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Food consumption pattern of selected school children of Himachal Pradesh

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Abstract

A sample of 200 school children in the age group of 7-9 years of two selected blocks (Chowari and Bharmour) of Chamba district were randomly selected. A questionnaire schedule was framed to collect information on the socio-economic status, dietary profile and food consumption pattern of the respondents. Most of the school children (92 and 78%) of Chowari and Bharmour blocks had nuclear families. Their mothers were mostly illiterate and the fathers worked as daily wagers. Average monthly family income was Rs. 4000. Maximum school children of both the blocks were non-vegetarian but usually took vegetarian foods.

Key words: Chamba district, food consumption pattern, Himachal Pradesh, school children, socio-economic status.

Introduction

Children are the wealth of nation. The nature of physical growth and development of children depends primarily upon the genetic endowments, nutritional status, psychosocial environment and surrounding physical environmental conditions. Good nutrition is an indispensable component of healthy life. It is a determinant of healthy growth of mind and body. It plays a vital role in the physical, mental and emotional development of a child (Balgir *et al.* 1999).

Undernutrition is often cited as an important factor contributing to high morbidity and mortality among children in developing countries (Sommer and Loewenstein, 1975). Undernutrition in children is the consequence of a range of factors which are often related to insufficient food intake, poor food quality and severe, repeated infectious diseases. Qamra et al(1990) while studying the relationship between dietary intake and physical growth of rural primary school children in Haryana found that their diets were mainly cereal based and consumption of green leafy vegetables, milk, egg, meat, fruits and other protective foods were inadequate. There are various intersectoral and interrelated causes of undernutrition that operate at many levels from the community at large to the household and children within households.

School children constitute 20 per cent of the population in India. The school age is a dynamic period of growth and development as children undergo physical, mental, emotional and social change (VijayaKhader, 1997). School going children contribute to the vital human potential and important strength to the national economy and development. Better the nutritional status of children, better will be national development. Therefore, their nutritional status is of great significance.

Keeping in view the above points, the present investigation was planned to study the food consumption pattern of selected school children of Himachal Pradesh.

Material and Methods

Two blocks of district Chamba of Himachal Pradesh namely Chowari and Bharmour were selected purposely as the locale for the present investigation. The school children in the age group of 7-9 years of both the sex were selected randomly from three Government schools of Chowari block and four Government schools of Bharmour block. The sample size comprised of one hundred respondents from selected schools of both the blocks.

A well-structured interview schedule was prepared for collection of data. The information regarding family background, type and size, educational status of parents, occupation of parents and family income etc. was recorded. The data on food habits, food consumption pattern and frequency of consumption of different foods by selected children was also recorded.

Results and Discussion

Socio-economic status

As shown in table 1, the number of male and female children of both the blocks were 55, 45 and 49, 51 respectively. Majority of school children had nuclear families i.e. 92 per cent in Chowari block and 78 per cent in Bharmour block. Eight per cent school children of Chowari and 22

Table 1. General information of selected school children of selected blocks

	Chowari (n=100)	Bharmour (n=100)
Sex		
Male	55	49
Female	45	51
Type of Family		
Joint	8	22
Nuclear	92	78
Family size (no.)		
Upto 3-5	48	34
5-8	44	52
Above 9	8	14
Ordinal position		
First born (I&II)	56	62
Middle born(III&IV)	35	31
Later born (V & later on)	9	7
Caste		
Lower caste	39	17
Higher caste	50	79
Any other	11	4

per cent of Bharmour block had joint families. Regarding family size, 48 per cent school children of Chowari and 34 per cent of Bharmour block had family size up to 3-5 members, 44 and 52 per cent 5-8 members and 8 and 14 per cent of school children above 9 members. Ordinal position of school children was 1-2, 3-4 and above 5 in 56, 35 and 9 per cent of school children of Chowari block and 62, 31 and 7 per cent of school children of Bharmour block. Regarding caste, 39 per cent children of Chowari block belonged to lower caste, 50 per cent to higher caste and 11 per cent to other caste whereas 17 per cent school children of Bharmour block belonged to lower caste, 79 and 4 per cent belonged to higher and other castes respectively.

As regards to parental education (Table 2) mostly the mothers of school children of Chowari block were illiterate (51%). Twenty seven per cent were educated upto primary level, 16 per cent were middle,3 per cent were matric and only 3 per cent were intermediate. Majority i.e.67 per cent of mothers of school children of Bharmour block were illiterate, 13 per cent were primary,14 per cent were middle and 5 per cent were educated upto matric.

Majority (49 %) of the fathers of Chowari block respondents were labourers, 14 and 24 per cent were engaged in business and service, respectively and 13 per cent were engaged in farming.

Highest percentage i.e. 94 and 91 per cent of the mothers of Chowari and Bharmour block school children were exclusively housewives and 6and 8per cent were in service working as school teachers, anganwari teachers and helpers etc. Maximum percentage (64%) of school children of Chowari block belonged to families with monthly income upto Rs. 4000/-, 28 per cent belonged to families with monthly income ranging from Rs. 4000-8000/-, 7 and 1 per cent belonged to

Table 2. General information of parents of selected school children

Parental	Chowari (n=100)		Bharmour (n=100)	
	Mother	Father	Mother	Father
Education				
Illiterate	51	16	67	24
Primary	27	31	13	18
Middle	16	20	14	12
High School	3	27	5	36
Intermediate	3	5	-	5
Graduate and above	-	1	-	2
Occupation of Father				
Labourer	49		55	
Business	14		5	
Service	24		30	
Farming	13		7	
Occupation of Mother				
Working	6		8	
Housewife	94		91	
Family Income(Rs/month)				
Upto4000/-	64		63	
4000-8000	28		28	
8000-12000	7		6	
12000-16000	1		3	

families with monthly income ranging from Rs. 8000-12000/- to Rs. 12000-16000/-respectively. In Bharmour block, 63 per cent children belonged to families with monthly income upto Rs.4000/-, 28 per cent with monthly income Rs. 4000-8000/- and 6 and 3 per cent with monthly income Rs.8000-12000/- and Rs. 12000-16000/- respectively.

Dietary profile and food consumption pattern of children

Most of the school children (82 %) of Chowari block were non-vegetarian and 18 per cent were vegetarian, whereas 69per cent school children of Bharmour block were non-vegetarian and 31 per cent were vegetarian (Table 3).

Table 3. Dietary information of selected school children

	Chowari (n=100)	Bharmour (n=100)
Eating habits		
Vegetarian	18	31
Non-vegetarian	82	69
Frequency of intake of Non-vegetarian food		
Weekly	21	3
Monthly	35	38
Rarely	26	28
Taking packed lunch		
Yes	48	37
No	52	63
Food items in packed lunch		
Parantha	24	8
Chapatti	48	35
Sandwich	1	-
Rice	4	19
Fruits	-	-

Awasthi and Kumar (1999) found in their study that majority of the children were non-vegetarian but usually consumed vegetarian diets because of their economic constraints.

Subjects of both the blocks consumed three meals a day i.e. breakfast, lunch and dinner. Meals consisted of cereal preparations; *chapati, parantha,* rice, maize-roti, dal, vegetables, curd, curry and some times eggs or non-vegetarian food. Tea was mostly consumed twice a day by almost all the respondents while a very few of them could afford to consume milk frequently. Most of the families used mustard oil as cooking medium i.e. 93 per cent in Chowari and 78 per cent in Bharmour block.

Most of the Chowari block school children (48%) took packed lunch as compared to only 37 per cent in case of Bharmour block school children. Chauhan (2001) reported similar observation of high percentage of respondents (65%) studying in Government schools who took packed lunch daily. As observed in present study, children of both the blocks took mostly *chapatis* in their packed lunch. As many as 24 per cent of Chowari block school children took *parantha*, only 1 per cent sandwich and 4 per cent rice. In Bharmour block, 8 per cent took *parantha* and 19 per cent rice. None of the children of both the blocks took fruits in their packed lunch.

Regarding food consumption pattern (Table 4) wheat and rice were consumed daily by 82, 96 and 73, 72 per cent of Chowari and Bharmour block school children, respectively. About one third (36 and 40%) school children of both the blocks consumed maize daily but mostly the consumption of maize was in winter season.

Regarding consumption of pulses, bengal gram, black gram, green gram, lentil, red gram, chick pea, rajmash were consumed by Chowari and Bharmour block school children. Majority of Chowari block school children (88.5%) consumed bengal gram and black gram mixed dal occasionally, whereas Bharmour block school children consumed black gram (95%) and rajmash (88%) occasionally.

Among green leafy vegetables, most of the Chowari and Bharmour block school children consumed spinach and mustard leaves weekly. Cabbage was consumed occasionally by 52 per cent of Chowari block schoolchildren and weekly by 67 per cent of Bharmour block school children. Consumption of other green leafy vegetables such as amaranthus, fenugreek and bathua was rare. Potato was most common tuber consumed by school children of Chowari and Bharmour block and its consumption was reported occasionally by 67 and 77 per cent, respectively. Onion was consumed daily by 96 per cent and 100 per cent school children of Chowari and Bharmour block. Consumption of radish was weekly by 25 and 20 per cent of Chowari and Bharmour block school children. In a survey conducted by Kataria (1992) on school children of Himachal Pradesh, she observed that consumption of roots and tubers varied from rarely to frequently. Tandon (1996) and Chawla (1992) reported that mean food intake by school girls in Ludhiana was inadequate with respect to cereals, pulses, vegetables, fats and sugar when compared with low cost balanced diets suggested by ICMR.

Table 4. Frequency of food intake by selected school children

Food items	Chowari					Bharmour				
	Daily	Weekly	Occasionally	Rarely	Never	Daily	Weekly	Occasionally	Rarely	Never
Cereals										
Wheat	82	3	10	5	-	73	-	27	-	-
Rice	96	2	2	0	-	72	-	28	-	-
Maize	36	3	16	45	-	40	7	20	30	3
Fruits										
Apple	2	9	4	85	-	2	5	7	6	-
Banana	6	29	19	46	-	-	36	13	51	-
Grapes	5	6	-	75	14	-	12	4	37	47
Orange	4	21	15	41	3	-	20	12	68	-
Papaya	-	-	-	43	57	-	-	-	17	83
Green leafy vegetables										
Spinach	-	55	12	22	11	-	13	10	55	22
Amaranth us	-	1	-	32	67	-	-	-	15	85
Fenugreek	-	29	-	39	32	-	-	-	14	86
Mustard leaves	-	53	39	--	-	-	61	31	8	-
Roots and tubers										
Potato	14	11	67	8	-	7	16	77	0	-
Onion	96	-	2	2	-	100	-	-	-	-
Radish	25	25	14	36	-	3	20	1	71	-
Other vegetables										
Bottle	-	3	9	88	-	-	10	-	78	12
Brinjal	-	3	9	88	-	-	10	-	78	12
Tomato	57	2	38	3	-	38	18	13	31	-
Ladyfinger	-	5	8	87	-	-	4	-	89	7
Beans	-	-	-	79	21	-	-	-	31	69
Capsicum	-	1	-	80	19	-	-	-	31	69
Cucumber	12	2	13	73	-	3	-	4	93	-
Pulses										
Bengal gram	5	8	87	-	-	1	35	21	42	1
Black gram	4	6	90	-	-	1	2	95	2	-
Green gram	-	47	27	26	-	-	58	5	32	5
Lentil	-	53	40	6	1	-	60	21	18	1
Rajmash	-	66	16	18	-	-	11	88	1	-
Milk and milk products										
Cow's milk	52	7	7	15	19	23	15	9	37	16
Buffalo's milk	8	1	2	2	87	-	-	-	-	-
Goat's milk	-	-	-	1	99	2	-	-	5	93
Curd	9	22	23	33	13	6	23	31	37	3
Butter	5	11	4	38	42	5	9	8	50	28
Fats and edible oils										
Refined oil	13	-	-	1	86	23	-	-	-	77
Mustard oil	93	1	4	-	2	78	-	-	19	3
Desi ghee	20	11	8	57	4	8	39	4	49	-
Nuts and oilseeds										
Ground nut	12	30	35	12	11	20	25	40	15	-
Walnut	-	-	-	36	64	-	-	-	34	66
Condiments and spices										
Cardamom	92	-	1	4	3	99	-	-	-	1
Clove	40	-	-	11	49	9	-	-	91	-
Cumin seed	96	-	1	3	-	99	-	-	-	1
Garlic	56	1	9	27	7	41	-	-	59	-
Ginger	54	1	5	37	3	20	-	-	34	66
Egg, meat and fish										
Egg	3	45	8	27	17	-	26	5	45	24
Mutton	-	19	-	55	26	-	6	-	63	31
Chicken	-	6	-	60	34	-	-	-	34	66
Fish	-	-	-	43	57	-	-	-	6	96

Regarding other vegetables, subjects of both the blocks consumed bottle gourd, brinjal, lady's finger, beans, capsicum, cucumber, pumpkin, snake gourd, bitter gourd and frequency of consumption of these vegetables was either rarely or seasonally. Tomato was consumed daily by 57 per cent of Chowari and 38 per cent of Bharmour block school children. Cauliflower and peas were reported to be consumed occasionally or weekly. The frequency of consumption of fruits indicated that majority of children of both the blocks consumed fruits seasonally. Children of both the blocks consumed banana, grapes, apple and orange either occasionally or weekly.

Regarding the consumption of milk and milk products, 52 per cent of the respondents of Chowari block consumed cow's milk daily as compared to 23 per cent of Bharmour block. The consumption of curd was occasional by 23 and 31 per cent, weekly by 22 and 23 per cent and daily by 9 and 6 per cent of Chowari and Bharmour block school children. Respondents of both the blocks consumed butter and cream showing daily consumption by 5 and 12 per cent, weekly by 11 and 4 per cent, occasionally by 4 and 5 per cent, rarely by 38 and 39 per cent of Chowari block school children. For Bharmour block children, consumption of butter and cream was daily by 5 and 13 per cent almost the same as reported in Chowari block weekly by 9 and 10 per cent, occasionally by 8 and 5 per cent, rarely by 50 and 46 per cent, respectively.

Among fats and oils, refined oil was consumed daily by 13 and 23 per cent of Chowari and Bharmour block school children respectively. Mustard oil was used as cooking medium by 93 per cent of Chowari block and by 78 per cent of Bharmour block school children. The reason for preference of mustard oil was reported firstly due to better taste and nutrition as compared to refined oil and secondly mustard oil was being used for other purposes also. Desi ghee was consumed daily by 20 and 8 per cent, weekly by 11 and 39 per cent, occasionally by 8and 4 per cent, rarely by 57 and 49 per cent of Chowari and Bharmour block school children. Less consumption of desi ghee was reported due to its higher cost. As reported by Chauhan (2001), 91 per cent of government schoolchildren consumed mustard oil as a cooking medium. Frequency of its intake was daily. Twelve per cent of government school children consumed refined oil daily, the latter finding almost similar to that observed in Chowari block. Both the groups consumed desi ghee occasionally.

The consumption of nuts and oil seeds was very rare by both the blocks school children. Groundnut was consumed daily by 12 and 20 per cent, weekly by 30 and 25 per cent occasionally by 35 and 40 per cent and rarely by 12 and 15 per cent of Chowari and Bharmour block school children respectively.

Regarding consumption of condiments and spices, 92 and 96 per cent of Chowari block consumed cardamom and cumin seeds daily. In case of Bharmour block school children, the daily consumption was 99 per cent each. Consumption of clove was daily by 40 and 9, rarely by 11 and 91 per cent of Chowari and Bharmour block school children, respectively. Majority of the respondents of Chowari block consumed garlic and ginger daily (56 and 54%) as compared to 41 and 20 per cent by Bharmour block school children.

Regarding frequency of consumption of non-vegetarian food, egg was consumed weekly by 45 and 26 per cent of Chowari and Bharmour block school children. Subhadara (2000) in her study observed that majority of the government school children consumed eggs occasionally whereas private school children reported their consumption weekly.

Consumption of mutton was weekly by 19 and 6 per cent and rarely by 55 and 63 per cent of Chowari and Bharmour block school children. Pork was consumed by 13 per cent of Chowari block school children only. Consumption of chicken was weekly by 6 per cent and rarely by 60 per cent of Chowari block school children. In case of Bharmour block children, chicken was consumed rarely by 34 per cent. Fish was consumed rarley by 43 per cent and 6 per cent of Chowari and Bharmour block school children respectively. The lesser consumption on non-vegetarian foods was reported due to religious taboos and being costlier. During festival days and on religious functions, non-vegetarian foods were usually avoided.

Lack of nutritional knowledge seems to be one of the factors responsible for lower intake of different food groups. Efforts should be made to provide nutrition education to mothers or the persons 8 taking care of the diets of children. The aspect covered should include importance of balanced diet and packed lunch, right choice of foods, nutrient conservation by proper cooking methods, utilization of foods available in season, grown either in kitchen garden or locally available and proper distribution of foods to all the members of family.

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