



Full Length Research Paper

Dietary Habits of School going Adolescent Girls in Kumaun region of Uttarakhand

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Abstract

Adolescents are the power center of the nations, and it is generally believed that adolescence shaped them by the food or diet he/she intake. Therefore, the concept of nutritional issues among adolescence, become important for society and the nation as well. A healthy diet plays a significant role in the growth and development of adolescents and during which the development of healthy eating habits is the main concern that determines the situation of under nutrition and over nutrition in this age group. The present research paper is an attempt to find out the dietary habits of school-going adolescent girls in the Kumaun region of Uttarakhand. The study was carried out with the help of a self-prepared questionnaire and by approaching the adolescent girls from the Almora district.

Keyword: Adolescent, Dietary habit, School Going Adolescence,

Introduction

The term 'adolescence' originated from the Latin verb 'adolescere' which means 'grow to maturity'. Adolescence is known as the golden age of life which is also known as a grey area in the spectrum of life that falls between childhood and adulthood. It is that age of transition where an individual experiences rapid physical and psychological changes in his life i.e. the child face the changes from being a child to an adult (Bhave 2002). World Health Organization defines adolescents as persons in the age group of 10 to 19 years (Nair 2002). According to data, it is estimated that 190 million adolescents comprising over one-fifth of the entire population (Jejeebhoy 1998). Adolescence is also considered as the development of the psycho-sexual nature in human life which also means that due to hormonal changes, a person identifies the development of the reproductive system, sexual maturation, formation of identity, and their respective role as decided by gender (Nath 2008). Adolescence is also known as a period of increased vulnerability to obesity where due to lack of physical activity and outdoor sports, along with consumption of junk food affluent population faces the problems of obesity. Earlier obesity was considered the problem of the developed country only but now due to access availability and due to some other reasons too, the developing countries are most affected by the problem of obesity (Choudhury 2007). Besides, the overconsumption of high sugar, saturated fat, salt, and calories by adolescents can lead to the early development of obesity, hypertension, dyslipidemia, and impaired glucose tolerance (Tnn SS 2013). According to Kotecha et al, health and nutrition are the most important issues among all adolescents worldwide which also mean that all societies are facing problems related to malnutrients globally which affects the academic, physical and psychological development of the adolescents. A few recent studies have shown that some dietary patterns which include snacking, usually on energy-dense foods; meal skipping, particularly breakfast, or irregular meals; the wide use of fast food; and low consumption of fruits and vegetables appear quite common among adolescents (Cavadini 1999 & Dausch 1995).

Moreover, the studies also suggest that Indian urban adolescents are having similar characteristics with less information about nutrients. The issue of mal-nutrients and the dietetic pattern becomes more crucial when we take Uttarakhand as an area of research where the majority of adolescents are living in remote areas. Similarly, in one study obesity and anorexia were considered as major problems amongst school-going adolescent girls in India nowadays because of the fact that dietary patterns have changed amongst girls across the world. Girls have started accepting food that seems convenient as it gives them the freedom to eat what they wish without any schedule quite unmindful of the fact that such an erratic dietary pattern may lead to cancer and coronary heart diseases. The study revealed a fact that approx 50% of the adolescent girls were underweight as they were discovered to be skipping their meals followed by 68% of the girls were found to be consuming fast foods daily which exposed them to digestive disorders of several kinds. Nutritional status of almost all the girls was detected to be disorderly as a result of their undisciplined lifestyle (Shabnam 2014). As we know that dietary habits among adolescent girls are the outcome of parental awareness and it has been seen in most cases that parental education matters the most in affecting the eating habits of adolescents. The studies have found that around 48.4% of Indian

adolescents don't take breakfast at all. 67.4% consumed bread and cereals regularly and 57.5% of girls consumed fruits and vegetables. It was also detected that the majority of the nutritional knowledge came from teachers and counselors and for adolescents to eat healthy, parents need to be educated.

Research Methodology

Present research study '*Dietary Habits of School Going Adolescent Girls: A Comparative Study of Hills & Tarai Region of Uttarakhand*' is an in-depth investigation of those school-going adolescent girls who belong to different socioeconomic backgrounds. Since the present study is a massive exercise with certain complexities to collect data from the respondents where the researcher was required to a specific technique to collect and analyze the data collected from the respondents, therefore an appropriate technique was used in the present research. The research design used in the present research can be understood in the following manner:

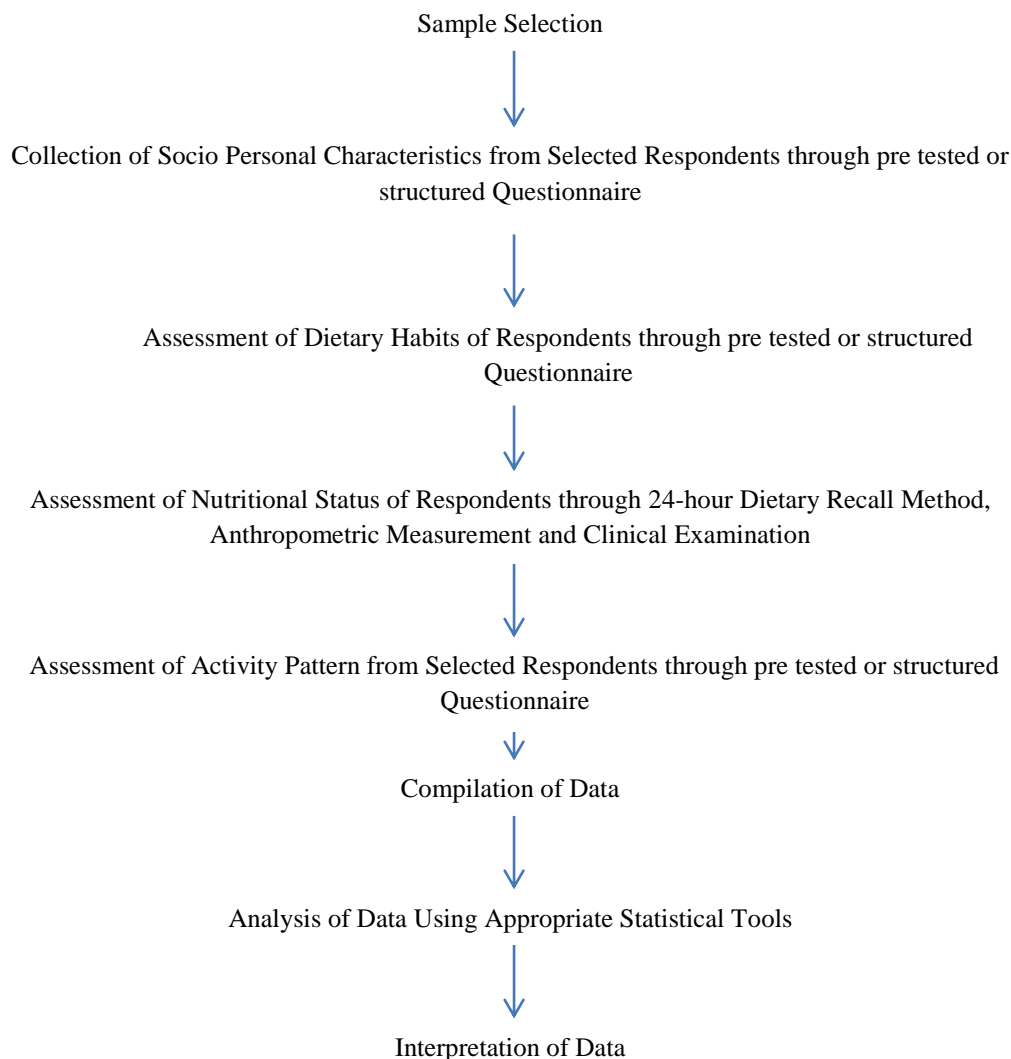


Fig. 1: Research Plan

Objective of the Study:

- To study the meal pattern of school going adolescent girls belonging to hill and tarai region.
- To study the habits of fasting and overeating of school going adolescent girls belonging to hill and tarai region.
- To study the habits of eating fast food of school going adolescent girls belonging to hill and tarai region.
- To study the habits of hygiene and safety of school going adolescent girls belonging to hill and tarai region.
- To study the nature of diet and source of drinking water of school going adolescent girls belonging to hill and tarai region.
- To study the consumption pattern of common food items of school going adolescent girls belonging to hill and tarai region.

Hypothesis

- **H₀1:** There is a significant difference in the meal pattern of the school going adolescent girls belonging to hill and tarai region.
- **H₀2:** There is a significant difference in the habits of fasting and overeating of the school going adolescent girls belonging to hill and tarai region.
- **H₀3:** There is a significant difference in the habits of eating fast food of the school going adolescent girls belonging to hill and tarai region
- **H₀4:** There is a significant difference in the habits of hygiene and safety of the school going adolescent girls belonging to hill and tarai region
- **H₀5:** There is a significant difference in the nature of the diet and source of drinking water of the school going adolescent girls belonging to hill and tarai region
- **H₀6:** There is a significant difference in the consumption pattern of common food items of the school going adolescent girls belonging to hill and tarai region

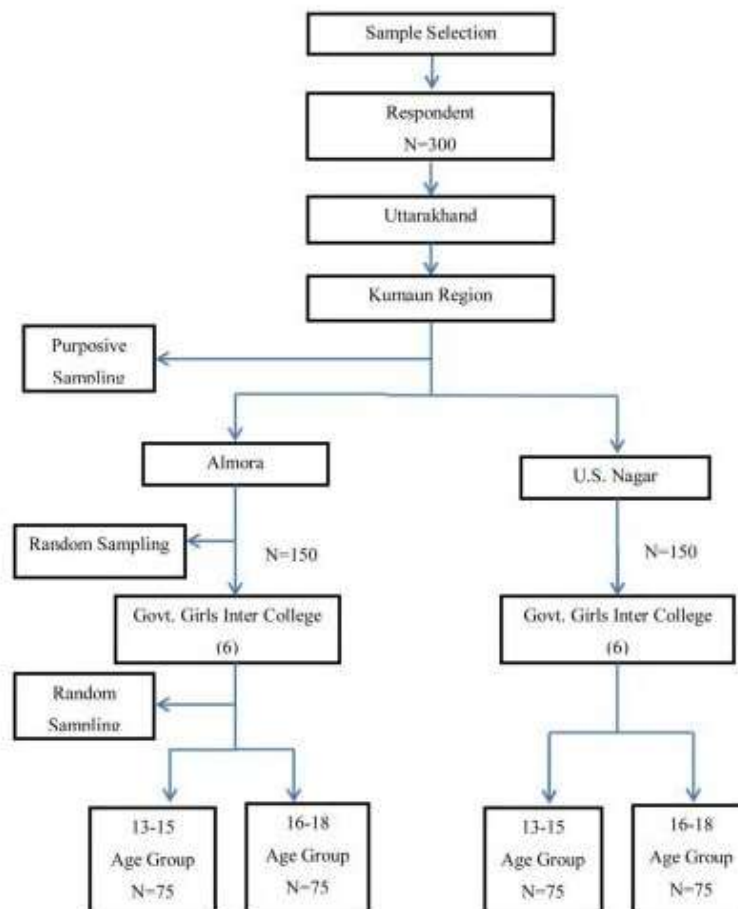


Fig.2. Distribution of Sample

Results

H₀1 There is a significant difference in the meal pattern of the school going adolescent girls belonging to hill and tarai region.

Table 4.1: Meal Pattern of the School Going Adolescent Girls

Response	Regularly of All Meals		Total
	Tarai	Hill	
Yes	67	68	135
No	83	82	165
Total	150	150	300

Skipping Meal Behaviour

Global Journal of Current Research	Singhal & Pandey	Vol. 5 No. 4	ISSN: 2320-2920
Yes	82	80	162
No	68	70	138
Total	150	150	300
Type of Skipping Meal			
No meal skip	68	70	138
Breakfast	54	50	104
Lunch	13	11	24
Dinner	15	19	34
Total	150	150	300
Frequency of Skipping Meal Behaviour			
Not Skip	68	70	138
Rarely	15	19	34
Sometimes	54	50	104
Often	13	11	24
Total	150	150	300
Regularity of Breakfast			
Daily	79	96	175
More than 4 times in a week	30	29	59
Weekends or Holidays	15	10	25
Rarely	26	15	41
Total	150	150	300
Heaviest Meal			
Breakfast	6	19	25
Lunch	48	47	95
Dinner	96	84	180
Total	150	150	300
Fast Food as a part of Any Meal			
Yes	97	102	199
No	53	48	101
Total	150	150	300

Table 1 shows the regularity of taking three meals in a day for the school-going adolescent girl of the region (Hill & Tarai). It appeared from the above table that 67 girls from the Tarai region take three meals a day regularly and 83 girls from the Tarai region do not take three meals in a day regularly. 68 girls from the Hill region take three meals per day regularly and 82 girls from the Hill region do not take three meals in a day regularly. The table also presents the skipping meal behaviour of the adolescent girls of the hills and the Tarai and the result significantly creates a difference between the hills and the Tarai girls when a minute difference between them. The study depicted the similarity of skipping meals in both the hills and the Tarai however the adolescent girls of the Tarai frequently skipped their all meals compared to the adolescent girls of the hills either rarely or most often.

Approx 96 adolescent girls of the Tarai reported skipping their meals compare to 79 adolescent girls of the hills. The study also reported dinner as the heaviest meal of the day for both areas followed by lunch and breakfast for the adolescent girls of the hills and the Tarai.

The table also presents fast food consumed by the school-going adolescent girls of the region (Hill & Tarai). It appeared from the above table that 97 girls from the Tarai region accept fast food as a part of their meal followed by 102 girls from the Hill region.

H₀2: There is a significant difference in the habits of fasting and over eating of the school going adolescent girls belonging to hill and tarai region.

Table 2: Habit of Intentionally Ignoring Hunger

Response	Tarai	Hill	Total
Yes	30	34	64
No	120	116	236
Total	150	150	300
Eating Habit while Doing Something			
Response	Tarai	Hill	Total
Yes	109	107	216
No	41	43	84
Total	150	150	300

Over Eating Habit of School Going Adolescent Girls			
Response	Tarai	Hill	Total
Yes	79	87	166
No	71	63	134
Total	150	150	300
Feeling Guilty for Eating Habits			
Response	Tarai	Hill	Total
Yes	59	16	75
No	91	134	225
Total	150	150	300
Skipping Meals as Afraid of Gaining Weight			
Response	Tarai	Hill	Total
Yes	45	19	64
No	105	131	236
Total	150	150	300
Dieting Behaviour			
Response	Tarai	Hill	Total
Yes	29	6	35
No	121	144	265
Total	150	150	300
Hate Overeating while Gaining Weight			
Response	Tarai	Hill	Total
Yes	98	31	129
No	52	119	171
Total	150	150	300

Table 2 highlighted the habits of fasting and overeating of the school-going adolescent girls belonging to the hill and the Tarai region. The study reported unintentional behaviour behind the skipping meal behaviour or remaining hungry. The study also expressed eating habits while doing something and it was found that adolescent girls of the hills and the Tarai did the same. As we know that overeating is one of the most common habits of adolescents therefore the present study also highlighted the same nature of the adolescent girls of the hills and the Tarai and it was found that overeating was more common in both areas only a significant difference was found however they had the guilt of doing that. It was also found that adolescent girls of the Tarai were more conscious about weight increase therefore they used to avoid meals whenever they got afraid of doing this.

H₀3: There is a significant difference in the habits of eating fast food of the school going adolescent girls belonging to hill and tarai region

Table 3: Habits of Eating Fast Food

Response	Hill	Tarai	Total
Yes	146	144	290
No	4	6	10
Total	150	150	300
Frequency of Fast Food Consumption			
Once in a month	43	58	101
Once in a week	63	66	129
Twice in a week or more	35	23	58
Daily	9	3	12
Total	150	150	300
Portion of Fast Food Usually Intake			
Small	39	34	73
Medium	109	112	221
Large	2	4	6
Total	150	150	300
Kind of Beverages Intake with Fast Food			
Coffee or Tea	12	36	48
Fresh Fruit Juice	18	24	42
Sweetened Fruit Drinks or Soft Drinks	44	46	90
Water	76	44	120
Total	150	150	300

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Reason for eating fast food			
Delicious Taste	127	126	253
Diversity of fast food	10	2	12
Convenience	1	5	6
Availability of fast food	12	17	29
Total	150	150	300
Concerns Regarding Fast Food			
Hygiene and Safety	80	57	137
Price	42	68	110
Quality	16	17	33
Nutritional Value	12	8	20
Total	150	150	300
Nutritional Value of Fast Food			
High	1	3	4
Acceptable	41	28	69
Low	33	36	69
Don't Know	75	83	158
Total	150	150	300

Table 3 presents the fast-food eating habits of the adolescent girls of the hills and the Tarai. The study reveals that the adolescent girls of both areas were fast food lovers, however, the percentage of taking fast food was found more common and frequent in the adolescent girls of the Tarai, compared to the hills as the adolescent girls of the Tarai reported taking fast food twice in a week or more. The study reported sweetened fruit drinks or soft drinks as the most lovable drinks among adolescent girls of the Tarai, however, the percentage of intake and frequency was again more than the adolescent girls of the hills. The consumption of fast food and other items was reported due to the delicious taste however adolescent girls were found aware of hygiene and safety but unaware of the nutritional value of fast food.

H₀4: There is a significant difference in the habits of hygiene and safety of the school going adolescent girls belonging to hill and tarai region

Table 4: Consider more while having the food

Criteria	Tarai	Hill	Total
Taste	78	90	168
Hygiene	72	60	132
Total	150	150	300
Wash your hands before eating and touching food			
Always	132	101	233
Often	8	34	42
Sometimes	10	15	25
Total	150	150	300
Wash fruits before eating			
Always	129	96	225
Often	10	35	45
Sometimes	11	18	29
Never	0	1	1
Total	150	150	300
Read the instructions for usage and preservation			
Always	71	22	93
Often	28	19	47
Sometimes	37	90	127
Never	14	19	33
Total	150	150	300

Table 4 presents the habits of hygiene and safety of the school-going adolescent girls belonging to the hill and Tarai region. The study depicts that both the adolescent girls of the hills and the Tarai are conscious of the taste and the hygiene part of the food whenever they intake something, however, there was a significant difference between the adolescent girls of the hills and the Tarai was found. During the study, the adolescent girls of the Tarai were found more aware of hygiene compared to the adolescent girls of the hills. On the other hand, the adolescent girls of the hills were found more food lovers than the adolescent girls of the Tarai as they used to prefer the tasty part of food whenever they intake something.

Besides, the habit of washing their hands before eating and touching food, washing fruits before eating, and reading the instructions for usage and preservation before consuming any eatable items were found in the adolescent girls of the hills and the Tarai equally.

H₀5: There is a significant difference in the nature of diet and source of drinking water of the school going adolescent girls belonging to hill and tarai region

Table 5: Nature of Diet

Criteria	Tarai	Hill	Total
Vegetarian	22	27	49
Non-Vegetarian	37	32	69
Eggetarian	19	31	50
Occasionally Non-Vegetarian	72	60	132
Total	150	150	300
Source of Drinking Water			
Hand Pump	38	8	46
Natural Stream Water	0	78	78
Govt. Water Supply	93	60	153
Other	19	4	23
Total	150	150	300
Kind of Drinking water			
Natural	114	139	253
Purified	31	6	37
Boiled	5	1	6
Other	0	4	4
Total	150	150	300
Drinking water quantity			
2 Ltr	92	96	188
4 Ltr	50	37	87
6 Ltr	7	16	23
More than 6 Ltr	1	1	2
Total	150	150	300

Table 5 showed the nature of the diet of the school-going adolescent girls in both regions. According to the above table, majority of the adolescent girls are non-vegetarians which includes occasionally and regularly followed by 37 pure non-vegetarians and 22 vegetarians and 19 Eggetarian in the Tarai area. On the other hand, the percentage of occasionally non-vegetarian, purely non-vegetarian, and vegetarian are quite similar to the adolescent girls of the Kumaun region. However, the number of Eggetarian in the hills is more than in the Tarai. Besides, it also showed the source of drinking water for school-going adolescent girls in the hills and Tarai region as well. The table shows that the natural source of water is the main source of water for the hill area while the government water supply is the main source of water in the Tarai region. The table also presents the drinking water quantity per day of the school-going adolescent girl of Hill & Tarai. It appeared from the above table that 92 girls from the Tarai region drink 2 Ltr water per day followed by 50 girls from the Tarai region drink 4 Ltr water per day, 7 girls from the Tarai region drink 6 Ltr water per day and only 1 girl from Tarai region drink More than 6 Ltr water per day. The table also reveals that 96 girls from the Hill region drink 2 Ltr water per day followed by 37 girls from the Hill region that drink 4 Ltr water per day, 16 girls from the Hill region who drink 6 Ltr water per day and only 1 girl from Hill region drink More than 6 Ltr water per day.

H₀6: There is a significant difference in the consumption pattern of common food items of the school going adolescent girls belonging to hill and tarai region

Table 6: Consumption Pattern of Common Food Items

Food Items		Area	
		Tarai Count	Hill Count
Chapati	Never	0	0
	Twice or More in a Day	126	128
	Once in a Day	21	20
	Twice in a Week or More	1	1
	Once in a Week	0	0
	Twice in a Month or More	0	0
	Once in a Month	0	0
	Twice in a Year	0	0
	once in a Year	0	0
	Sometimes	2	1

Rice	Never	1	0
	Twice or More in a Day	53	32
	Once in a Day	81	116
	Twice in a Week or More	11	1
	Once in a Week	3	0
	Twice in a Month or More	0	1
	Once in a Month	0	0
	Twice in a Year	0	0
	once in a Year	0	0
Daal	Sometimes	1	0
	Never	1	0
	Twice or More in a Day	22	20
	Once in a Day	69	82
	Twice in a Week or More	33	39
	Once in a Week	19	5
	Twice in a Month or More	3	0
	Once in a Month	1	0
	Twice in a Year	0	0
Egg	once in a Year	0	0
	Sometimes	2	4
	Never	24	21
	Twice or More in a Day	1	3
	Once in a Day	13	9
	Twice in a Week or More	25	49
	Once in a Week	36	32
	Twice in a Month or More	17	11
	Once in a Month	7	3
Green Vegetables	Twice in a Year	0	0
	once in a Year	1	0
	Sometimes	26	22
	Never	1	1
	Twice or More in a Day	57	7
	Once in a Day	45	21
	Twice in a Week or More	24	81
	Once in a Week	12	26
	Twice in a Month or More	3	6
Tuber	Once in a Month	1	1
	Twice in a Year	0	0
	once in a Year	0	0
	Sometimes	7	7
	Never	11	4
	Twice or More in a Day	33	27
	Once in a Day	42	40
	Twice in a Week or More	29	51
	Once in a Week	17	16
Root Vegetables	Twice in a Month or More	5	8
	Once in a Month	4	1
	Twice in a Year	0	0
	once in a Year	0	0
	Sometimes	9	3
	Never	10	11
	Twice or More in a Day	11	8
	Once in a Day	23	16
	Twice in a Week or More	43	62
Once in a Week	28	25	
Twice in a Month or More	5	8	
Once in a Month	6	5	
Twice in a Year	1	0	
once in a Year	1	1	

Roasted Cerals and Grams	Sometimes	22	14
	Never	14	48
	Twice or More in a Day	15	11
	Once in a Day	35	12
	Twice in a Week or More	28	6
	Once in a Week	31	17
	Twice in a Month or More	9	4
	Once in a Month	4	10
	Twice in a Year	1	6
	once in a Year	0	1
Meat or Chicken	Sometimes	13	35
	Never	37	41
	Twice or More in a Day	5	0
	Once in a Day	6	10
	Twice in a Week or More	26	9
	Once in a Week	29	11
	Twice in a Month or More	15	20
	Once in a Month	14	22
	Twice in a Year	0	3
	once in a Year	1	0
Salad	Sometimes	17	34
	Never	5	8
	Twice or More in a Day	53	15
	Once in a Day	50	44
	Twice in a Week or More	11	41
	Once in a Week	10	19
	Twice in a Month or More	3	6
	Once in a Month	1	0
	Twice in a Year	0	0
	once in a Year	0	0
Pickles	Sometimes	17	17
	Never	11	11
	Twice or More in a Day	24	12
	Once in a Day	34	31
	Twice in a Week or More	22	49
	Once in a Week	17	16
	Twice in a Month or More	8	6
	Once in a Month	8	2
	Twice in a Year	1	1
	once in a Year	0	0
Milk & Its Products	Sometimes	25	22
	Never	6	6
	Twice or More in a Day	38	39
	Once in a Day	51	58
	Twice in a Week or More	16	29
	Once in a Week	12	7
	Twice in a Month or More	3	0
	Once in a Month	1	2
	Twice in a Year	1	2
	once in a Year	0	0
Fruits Juices	Sometimes	22	7
	Never	9	21
	Twice or More in a Day	7	6
	Once in a Day	33	10
	Twice in a Week or More	22	24
	Once in a Week	31	22
	Twice in a Month or More	9	14
	Once in a Month	10	9
	Twice in a Year	2	1

Fruits	once in a Year	0	1
	Sometimes	27	42
	Never	2	3
	Twice or More in a Day	38	10
	Once in a Day	43	21
	Twice in a Week or More	24	38
	Once in a Week	26	31
	Twice in a Month or More	1	14
	Once in a Month	2	4
	Twice in a Year	0	1
Tea	once in a Year	2	0
	Sometimes	12	28
	Never	20	19
	Twice or More in a Day	68	52
	Once in a Day	42	66
	Twice in a Week or More	3	3
	Once in a Week	2	2
	Twice in a Month or More	1	2
	Once in a Month	1	0
	Twice in a Year	0	0
Fast Food	once in a Year	0	0
	Sometimes	13	6
	Never	2	8
	Twice or More in a Day	6	6
	Once in a Day	16	15
	Twice in a Week or More	31	22
	Once in a Week	48	18
	Twice in a Month or More	17	32
	Once in a Month	13	25
	Twice in a Year	2	0
Dry Food	once in a Year	1	0
	Sometimes	14	24
	Never	11	25
	Twice or More in a Day	11	5
	Once in a Day	20	9
	Twice in a Week or More	26	11
	Once in a Week	18	14
	Twice in a Month or More	13	11
	Once in a Month	13	16
	Twice in a Year	3	3
once in a Year	1	0	
Sometimes	34	56	

Table 6 presents the picture of the consumption pattern of common food items of the school-going adolescent girls belonging to the hill and Tarai region. The study reported chapatti as the most consumed food for the adolescent girls of the hills and the Tarai however the adolescent girls of the hills are much more than the Tarai who intake chapatti in their daily meals. Rice, Dal, Roasted Cereals Grams, Tea, fruit, and fruit juice were the leading consumed food grain which was, at least, consumed once a day by both the adolescent girls of the hills and the Tarai however the percentage of hills was much more than Tarai. Egg, Meat-Chicken, and fast food were some of the foods which was consumed once a week however the percentage of hills was again more than the Tarai except in the case of non-veg food as it was easily available in the Tarai region. Green Vegetables, Salad, and Milk & products consumed twice or more in a day by adolescent girls with the same percentage.

Conclusion and Suggestion

1. The present research study depicts the dietary pattern of adolescents of the hills and Tarai region of Kumaun region of Uttarakhand. The study reveals that non-vegetarians are most common in the hilly area however the adolescent girls living in the Tarai region also consume non-veg. However, the reason for consumption of non-veg, regularly or occasionally in hilly areas is far from the Tarai area. Generally, it is believed that people living in high-altitude areas depend on their pets for their daily needs which include meat too. Besides, due to low temperatures or high cold people use to take non-veg or non-veg-related food to keep them warm.

2. The present research work shows the sources of a drinking water facility for the school-going adolescent girls in the hilly as well Tarai region and according to table 4.2 adolescent girls from hill areas mostly depend on natural sources of water compare to the students who live in Tarai region and who totally depends on the water supplied by the local municipal corporation. Therefore, it was found that adolescent girls of the hill have a sound metabolism rate than the girls of Tarai as they consume natural water which has rich minerals, and they are able to consume non-veg food which is almost daily in their life.
3. The study also depicts the drinking water consumption by adolescent girls in a day. According to the above table adolescents, girls from the hilly area consume more water on a daily basis while the girls from the Tarai region consume less water.
4. The present study also reveals the dietary pattern of the adolescent girls of the hills as well as the Tarai region. The study reveals that adolescent girls, from the hilly area, are more regular than the girls who belong to the Tarai region who mostly skip any of their meals.
5. The present research also depicts the issue of fast-food consumption habits among adolescent school-going girls in both hills as well as Tarai of the Kumaun region of Uttarakhand. The study breaks the myth about the availability and consumption of fast food by the metropolitan people and expresses the harsh reality of the remote area of the Kumaun region of Uttarakhand where people are not only aware of the fast food but it is in their day-to-day meals which may become the area of concern in near future for the newly established state of India.

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