Intervention (N = 400)		Post Intervention (N = 400)	
	F	%	F	%
Good	93	23.3	272	68
Average	253	63.2	89	22.3
Poor	54	13.5	39	9.8

Table no. 2 presents the distribution of knowledge levels of parents (pre & post). The above table shows that during pre-intervention, 23.3% parents had good knowledge, 63.2% had average knowledge and 13.5% had poor knowledge, which improved after intervention and during post-intervention, 68% parents had good knowledge, 22.3% had average knowledge and 9.8% had poor knowledge.

George, Ms. Dhanya. (2023) had also conducted her study at Sarbhon PHC, Bardoli; on 430 mothers of U5 suffering from mild, moderate & severe malnutrition using structured questionnaire & anthropometry. In MM cases (N=338) pre-test mean was  $8.61 \pm 3.21$  & in post-test it was  $27.87 \pm 2.44$ , with  $t = 1.967$  (S). In MoM cases (N=76) pre-test mean was  $8.20 \pm 2.77$  & in post-test it was  $28.01 \pm 2.55$ , with  $t = 1.992$  (S). In SM cases (N=16) pre-test mean was  $8.06 \pm 2.59$  & in post-test it was  $29.0 \pm 2.66$ , with  $t = 2.131$  (S). Ambica, C. (2019) had also conducted a study at Kutch district (Gujarat); on 638 mothers of U5 children using multi stage cluster sampling (stage 1), stratified random sampling (stage 2) and purposive sampling (stage 3). She also found that there had been a significant difference ( $t = 34.49$ ,  $P = 3.291$ ) in pre-test mean (9.88) and post-test mean

(15.29), which showed the effectiveness of SNI on mothers. This shows that educational interventions on parents have significant effect on their knowledge levels.

**Table 3:** Distribution of millets consumption levels of children (Pre & Post)

Millets Consumption Frequency	Pre Intervention (N = 400)		Post Intervention (N = 400)	
	F	%	F	%
Daily	35	8.8	58	14.5
Alternately	37	9.3	96	24
Weekly	30	7.5	91	22.8
Monthly	25	6.3	61	15.3
Occasionally	27	6.8	21	5.3
Never	246	61.5	73	18.3

Table no. 3 presents the distribution of millets consumption levels of children (pre & post). The above table shows that during pre-intervention phase, consumption of millets was 8.8% on daily basis, 9.3% on alternately basis, 7.5% on weekly basis, 6.3% on monthly basis, 6.8% on occasionally basis and 61.5% never use to consume millets. After administration of educational intervention on parents for 6 months, the consumption of millets improved and during post-test the millets consumption was 14.5% on daily basis, 24% on alternately basis, 22.8% on weekly basis, 15.3% on monthly basis, 5.3% on occasionally basis and 18.3% continued to never consume millets.

*Ambica, C. (2019)* had conducted a study at Kutch district (Gujarat); on 638 mothers and their U5 children. She found that mother's pre-test practices mean = 38.24±15 and post-test practices mean = 52.72±15.12 and  $t = 26.88$  with  $P = 3.291$ . *M. S., Mrs. R. (2017)* had also conducted a similar study on 300 mothers along with their U5 children at Guttahalli and Keeluholali villages, Kolar District, Karnataka. She also found that before intervention practices mean = 27.21±2.53 and after intervention practices mean = 55.82±2.96 with  $t = 91.251$ .

As the preschool children are mainly dependent on parents for their dietary intake & food practices the change in parent's practices will change the dietary change. This also shows that intervention had strong and significant effects on dietary consumption of children.

## VIII. CONCLUSION

As recorded in the present study, the status of millets consumption among preschool children is still a big challenge for parents & caregivers and which is also contributing to the whopping crisis of malnutrition in all forms and other MNDs among children of early developmental years. Proper & right nutrition education of parents can bring dramatic change in their knowledge and practices and can turn the table of struggling millets consumption and can be greatly helpful in combating NDDs among pre schooling children. This study concludes that educational intervention with parents improves the millets consumption in their children which in turn may be helpful in improving nutritional status of children.

## RECOMMENDATION

1. Improving nutritional knowledge among parents, caregivers and schools is the urgently needed for improving food consumption and food behaviors among children.
2. Designing and implementation of effective interventions based nutrition programs can bring great change in the nutritional status and millets consumption frequency of children of early developmental & preschool years.
3. Time-to-time practical sessions, workshops and other nutrition related activities should be conducted at community and school levels for developing on-ground and better understanding and feeding practices regarding millets.

**Conflict of Interest:** There is no conflict of interest.

**Funding:** The research work was not funded by any agency/institution and all the funds were managed by the corresponding author of this study.

## ACKNOWLEDGEMENTS

Author delivers thanks to all the investigated parents and their respective children, school authorities & their staff and all research assistants for being cooperative and supporting throughout investigations and during the conduction of study to record all the assessments in proper and well-managed manner.

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