



Differential consumption pattern of traditional and packed food among rural children

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ABSTRACT

The food consumption pattern of an individual reflects their food choices rather than nutrient intake in their diet. These patterns are strongly related to the health outcomes of the individuals. Home-cooked traditional food items are rapidly replaced by packed food items. As children being the future of any nation, thus their health is very important. Therefore, improving the nutrition of these children would help to reduce health risks by promoting healthy food consumption. Present study was carried out during 2021–23 to understand the differential consumption pattern of traditional and packed food items among children in rural areas of Madhya Pradesh and Chhattisgarh. The data pertaining to study were collected using food frequency questionnaire with 2–5 years and 6–14 years old children. The key results indicated that packed food item consumption was dominant among 2–5-year-old children in their diets in NSV (Nutri-SMART villages), and non-NSV as explained maximum variation. However, among 6–14 years old children traditional and packed food items consumption was dominant in NSV, while packed food items were dominant in non-NSV as explained by maximum variation. There is a need to design local food resources based strategies to make aware the children about healthy food items and encourage them to consume by targeting access and availability of such foods.

Keywords: Food frequency, Nutrition security, Nutri-SMART village, Rural diets

Food consumption behaviour of an individual determine his/her overall health status. Further, the food consumption patterns show interactions between food and nutrients related to health risk (Abubakar *et al.* 2023, Agedew *et al.* 2023). These patterns may vary across gender, ethnicity and age. The childhood is the critical stage for the development of eating behaviour that will also persist in adulthood. Thus, food consumption patterns during a particular stage of age will define the health outcomes in later stage (Shrestha *et al.* 2020). Unhealthy and poor diet patterns in children can lead towards diet-related chronic non-communicable diseases which all tend to be tracked into adulthood (Story *et al.* 2002, Nasreddine *et al.* 2010, Deka *et al.* 2015). According to the National Family Health Survey-5 report (2019–20), the burden of stunting, wasting and underweight

among under 5-years-old children in rural areas of India was 37.3, 19.5 and 33.8%, respectively that is higher than urban areas as well as 3.2% under 5-year age children were overweight. About 68.3% children aged between 6–59 months were anemic. In Chhattisgarh, 35.7, 18.9, 32.7 and 3.6% rural children under 5-year age were stunted, wasted, underweight and overweight, and 66.2% children aged 6–59 months were found anemic. While this trend among the rural children of Madhya Pradesh was recorded to be 37.3, 18.7, 34.2 and 2.1%, respectively. Similarly, about 72.7% of the children aged between 6–59 months are reported to be anemic. These trends highlight that undernutrition is one of the health issues in the rural areas

Food consumption pattern analysis can be a valuable approach in assessing variability in diets and diet-disease relationships among children (Srivastava *et al.* 2023). Traditional food items made up of cereals, pulses, vegetables, fruits etc. prepared at home are considered as nutritious and well balanced. Packed and processed food, beverages and other packed items are often associated with non-communicable diseases due to high salt, fat or sugar content. The consumption of convenient food, such as chips, chocolate, bakery products, cold drinks and processed foods are very common among children (Gupta *et al.* 2016).

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The dietary patterns in India were found to be vegetarian with a predominance of fruit, vegetables and pulses, as well as cereals; and dietary patterns based on high-fat, high-sugar foods and more meat were also identified (Green *et al.* 2016). There was large variability between regions in dietary patterns, and there was some evidence of change in diets over time. Hence, assessing changing food preferences is vital among children. The initiative was taken to establish Nutri-SMART Villages (NSVs) through Krishi Vigyan Kendra (Farm Science Centre) in 2016. The interventions were made in Madhya Pradesh and Chhattisgarh to demonstrate the nutrition garden, bio-fortified varieties, value addition activities, *poshan* thali (nutri-rich food) and *poshan* calendar (nutri-rich food in different months). For this, intensive capacity-building programmes were conducted to enhance nutrition-related skills as well as increasing nutritional literacy in the villages to make them nutrition secure at household and community level. NSV is the unique architect for nutrition sensitive agriculture to provide nutritionally rich foods, dietary diversity, and food fortification to address the problem of malnutrition in the villages.

A theory of change explains how activities carried out produced a series of results that contributed in achieving the desired impacts. Present study employed this theory to explain the effect of nutrition-related interventions (Das *et al.* 2018). Purpose of using this theory was to show the outcome of the nutrition-related intervention on traditional and packed food items consumption preferences especially among the rural children. There is a lack of studies conducted for the assessment of traditional and packed food item consumption preferences among rural children. Thus, the present study was carried out to assess the consumption pattern of traditional and packed food items among young childrens of 2–5 years and 6–14 years old in Nutri-SMART villages (NSV) and non-NSV villages of Madhya Pradesh and Chhattisgarh.

MATERIALS AND METHODS

Study area: Madhya Pradesh and Chhattisgarh, located in central India, are two important states where agriculture plays a significant role in contributing to the state gross domestic product (SGDP). There are 11 agro-climatic zones in Madhya Pradesh and 3 in Chhattisgarh, based on climatic situations, soil and diversified cropping patterns. In Madhya Pradesh, more than 75% of the population living in rural areas is dependent on agriculture as their main source of livelihood security. More than 20% of the total population comprises tribes, primarily concentrated in the southern, south-western and eastern parts of the state. These tribes primarily depend on agriculture, forest produce and local arts for their livelihood. Madhya Pradesh experiences a subtropical climate with mean minimum and maximum temperatures ranging from 10 and 25°C in winters and fluctuating between a minimum of 22°C and a maximum of 38°C in summers. However, temperatures can occasionally rise as high as 48°C during extreme heatwaves. Annual average rainfall in the state is 1160 mm, with approximately

90% of the total annual rainfall received from the south-asian monsoon during June–September. In Chhattisgarh, about 80% population is dependent on agriculture, with 76% of them categorized as small and medium size farmers. It's one third geographical area is sown with dominant mono-cropping system. The state experiences a tropical climate, with summer temperatures ranging from 30–40°C and winter temperatures fluctuating between 5 and 25°C. On average, Chhattisgarh receives 1292 mm of rainfall annually.

In these two states, agriculture is predominantly rainfed, with moderate cropping intensity and a significant portion of low-value crops. There is a notable prevalence of small landholdings, accounting for 29% of holdings with less than 2 ha in these states (Bardhan *et al.* 2021). Agri-food system is a linkage between agriculture and nutrition, playing a vital role in addressing issues of malnutrition in the state by delivering low-cost nutri-rich foods as well as affordable healthy diets. In both states, undernutrition is the main problem but increase in overnutrition incidences shows double burden of malnutrition.

Sampling technique: The present study was carried out in the randomly selected 14 districts (Jabalpur, Neemuch, Ratlam, Gwalior, Chhindwara, Shajapur, Morena, Ujjain, Umaria, Sidhi, Shahdol, Hrada, Indore and Khandwa) of Madhya Pradesh and 5 districts (Raigarh, Durg, Raipur, Bilaspur and Dhamtari) of Chhattisgarh. From each district, one Nutri-SMART village (NSV), where nutrition-related interventions were carried out by Krishi Vigyan Kendras (KVKs) and one non-NSV where no nutrition-related interventions were carried out by KVKs, were selected purposely. A minimum 10 households were selected from each NSV and non-NSV, thus a total of 380 households were surveyed for the study. In NSV, these households were selected from only those who received nutrition-related interventions by the KVKs. In the current study, data pertaining to young children (2–5 years) and children aged 6–14 years were targeted for the study. Thus, a total 366 (179 HHs from NSV and 187 HHs from non-NSVs) households remained for data analysis on the basis of having 2–5 years and 6–14 years old children. From each category of children, only one child per household was selected for the study. Thus, in total 190 young children (95 children in NSV and 95 children from non-NSV) and 300 children (148 children from NSV and 152 children from non-NSV) were surveyed from Nutri-SMART villages and non-NSV villages of Madhya Pradesh and Chhattisgarh states.

Data collection tools and methods: Data collection was performed in the household setting through face-to-face interviews with the mothers as they were involved in preparation of food and serving for the household members and children, using pretested interview schedule. Open-ended data on consumption of traditional and packed food items were collected, using food frequency questionnaire (FFQ) in the last 7 days (1 week) at the time of survey. FFQs described frequency with which food groups are eaten in the 7 days (FAO 2018). FFQ used to collect data on context

specific food lists and understand the relationship between consumption pattern and health outcome. Data obtained from FFQ is advantageous for measuring consumption of specific food items by a given population. The list of traditional food items prepared and grouped into major food groups like cereal, pulses, cereal + pulses and oilseed based as per the major ingredient of traditional food item consumed by the surveyed children while packed food items considered under study were biscuit, bakery products, chips, kurkure, noodles, pasta, Maggie, toffee, chocolate, cold drinks etc. as individual food item which have high sugar, fat and sweet content and less healthy.

Statistical analysis: Statistical analysis was carried out using SPSS, version 14 (Madan and Borkar 2015). A descriptive analysis was conducted to characterize data using frequency and percentage and t-test used to measure difference in the consumption pattern of traditional and packed food items between NSV and non-NSV. Consumption pattern of traditional and packed food items in NSV and non-NSV villages were determined by principal component analysis. Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity used to check the strength of the correlation between the initial set of food items and the justification of the principal component analysis application. Kaiser varimax rotation used to reveal major food items with significantly high loading and many others with insignificant loadings. Varimax rotation ensures maximization of variance of a food item under a particular food item. Eigen value 1 or more than 1 was considered to retain principal components. Food items with a communality above 0.5 and an eigen value above 1 explained by principal components were used to decide the final dietary patterns.

RESULTS AND DISCUSSION

Socio-economic characteristics of sampled households:

Family size, age of the household head and distance to market agency categorization is based on cumulative square frequency root method. Average family size was 6 in both villages (NSV and non-NSV). More than half of the households of non-NSV (51.87%) had semi-pucca dwelling structure whereas 45.25% households were living in semi-pucca in NSV. Average age of the household head in NSV was 44 years, while in non-NSV 43 years. In NSV, 47.49% household head had education up to primary level while 45.45% household head of non-NSV falls under this category. Overwhelming majority of the households (80.34%) had farming as main occupation in NSV, while 59.89% households had farming as main occupation. Average landholding size in NSV was 1.22 ha and 52.51% of households belonging to marginal land size category while average landholding size in non-NSV was 1.05 ha with 49.73% of households belonging to the marginal land size category. About half of the households (46.37%) have group membership in NSV whereas only 27.27% households of non-NSV have group membership. Average distance to market agency was 8.58 km with majority of the households (50.28%) of NSV had short distance to market agency

while average distance to market agency was 8.05 km with 60.96% of households had short distance to market agency in non-NSV villages (Supplementary Table 1).

Consumption of traditional and packed food items children with 2–5 years: Changing dietary preferences was measured based on 7 days food frequency method for traditional food items prepared at home as recommended food and packed food items which is unhealthy. The results showed that 85.26% of young children (2–5 years old) consuming traditional food, while 50.52% young children were consuming packed food items in NSV (Table 1). In non-NSV, 74.73% of young children consuming traditional food and 67.36% young children were consuming packed food items. Further, results showed that there was significant difference between NSV and non-NSV in the consumption of traditional food items that indicated that nutrition related interventions have brought awareness about inclusion of traditional food items in young children's diets. However, non-significant difference was observed in respect to consumption of packed food items in NSV and non-NSV.

Consumption of traditional and packed food items children with 6–14 years: Consumption pattern of traditional and packed food items in 6–14 years old children is shown in Table 2. The perusal of the data revealed that more than two-thirds of children (67.56%) consuming traditional food, while 61.48% children were consuming packed food items in NSV. In non-NSV, 66.44% of young children consuming traditional food and 61.18% young children were consuming packed food items. However, results showed that there was non-significant difference between NSV and non-NSV in the consumption of traditional and packed food items.

Table 1 Consumption of traditional and packed food items in children (2–5 years old)

Particulars	Traditional food items (%)		Packed food items (%)	
	Consuming	Not consuming	Consuming	Not consuming
NSV	85.26	14.73	50.52	49.47
Non-NSV	74.73	25.26	67.36	32.63
t-value	2.03*		1.51 ^{ns}	

*Significant at 0.05 level of probability; ^{ns}Non-significant at 0.05 level of probability.

Table 2 Consumption of traditional and packed food items in children (6–14 years old)

Particular	Traditional food items (%)		Packed food items (%)	
	Consuming	Not consuming	Consuming	Not consuming
NSV	67.56	32.43	61.48	38.51
Non-NSV	66.44	33.55	61.18	38.81
t value	0.94 ^{ns}		1.84 ^{ns}	

^{ns}Non-significant at 0.05 level of probability.

Food item wise consumption among young children (2–5 years old): Frequency and percentage analysis were conducted to measure the consumption of both traditional and packed food items among children aged 2–5 years in NSV and non-NSV (Table 3). Traditional food items were categorized into major four food groups based on cereal, pulses, cereal + pulses and oilseed based products intended for consumption purpose. Biscuit, namkeen/mixture, toffee/lollipop/chocolate, toast/cake, maggie, chips and kurkure were identified as packed items consumed in the NSV and non-NSV. Results (Table 3) revealed that overwhelming majority of young children (83.16%) were consuming traditional food items made by cereals in NSV. However, more than two-thirds of young children (71.58%) were consuming cereal-based traditional food items in non-NSV. In case of packed food items, nearly one-third of young children (32.64%) consumed biscuits followed by toffee/lollipop/chocolate (18.95%) and chips (12.63%) in NSV. While more than half of the young children (51.58%) were consuming biscuits followed by toffee/lollipop/chocolate (14.14%) and chips (13.68%) in non-NSV.

Food item wise consumption among children (6–14 years old): Results (Table 4) revealed that more than half of the children (52.02) were consuming traditional food items made by cereals followed by pulses based (25.00%) in NSV. However, more than one-third of children (36.84%) were consuming cereal based traditional food items followed by pulses based (22.37%) and cereal + pulses based (20.39%) in non-NSV. In case of packed food items, 35.82% consumed biscuits followed by namkeen/mixture (25.68%), kurkure (22.97%), chips (21.62%), toffee/lollipop/chocolate (20.27%) and noodles/pasta (11.49%) in NSV. While, highest percentage of children (75.00%) consumed noodle/pasta. Equal number of children (44.74%) consumed namkeen/mixture and kurkure followed by toffee/lollipop/

Table 4 Traditional and packed food item-wise consumption among 6–14 years old children

Food items	NSV (%)	Non-NSV (%)
<i>Traditional food items</i>		
Cereal based	52.02	36.84
Pulses based	25.00	22.37
Cereal + pulses based	16.89	20.39
Oilseed based	5.41	0.66
Total	67.57	66.44
<i>Packed food items</i>		
Biscuit	35.82	36.18
Chips	21.62	25.66
Namkeen/mixture	25.68	44.74
Noodles/Pasta	11.49	75.00
Maggie	8.78	3.29
Kurkure	22.97	44.74
Toffee/lollipop/chocolate/	20.27	42.76
Cold drinks	3.38	0.66
Toast/bread/cake	8.78	13.82
Total	61.48	61.18

chocolate (42.76%), biscuits (36.18%), chips (25.66%) and toast/bread/cake (13.82%) in non-NSV.

Consumption pattern of traditional and packed food items among 2–5 years old children: On the basis of principal component analysis, five major food items were identified that explained 78.26% variance in NSV (Supplementary Table 2). While in non-NSV, four major food items were identified that explained 82.31% variance. Based on the factor loading analysis of NSV, in the first component, packed food items, viz. biscuit, toffee/lollipop/chocolate, chips and kurkure had higher scores of 0.819, 0.796, 0.977 and 0.957, respectively. In the second component, pulses and oilseed-based food items were identified with high score 0.752 and 0.843, respectively. In the third component, cereal based and maggie were identified with factor loading 0.595 and 0.916, respectively. Cereal + pulses based and toast/bread/cake had identified in the fourth component with high score 0.725 and (-0.665), respectively. In the fifth component, namkeen/mixture had identified with high score 0.905 (Table 5). Based on the PCA, the consumption pattern in the NSV dominated by packed food items as first food item that explained 31.10% variance. The second dominated food item identified was pulse and oilseed based explained 14.78% variance. Cereal based food item with packed food item was third dominant food item explaining 12.47% variance and fourth food item consist of cereal + pulses-based food items with packed food item which explained 10.46% variance. Fifth food item was also packed food item that explained 9.42% variance.

In non-NSV, four components were identified in which biscuit, toffee/lollipop/chocolate, toast/bread/cake, chips and kurkure falls in the first component with higher score

Table 3 Traditional and packed food item-wise consumption among 2–5 years old children

Food items	NSV (%)	Non-NSV (%)
<i>Traditional food items</i>		
Cereal based	83.16	71.58
Pulses based	9.47	18.95
Cereal + pulses based	23.16	16.84
Oilseed based	12.63	3.16
Total	85.26	74.74
<i>Packed Food</i>		
Biscuit	32.64	51.58
Namkeen/mixture	5.26	3.16
Toffee/lollipop/chocolate	18.95	14.74
Toast/bread/cake	5.26	4.21
Maggie	6.32	5.26
Chips	12.63	13.68
Kurkure	8.42	9.47
Total	50.53	67.37

Table 5 Factor loading in NSV and non-NSV for 2–5 years old children

Food items	NSV					Non NSV			
	PC1	PC2	PC3	PC4	PC5	PC1	PC2	PC3	PC4
Cereal based	0.184	-0.317	0.595	0.469	-0.021	0.168	0.589	-0.482	0.046
Pulses based	0.303	0.752	-0.052	-0.090	-0.029	0.164	-0.065	0.658	-0.068
Cereal + pulses based	-0.152	-0.238	-0.087	0.725	-0.316	-0.018	0.047	-0.261	0.668
Oilseed based	-0.161	0.843	0.090	0.041	-0.075	-0.054	-0.002	0.119	0.833
Biscuit	0.819	0.087	0.083	0.212	-0.068	0.745	0.515	0.047	-0.087
Namkeen/mixture	-0.069	-0.118	-0.024	-0.023	0.905	0.183	0.381	0.706	-0.044
Toffee/lollipop/chocolate	0.796	-0.008	0.332	-0.148	0.016	0.781	0.387	0.192	-0.096
Toast/bread/cake	-0.102	-0.286	-0.037	-0.665	-0.350	0.922	-0.175	-0.144	0.025
Maggie	-0.010	0.149	0.916	-0.110	-0.008	0.032	0.827	0.176	0.052
Chips	0.977	0.016	-0.067	-0.013	-0.003	0.942	0.076	0.183	-0.044
Kurkure	0.957	0.031	-0.107	-0.064	-0.001	0.914	0.063	0.330	-0.013

Bold values shows highest factor loading of food items in each component.

of 0.745, 0.781, 0.922, 0.942 and 0.914, respectively. In the second component, cereal based and maggie identified with high score 0.589 and 0.827, respectively. In the third component, pulses based and namkeen/mixture was identified with factor loading 0.658 and 0.706, respectively. In the fourth component, cereal + pulses based and oilseed-based food items identified with high score 0.668 and 0.833 (Table 5). It was found that, consumption pattern in the non-NSV were dominated by packed food items as first food item due to 39.30% variance. Cereal based food item with packed food item identified as second food item consumed by the children. Third dominant food item was pulses-based food item with packed food items explained 12.14% variance and cereal + pulses based food item and oilseed-based items was fourth dominant food item explained 9.54% variance.

Consumption pattern of traditional and packed food items among 6–14 years old children: Among 6–14 years old children, it was observed that five major food items were identified in both villages (NSV and non-NSV), that explained 75.47 and 75.09% variance, respectively (Supplementary Table 3). In NSV, cereal + pulses based and toast/bread/cake identified in the first component with higher scores of 0.893 and 0.925, respectively. In the second component, biscuit and kurkure were identified with high score 0.677 and 0.725, respectively. In the third component, chips, maggie and toffee/chocolate were identified with high factor loading 0.820, 0.758 and 0.762, respectively. Cereal, pulses based food items and namkeen/mixture had identified in the fourth component with high score 0.650, 0.821 and 0.481, respectively. Oilseed based and cold drinks had identified with high score 0.927 and 0.662, respectively in the fifth component. The consumption pattern in the NSV were dominated by cereal + pulse-based food item with packed food items as first food item that explained 26.23% variance. Packed food items were identified as second and third food item consumed by these categories of children explained 19.89 and 11.63% variance, respectively. Cereal and pulse based with packed food item was fourth dominant

food item explained 9.62 % variance and oilseed-based food items with packed food item as fifth food item consumed that explained 8.08% variance (Supplementary Table 4).

In non-NSV, biscuit, namkeen/mixture, noodles/pasta, kurkure and toffee/chocolate, toast/bread/cake had identified in the first principal component with higher score of 0.845, 0.698, 0.837, 0.921 and 0.735, respectively. In the second component, chips and toast/bread/cake identified with high score 0.818 and 0.819, respectively. In the third component, cereal and pulse based was identified with factor loading 0.701 and 0.656, respectively. Maggie and cold drinks identified with high score 0.856 and 0.859, respectively in the fourth component. In the fifth component, oilseed and cereal + pulses based food item had high factor loading 0.929 and (-0.280), respectively. As per the factor loadings for each component, packed food items as first, second and fourth food item in the consumption pattern among these categories of children which explained 29.68, 13.46 and 11.39% variance, respectively. Cereal and pulses based food items dominated as third food item in the consumption pattern that explained 12.66% variance. Oilseed based and cereal + pulses based food items dominated as fifth food item among this category of children food consumption pattern that explained variance 7.89% (Table 6). Kotecha *et al.* (2013) had reported in their study that an unhealthy dietary patterns were observed among school going adolescents. The identified consumption pattern shows healthy and unhealthy food item consumption preferences in NSV, while unhealthy food item consumption preferences in non-NSV.

Conclusion and policy implications

It is concluded that in NSV, packed food item consumption was dominated among 2–5 years old children while both food items (traditional and packed) were dominated among 6–14 years old children. Moreover, packed food items consumption was dominated among both age group of children in non-NSV. However, there was significant differences in consumption of traditional

Table 6 Factor loading in NSV and non-NSV for 6–14 years' old

Food items	NSV					Non-NSV				
	PC1	PC2	PC3	PC4	PC5	PC1	PC2	PC3	PC4	PC5
Cereal based	0.141	0.417	0.116	0.650	0.026	0.424	-0.107	0.701	-0.106	-0.137
Pulses based	-0.178	-0.174	0.143	0.821	0.024	-0.209	0.275	0.656	-0.078	-0.251
Oilseed based	-0.037	0.049	-0.124	-0.078	0.927	-0.048	-0.003	-0.009	-0.040	0.929
Cereal + pulses based	0.893	-0.066	0.011	-0.078	-0.054	0.086	0.039	-0.710	-0.117	-0.280
Biscuit	0.601	0.677	0.060	-0.012	0.009	0.845	0.223	-0.196	-0.036	-0.072
Chips	-0.039	0.124	0.820	0.233	-0.071	0.027	0.818	0.236	-0.062	-0.035
Namkeen/mixture	0.411	0.435	0.076	0.481	0.108	0.698	0.503	-0.054	0.094	-0.003
Noodles/pasta	-0.213	0.753	0.040	0.053	-0.018	0.837	-0.330	0.184	-0.042	0.021
Maggie	0.033	-0.216	0.758	0.195	0.157	-0.038	-0.038	-0.044	0.856	-0.012
Kurkure	0.567	0.725	0.098	0.014	-0.066	0.921	0.079	-0.146	-0.029	-0.069
Toffee/chocolate	-0.058	0.376	0.762	-0.143	-0.056	0.735	0.303	0.266	-0.045	0.060
Cold drinks	-0.046	-0.137	0.373	0.403	0.662	-0.011	-0.004	0.030	0.859	-0.016
Toast/bread/cake	0.925	0.062	-0.124	0.056	-0.020	0.246	0.819	-0.160	-0.006	0.018

Bold values show highest factor loading of food items in each component.

food items in NSV and non-NSV among 2–5 years old children. But significant differences were not observed for packed food items for these categories of children in NSV and non-NSV. Further, among 6–14 years old category of children, non-significant difference was observed for both food items (traditional and packed) in NSV and non-NSV. Hence, understanding food consumption pattern among children in rural areas is essential to measure health outcomes of children in these age group so that timely corrective measures could be taken to improve the health of these children by reducing the consumption of packed food items (less healthy and energetic) as compared to the nutri-rich traditional food items available in rural areas. The findings also suggest that there is need for intense interventions of nutritional measures in the rural areas. Bringing awareness about harmful effect of the packed food items to the mothers and children will reduce consumption of these food items. Capacity building programmes on preparation of nutri-rich food items from locally available food materials, particularly to mother, can enhance their recipe preparation skills.

The intensive campaign and nutrition literacy programmes can enrich the knowledge on nutrition among children taking support of educational and research institutions (e.g. ICMR). Taking family as a unit and providing space to women in this process can accelerate the consumption of traditional foods. In turn, the consumption of traditional foods among rural children can be enhanced by devising region-specific nutritional strategies.

Ethical statement

As the study was conducted in the KVK led Nutri-SMART villages where interventions on nutritional aspects were organized by KVK experts, hence respondents were well-known to the surveyor. Further, data were also captured from non-NSV (KVK-supported village) where KVKs are

organizing their various activities due to which respondents were well known to the surveyor. Besides, all respondents were informed about the data being collected on the various aspects under the study by the concerned surveyor.

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