

Qualitative assessment of food habits and nutrient intake of adolescents in two different states in South India

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Abstract

Associations between diet, nutrition, and chronic diseases are well documented in 2002. World Health Organization (WHO) report on world health indicate that under nutrition along with micro nutrient deficits is responsible for over half the indirect cost of disease in low-income countries. The health policies and nutritional interventions involved in this effort may be contributing to a rapid increase in overweight among all age groups. In our previous papers, Preliminary data collection for nutritional education and anthropometric Profile of adolescents were reported. In continuation, further work was done and reports showed that consumption of non-vegetarian food was high in Chennai as compared to Vijayawada and normal weight children have regular meal timings. Reports were noted in relation to intake of water, cold drinks, fruit juices etc., food preference, fasting period, food allergy, breakfast skipping.

Key words: Food intake, food preference, food allergy, food products etc.

Introduction

Children are the most precious resource for any country. Hence focused to improve the quality of life by giving the needed importance to them to promote their health and protect from diseases.

During adolescence, children have warm emotional feeling towards mothers cooked food. Their skipping breakfast effects health concern that well-known negative consequences physically and psychologically (Farrow *et al.*, 2014). A few

studies examine the impact of breakfast and regular meals on academic performance and physical activity levels and find that a regular habit of eating breakfast as opposed to skipping meal had a beneficial impact on attention, concentration, memory and school achievement (Gajre *et al.*, 2008). Enlightening the adolescent children on healthy dietary behavior should be put in the front position.

According to Macdiarmid *et al.*, 2015, the importance of food preferences and social reasons for purchasing food and drinks need to be acknowledged and integrated in future interventions. So, presently a vast qualitative analysis is done on food habits and nutrient intake of adolescents.

Materials and Methods

Information on food consumption pattern is essential for assessing the food needs of population / groups both at regional and national levels Mahtab Bamji, (1996).

Qualitative assessment

In current study qualitative aspect of food consumption included details of type of food eaten (vegetarian/ non-vegetarian/ vegetarian), frequency of eating non vegetarian foods (daily/weekly/occasionally), meal timings (regular/irregular), water intake (number of glasses per day), like and dislikes, foods taking in lunch packs, food allergies, fasting of food, food frequency etc. All the reports are noted and tabulated.

Results and Discussion

Food habits and nutrient intake of the subjects

Qualitative assessment - Food habits

The Data on food habits of subjects presented in table 1 and Fig 1 shows that of 39.33% of boys 45.33% of girls and were vegetarian in Vijayawada which was more than Chennai. In Chennai, consumption of non-vegetarian food was high in both boys (78.66%) and girls (74%). Children consuming eggs but follow vegetarian food habits boys and girls were 10.66% and 12% in Vijayawada, whereas in Chennai comparatively more vegetarians were observed in boys (12%) and less in girls (8.66%). Thus, overall it can be stated that consumption of non-vegetarian food was

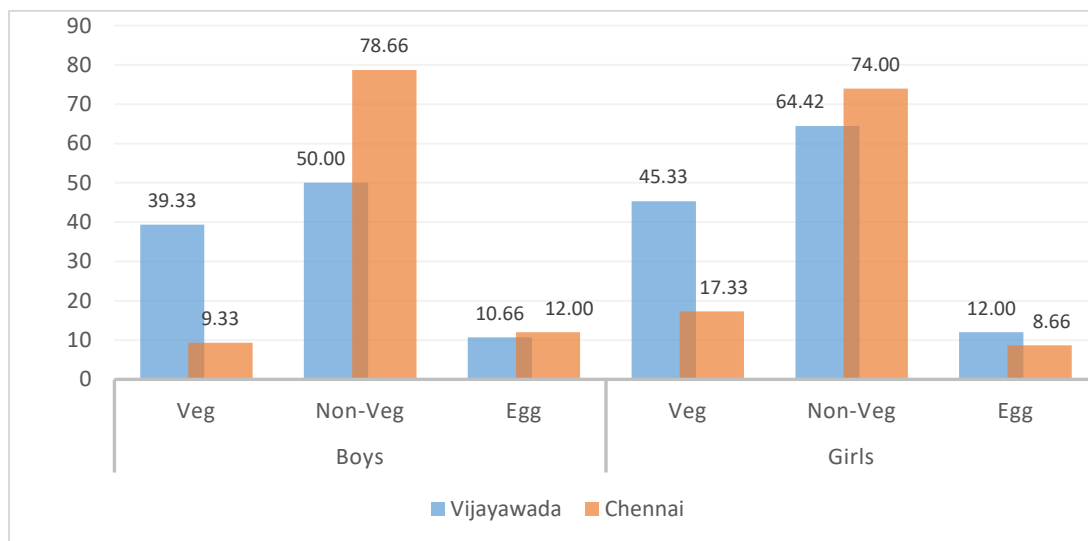
high in Chennai as compared to Vijayawada.

Table: 1 Percentage of Food Habits of adolescents in Vijayawada and Chennai

S.No	Category	Food Habits		
		Vegetarian	Non-Vegetarian	Eggetarian
Vijayawada				
1	VNB	33(47.82)	30 (43.47)	6(8.69)
2	VOB	7(28.00)	14(56.00)	4(16.00)
3	VUB	19(33.92)	31(55.35)	6(10.71)
	Total	59(39.33)	75(50.00)	16(10.66)
1	VNG	5(5.61)	32(35.92)	52(58.42)
2	VOG	7(24.13)	17(58.62)	5(17.24)
3	VUG	7(28.12)	15(46.87)	8(25.00)
	Total	68(45.33)	64(64.42)	18(12.00)
Chennai				
1	CNB	7(8.64)	65(80.24)	9(11.11)
2	COB	4(14.81)	18(66.66)	5(18.51)
3	CUB	3(7.14)	35(83.33)	4(9.52)
	Total	14(9.33)	118(78.66)	18(12.00)
1	CNG	19(22.61)	60(71.42)	5(5.95)
2	COG	5(13.51)	28(75.67)	4(10.81)
3	CUG	2(6.89)	23(79.31)	4(13.79)
	Total	26(17.33)	111(74.00)	13(8.66)
	Grand Total	65(10.83)	368(61.33)	167(27.83)

Note: Figures in parenthesis indicate percentages

Fig: 1 Percentage distribution of food habits of adolescents



Meal timings of subjects

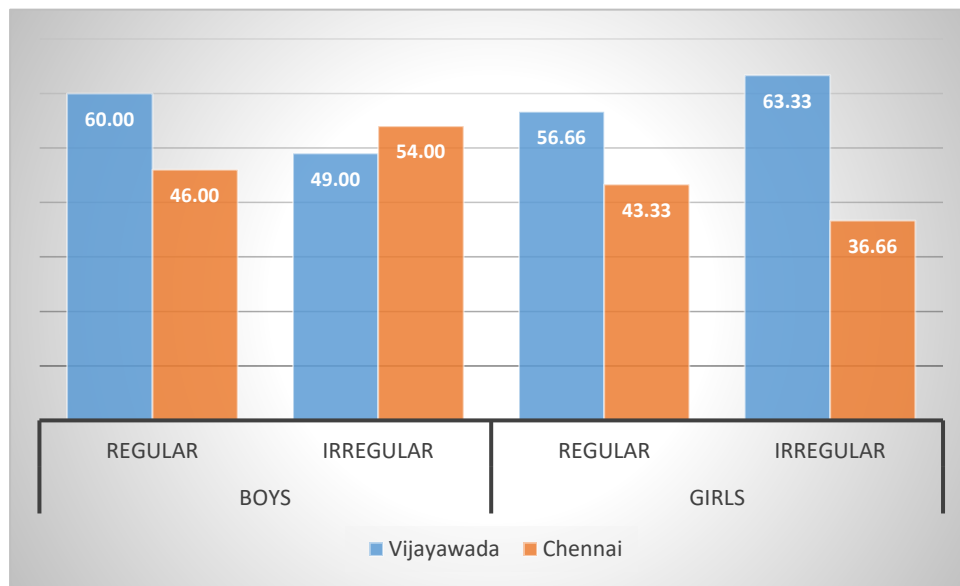
The meal timings were described as regular and irregular based on skipping breakfast and fixed timings for all the three meals (Table 2 and Fig 2). In schools of Vijayawada, 69.56 % of boys and 56.18% of girls were consuming their meals regularly. But in Chennai adolescents, 49.38 % of boys have irregular timings and 60.71% of girls were having a regular time for meals, this percentage was more than the Vijayawada girls having meals at a fixed time. The report shows that maximum normal weight children have regular meal timings.

Table: 2 Meal timings among adolescents in Vijayawada and Chennai

S. No	Meal Timings	N		O		U	
		Vijayawada	Chennai	Vijayawada	Chennai	Vijayawada	Chennai
1	Boys						
	Regular	48 (69.56)	40(49.38)	13(52.00)	8(29.63)	29(51.78)	2(50.00)
	Irregular	21 (30.43)	4(50.61)	12(48.00)	19(70.37)	27(48.21)	21(50.00)
	Total	69(40.00)	81(54.00)	25(16.66)	27(18.00)	56(37.33)	42(28.00)
2	Girls						
	Regular	50 (56.18)	51(60.71)	18(62.06)	22(59.45)	17(53.12)	22(75.86)
	Irregular	39(43.82)	33(39.28)	11(37.93)	15(40.54)	15(46.87)	7(24.13)
	Total	89 (59.33)	84(56.00)	29(19.33)	37(24.66)	32(21.33)	29(19.33)

Note Figures in parenthesis indicate percentages

Fig: 2 Meal timings of adolescents



Intake of water by subjects

The table 3 reveals that the mean intake of water was 7.41 and 6.93 in Vijayawada and Chennai respectively. The range varies from 15 maximum to minimum 2 glasses per day shows a wide range and extreme pattern of drinking.

Table: 3 Mean value for daily intake of water of adolescents in Vijayawada and Chennai

S. No	Category	Water Intake (glasses/day)		
		Mean ± SD	Range	Standards
Vijayawada				
1	VNB	7.79 ±3.30	15 - 3	7 - 8
2	VOB	7.96±3.37	15 - 3	7 - 8
3	VUB	8.23±3.72	15 - 2	7 - 8
4	VNG	6.23±2.24	10 - 2	7 - 8
5	VOG	8.31±2.77	15 - 4	7 - 8
6	VUG	6.87±2.96	15 - 3	7 - 8
	Total	7.41±3.13		
Chennai				
1	CNB	7.00±3.41	15 - 3	7 - 8
2	COB	6.55±3.16	15 - 3	7 - 8
3	CUB	5.83±2.19	15 - 3	7 - 8
4	CNG	7.19±2.61	10 - 2	7 - 8
5	COG	8.21±3.04	15 - 2	7 - 8
6	CUG	6.34±2.02	15 - 4	7 - 8
	Total	6.93 ± 2.91		

Food likes by the subjects

The list of food items liked by children was shown in table 4. From Vijayawada few children prefer non veg when compared to those in Chennai. 69.33% of boys and 71.33% of girls from Vijayawada like snacks or fast foods which were more than Chennai. Ice creams and cold drinks were second most preferred items among children 34% boys from both places liked them. 43% and 55% girls from Vijayawada and Chennai liked ice creams respectively. Chocolates were also favorite among 14% boys and 35% girls from Vijayawada and 13% boys and 38% girls from Chennai. It was observed and shown in the data that south Indian food was more liked by Chennai students than Vijayawada, as it is regional food for them. Fruits and vegetables were least acceptable. Overall more children like other vegetables as compared to leafy vegetables from both the places.

Table: 4 Percentage of adolescents liked foods in Vijayawada and Chennai

S. No	Category	Biryani	Snacks / fast food	Ice cream/ cold drinks	Chocolate	South Indian food	Leafy vegetable	Fruit	Other vegetables
1	VNB	4 (5.79)	43 (62.31)	26 (37.68)	7 (10.14)	4 (5.79)	4 (5.79)	5 (7.24)	6 (8.69)
2	VOB	6 (24.00)	17 (68.00)	11 (44.00)	4 (16.00)	5 (20.00)	4 (16.00)	5 (20.00)	5 (20.00)
3	VUB	7 (12.5)	44 (78.57)	15 (26.78)	10 (17.85)	7 (12.50)	6 (10.71)	5 (8.92)	9 (16.07)
	Total	17 (11.33)	104 (69.33)	52 (34.66)	21 (14.00)	16 (10.66)	14 (9.33)	15 (10.00)	20 (13.33)
1	VNG	2 (2.24)	69 (77.52)	35 (39.62)	26 (29.21)	0 (0.00)	8 (8.98)	11 (12.35)	10 (11.23)
2	VOG	1 (3.44)	18 (62.06)	13 (44.82)	12 (41.37)	2 (6.89)	3 (10.34)	5 (17.24)	3 (10.34)
3	VUG	0 (0.00)	20 (62.50)	17 (53.12)	15 (46.87)	3 (9.37)	1 (3.12)	0 (0.00)	1 (3.12)
	Total	3 (2.00)	107 (71.33)	65 (43.33)	53 (35.33)	5 (5.33)	12 (8.00)	16 (10.66)	14 (9.33)

1	CNB	10 (12.34)	40 (49.38)	29 (35.80)	13 (16.04)	12 (14.81)	9 (11.11)	5 (6.17)	9 (11.11)
2	COB	3 (11.11)	12 (44.44)	11 (40.74)	3 (11.11)	4 (14.81)	1 (3.70)	2 (7.40)	2 (7.40)
3	CUB	8 (19.04)	20 (47.61)	11 (26.19)	4 (9.52)	3 (7.14)	2 (4.76)	7 (16.66)	4 (9.52)
	Total	21 (14.00)	72 (48.00)	51 (34.00)	20 (13.33)	19 (12.66)	12 (8.00)	14 (9.33)	15 (10.00)
1	CNG	5 (5.95)	45 (53.57)	45 (53.57)	31 (36.90)	9 (10.71)	3 (3.57)	17 (20.23)	12 (14.28)
2	COG	3 (8.10)	17 (45.94)	17 (45.94)	14 (37.83)	5 (13.51)	4 (10.87)	6 (16.21)	2 (5.40)
3	CUG	3 (10.34)	13 (44.82)	21 (72.41)	12 (41.37)	8 (27.58)	2 (6.89)	3 (10.34)	4 (13.79)
	Total	11 (7.33)	75 (50.00)	83 (55.33)	57 (38.00)	22 (14.66)	9 (6.00)	26 (17.33)	18 (12.00)
	Grand Total	52 (8.66)	358 (59.66)	251 (41.83)	151 (25.16)	62 (10.33)	47 (7.83)	71 (11.83)	67 (11.16)

Note: Figures in parenthesis indicate percentages

Consumption of milk with combination of flavors

The data in table 5 reveals the consumption of health drinks by adolescents. Maximum respondents 18.66% boys and 20.66% girls were taking bournvita in Vijayawada. The percentage of consumption was higher as compared in Chennai. Whereas in Chennai, the maximum intake boost was observed in 30% boys and 24% girls. Complain consumption was more seen among Chennai girls (14%) as compared to all other groups. 10.66% of boys and 10% of girls from Chennai drink horlicks and the same percentage was observed among Vijayawada girls. Only 8% of boys from Vijayawada drink horlicks. Intake of milo, ensure and viva were least in both the places. Thus, in the current study out of 600 students intake of boost (21%) was highest followed by bournvita (13%). No health drink was provided by the school authority.

Table: 5 Percentage of adolescents consuming milk with different flavors in Vijayawada and Chennai

S..NO	Gender	Supplementary Food at Home				
		Boost	Bournvita	Complan	Horlicks	Milo
Vijayawada						
1	Boys	21 (14.00)	28(18.66)	10(6.66)	12 (8.00)	2(1.33)
	Girls	24(16.00)	31 (20.66)	15(10.00)	15(10.00)	0 (0.00)
	Total	45(11.00)	59(19.66)	25 (8.33)	27 (9.00)	2 (0.66)
Chennai						
2	Boys	45 (30.00)	5(13.33)	11(7.33)	16(10.66)	0 (0.00)
	Girls	36(24.00)	14(9.33)	21 (14.00)	15(10.00)	3 (2.00)
	Total	81 (27.00)	19 (6.33)	32 (10.66)	31 (10.33)	3 (0.66)
	Grand Total	126(21.01)	78 (13.00)	57 (9.50)	58 (9.66)	5 (0.83)

Note: Figures in parenthesis indicate percentages

Lunchbox carried to school by adolescents

The data in table 6 shows that 88.66% of boys and the same percentage of girls from Vijayawada carry a lunch box to school. Only 1 1.33% boys and 13.33% girls eat lunch at home once they return from school. In Chennai 97.33% boys and 90%, girls carry a lunch box to school the major reason was that school get over by 3.30pm in the evening. 2.66% boys and 10% girls prefer eating lunch at home. As per the results, maximum girls prefer eating at home belong to normal weight category.

Table: 6 Lunch box carried to school by adolescents in Vijayawada and Chennai

S.NO	Category	Lunch	
		Home	Lunchbox
Vijayawada			
1	VNB	8(11.59)	61 (88.40)
2	VOB	1 (4.00)	24 (96.00)
3	VUB	8(14.28)	48(85.71)
	Total	17(11.33)	133 (88.66)
1	VNG	14(15.73)	75 (84.26)
2	VOG	0 (0.00)	29(100.00)
3	VUG	6(18.75)	26(81.25)
	Total	20 (13.33)	130 (88.66)
Chennai			

1	CNB	1(1.23)	80(98.76)
2	COB	2 (7.40)	25 (92.59)
3	CUB	1 (2.38)	41 (97.61)
	Total	4(2.66)	146 (97.33)
1	CNG	11 (13.09)	73 (86.90)
2	COG	1 (2.70)	36(97.29)
3	CUG	3(10.34)	26(89.65)
	Total	15(10.00)	135 (90.00)
	Grand Total	56 (9.33)	544 (90.66)

Note:Figures in parenthesis indicate percentages

Snack items consumed by subjects

The type of snacks consumed by children during break time in Vijayawada 50.66% boys and girls eat chips and murku/chikki brought from home, the biscuit was also one of the most consumed snacks by 37.33% boys and 48% girls. 16% boys and 14% girls eat samosa or aloo bondas during snack break purchased from outside that too not very regularly (Table 7). The fruit was also consumed in break time was 16% of boys and 12.66% of girls. The other fast foods include maggi, pizza, pasta, burger consumed by 8.66% of boys and 11.33% of girls. Cold drinks and juices were less preferred.

In Chennai again the consumption of biscuits and Chips / murkus was quite high in both girls and boys. Whereas from the data it can analyze that girls (18%) of Chennai carry and eat more variety of food items during snack break was observed consuming snacks like (samosa, fruit juices and puffs) maximum homemade, in boys the percentage was less. Fruit intake was seen in 22% girls and 6% in boys. Other fast food items were 20% of girls and 7.33% of boys.

Table: 7 Food items eaten in school during snack break by adolescents in Vijayawada and Chennai

S.No	Category	Food items in a small break							
		Bread	Biscuit	Chips/ Murku	Samosa/ Bonda	Cold drink and Juice	Puffs	Fruits	Other fast food
Vijayawada									
1	VNB	14(20.28)	25(36.23)	33(47.82)	10(14.49)	3(4.34)	5(7.24)	12(17.39)	6(8.69)
2	VOB	2(8.00)	6(24.00)	11(44.00)	5(20.00)	3(12.00)	3(12.00)	4(16.00)	1(4.00)
3	VUB	10(17.85)	25(44.64)	32(57.14)	9(16.07)	5(8.92)	10(17.85)	8(14.28)	6(10.71)
	Total	26(17.33)	56(37.33)	76(50.66)	24(16.00)	11(7.33)	18(12.00)	24(16.00)	13(8.66)
1	VNG	23(25.84)	49(55.05)	46(51.68)	12(13.48)	3(3.37)	1(1.12)	11(12.35)	9(10.11)
2	VOG	8(27.58)	13(44.08)	14(48.27)	1(3.44)	2(6.89)	3(10.34)	3(10.34)	3(10.34)
3	VUG	9(28.12)	10(31.25)	16(50.00)	8(25.00)	4(12.5)	7(21.87)	5(15.62)	5(15.62)
	Total	40(26.66)	72(48.00)	76(50.66)	21(14.00)	9(6.00)	11(7.33)	9(12.66)	17(11.33)
Chennai									
1	CNB	12(14.81)	34(41.97)	31(38.27)	12(14.81)	6(7.40)	7(8.64)	9(11.11)	8(9.87)
2	COB	1(3.70)	7(25.92)	5(18.51)	0(0.00)	1(3.70)	1(3.70)	0(0.00)	1(3.70)
3	CUB	2(4.76)	7(40.47)	18(42.85)	4(9.52)	1(2.38)	3(7.14)	0(0.00)	2(4.76)
	Total	15(10.00)	58(38.66)	54(36.00)	16(10.66)	8(5.33)	11(7.33)	9(6.00)	11(7.33)
1	CNG	22(26.19)	33(39.28)	42(50.00)	17(20.23)	17(20.23)	18(21.42)	19(22.61)	19(22.61)
2	COG	10(27.02)	13(35.13)	17(45.94)	6(16.21)	7(18.91)	7(18.91)	9(24.32)	6(16.21)
3	CUG	5(17.24)	8(27.58)	13(44.82)	4(13.79)	3(10.34)	3(10.34)	5(17.24)	5(17.24)
	Total	37(24.66)	54(36.00)	72(48.00)	27(18.00)	27(18.00)	28(18.66)	33(22.00)	30(20.00)
	Grand Total	118 (19.66)	240 (40.00)	278 (46.33)	88(14.66)	55(9.16)	68(11.33)	85(14.16)	71(11.83)

Note: Figures in parenthesis indicate percentages

Fasting done by adolescents

Details of fasting done by 18.66% boys and 20.66% girls from Vijayawada were shown in Table 8. It is a religious fasting done for Ganesh Chaturthi following Hindu cultures. From Chennai 22% boys and 43.33% girls do religious fasting once in a year that is in Ramzan month following Muslim culture. In Chennai fasting for any

Hindu festival was not observed.

Table: 8 Data of fasting and food items consumed during fasting by adolescents in Vijayawada and Chennai

S.No	Place	Category	Fasting		Snacks			
			Yes	No	Fruit	Milk	Fried Items	Saboodana
1	Vijayawada	VNB	13(18.84)	56(81.15)	9(13.04)	1(1.44)	0(0.00)	3(4.34)
2		VOB	4(16.00)	21(84.00)	1(4.00)	0(0.00)	0(0.00)	1(4.00)
3		VUB	11(19.64)	45(80.35)	10(17.85)	0(0.00)	0(0.00)	4(7.14)
		Total	28(18.66)	122(81.33)	20(13.33)	1(0.66)	0(0.00)	8(5.33)
1	Chennai	CNB	19(23.45)	62(76.54)	4(4.93)	1(1.23)	0(0.00)	0(0.00)
2		COB	5(18.51)	22(81.48)	0(0.00)	0(0.00)	0(0.00)	1(3.70)
3		CUB	9(21.42)	33(78.57)	5(11.90)	3(7.14)	0(0.00)	0(0.00)
		Total	33(22.00)	117(78.00)	9(6.00)	4(2.66)	0(0.00)	1(0.66)
1	Vijayawada	VNG	18(20.22)	71(79.77)	16(17.97)	0(0.00)	0(0.00)	12(13.48)
2		VOG	9(31.03)	20(68.96)	6(20.68)	0(0.00)	0(0.00)	2(6.89)
3		VUG	4(12.5)	28(87.50)	4(12.5)	0(0.00)	0(0.00)	2(6.25)
		Total	31(20.66)	119(79.33)	26(17.33)	0(0.00)	0(0.00)	16(10.66)
1	Chennai	CNG	24(28.57)	60(71.42)	5(5.95)	1(1.19)	0(0.00)	0(0.00)
2		COG	17(45.94)	20(54.05)	8(21.62)	1(2.70)	1(2.70)	0(0.00)
3		CUG	24(82.75)	24(82.75)	3(10.34)	0(0.00)	0(0.00)	0(0.00)
		Total	65(43.33)	104(69.33)	16(10.66)	2(1.33)	1(0.66)	0(0.00)
		Grand Total	157(26.16)	462(77.00)	71(11.83)	7(1.16)	1(0.16)	25(4.16)

Note: Figures in parenthesis indicate percentages

From the table 8 it can be interpreted that among all the subjects who do fasting, eat fruits as main snacks, saboodana dishes were mainly consumed by respondents from Vijayawada 10.66% by girls and 5.33% by boys. Milk intake was more in Chennai boys (2.66%) and girls 1.33% respectively.

Food Allergy

The data in table 9 shows that food allergy was observed in 7.24% of boys and 5.61% of girls in Vijayawada. From Chennai, 11.11% of boys and 7.14 % of girls

suffer from food allergy.

Table: 9 Data on food allergy among adolescents in Vijayawada and Chennai

S. No	Obesity	N		O		U	
		Vijayawada	Chennai	Vijayawada	Chennai	Vijayawada	Chennai
1		Boys					
	Yes	5(7.24)	9(11.11)	3(12.00)	3(11.11)	1(1.78)	12(28.57)
	No	64(92.75)	72(88.88)	22(88.00)	24(88.88)	55(98.21)	30(71.42)
	Total	69(46.00)	81(54.00)	25(16.66)	27(18.00)	56(37.33)	42(28.00)
2		Girls					
	Yes	5(5.61)	6(7.14)	2(6.89)	3(8.10)	2(6.25)	5(17.24)
	No	84(94.38)	78(92.85)	27(93.10)	34(91.89)	30(93.75)	24(82.75)
	Total	89(59.33)	84(56.00)	29(19.33)	37(24.66)	32(21.33)	29(19.33)

Note Figures in parenthesis indicate percentages

Skipping of breakfast by adolescents

Skipping breakfast seems a simple way of losing weight or saving time while getting the children ready for school or rushing off to work. But it can also be a sign of an unhealthy lifestyle with potentially dangerous consequences, including a higher risk of premature death.

In the current study while filling questionnaire and discussion it was noticed that children knew that “Breakfast is one of the very important meals of the day it is called as powerhouse, gives energy throughout the day” as a common say. Table 10 and Fig 3 show the details that out of 600 students from Vijayawada and Chennai 46.16% skip their breakfast sometime, 35.50% do not skip breakfast at all which is a very positive point 2.3% of children often miss breakfast. 16% will surely skip or do not eat breakfast on daily basis.

Table: 10 Skipping of breakfast by adolescents in Vijayawada and Chennai

S. No	Place	Category	Skip breakfast			
			Yes	No	Sometime	Often
Boys						
1	Vijayawada	VNB	9(13.04)	31(44.92)	24(34.78)	5(7.24)
2		VOB	5(20.00)	7(28.00)	12(48.00)	1(4.00)
3		VUB	9(16.07)	12(21.42)	35(62.5)	0(0.00)
		Total	(23(15.33))	50(33.33)	71(47.33)	6(4.00)
1	Chennai	CNB	16(19.75)	26(32.09)	39(48.14)	0(0.00)
2		COB	4(14.81)	9(33.33)	14(51.85)	0(0.00)
3		CUB	10(23.80)	11(26.19)	20(47.61)	1(2.38)
		Total	30(20.00)	46(30.66)	73(48.66)	1(0.66)
Girls						
1	Vijayawada	VNG	12(13.48)	36(40.44)	39(43.82)	2(2.24)
2		VOG	6(20.67)	6(20.68)	16(55.17)	1(3.44)
3		VUG	7(21.87)	14(43.75)	11(34.37)	0(0.00)
		Total	25(16.66)	56(37.33)	66(44.00)	3(2.00)
1	Chennai	CNG	6(7.14)	34(40.47)	42(50.00)	0(0.00)
2		COG	6(16.21)	13(35.13)	16(43.24)	4(2.66)
3		CUG	6(20.68)	14(48.27)	9(13.03)	0(0.00)
		Total	18(12.00)	61(40.66)	67(44.66)	4(2.66)
		Grand Total	96(16.00)	213(35.50)	277(46.16)	14(2.33)

Note: Figures in parenthesis indicate percentages

The result shows that majority of children skip breakfast sometimes thus the table 10 explains the reason behind it. Out of 600 students from both the places 49% skip breakfast because of early school timings. The second main reason was that 14.66% children do not feel hungry or they are not interested to eat much early morning. 0.33% showed interest in playing at the time of breakfast and the same percentage had stomachache.

Fig:3 Skipping breakfast among boys and girls

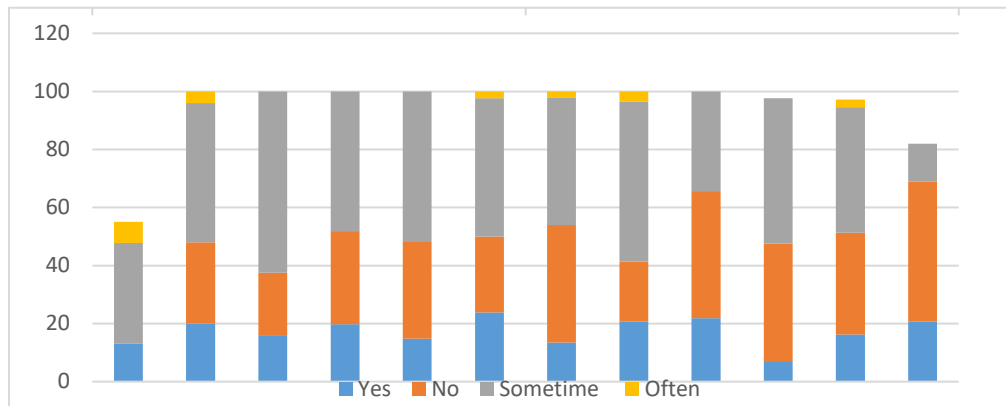


Table: 11 Data describing the reason for skipping breakfast by adolescents in Vijayawada and Chennai

S. No	Place	Category	Reason for Skipping Breakfast					
			Not Interested/ Not Hungry	Busy Playing	Beaten by parents	Stomach ache	Food not Tasty	School timings
Boys								
1	Vijayawada	VNB	7(10.14)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	31(44.92)
2		VOB	4(16.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	14(56.00)
3		VUB	6(10.71)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	38(67.85)
		Total	17(11.33)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	83(55.33)
1	Chennai	CNB	8(9.87)	0(0.00)	0(0.00)	1(1.23)	0(0.00)	47(58.02)
2		COB	3(11.11)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	15(55.55)
3		CUB	7(16.66)	1(2.38)	1(2.38)	1(2.38)	0(0.00)	22(52.38)
		Total	18(12.00)	1(0.66)	1(0.66)	2(1.33)	0(0.00)	84(56.00)
Girls								
1	Vijayawada	VNG	7(7.86)	1(1.12)	0(0.00)	0(0.00)	0(0.00)	46(51.68)
2		VOG	9(31.03)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	14(48.27)
3		VUG	4(12.5)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	48(43.75)
		Total	20(13.33)	1(0.66)	0(0.00)	0(0.00)	0(0.00)	74(49.33)
1	Chennai	CNG	20(23.80)	0(0.00)	0(0.00)	0(0.00)	1(1.19)	27(32.14)
2		COG	8(21.62)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	16(43.24)
3		CUG	5(17.24)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	10(34.48)
		Total	33(22.00)	0(0.00)	0(0.00)	0(0.00)	(1.066)	53(35.33)

		Grand Total	88(14.66)	2(0.33)	1(0.16)	2(0.33)	1(0.16)	294(49.00)
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Note: Figures in parenthesis indicate percentages

Conclusion:

Food is related to psychological satisfaction it affects dietary pattern among adolescent. Non Vegetarian adolescents are 61.33% while the remaining 27.83% and 10.83% were vegetarian respectively. Consumption of non veg food was high in Chennai as compared to Vijayawada. Meal timings were more regular in Vijayawada boys and Chennai girls. Mean intake of water was slightly high in Vijayawada than Chennai, but least intake by normal weight girls from Vijayawada. Fast food followed by cold drinks, fruit juices, ice creams and chocolates although they were aware that these are not good for health. Most disliked items were bitter gourd, brinjal followed by leafy vegetables. Religious fasting was done by 18.66% boys and 20.66% girls from Vijayawada during festivals. Out of 600 respondents 50% of adolescent from both the places rated their own diet as good, 39.5% as fair and 5% poor. Food allergy was mostly observed in underweight boys and girls of Chennai. From results it was concluded that 64% and above adolescent consumed variety in pulses, 34% boys from Vijayawada and 28% girls from both cities preferred eating one type of dal on daily basis. Skipping breakfast was a common practice among adolescent because of early school timings, for not feel hungry, stomachache and due to interest in extracurricular activities. However, it is clear that through qualitative assessment definitely nutritional education is needed for adolescent children.

References:

1. World Health Organization (WHO). Adolescent Nutrition: A Review of the Situation in Selected South-East Asian Countries. Regional Office for the South-East Asia. WHO reference number: SEA-NUT-163: 2002: 21-49.

2. Farrow CV, Sampasa Kanyinga H, Roumeliotis P and Shi YF. Breakfast skipping is associated with cyber bullying and school bullying victimization. A school-based cross sectional study. *Appetite* 2014; 79:76-82.
3. Gajre, Fernadez N.S. S, Baiakrishna N and Vazir S. Breakfast eating habit and its influence on attention-concentration, immediate memory and school achievement. *Indian Journal of Pediatrics* 2008; 45(10): 824-828.
4. Felice, C.S., Nasim, A., Bhargavi, M.A., Gandhi K., H., Deepthi, R., Mahesh, N. Study of bio-clinical parameters in anemic and non-anemic individuals of selected age groups, *Biosciences Biotechnology Research Asia*, 2008, 5(2), 845-848.
5. Macdiarmid Ji, Wills WJ, Massori LF, Craig LC, Bromley C and McNeill G. Food and drink purchasing habits out of school at lunch time: A national survey of secondary school pupils in Scotland. *International Journal of Behavioral Nutrition and Physical Activity* 2015; 12:98. 1-8.
6. J. Hemamalini, Dr. B. Babitha, B Lalitha Kumari, Nutritional Status of Rural Obese School going Children (11 - 15 Yrs) in Guntur District *International Journal of Science and Research (IJSR)*, 2013, 4 (12), 2316 – 2320.
7. Bamji, Mahtab, Diet, nutrition and health- challenges and opportunities. *National Academy Science Letters*. 2008. 31. 1-6.
8. Hemamalini K, and Lalitha Kumari B, Assessment of Nutritional Status of Boys and Girls in Government and Corporate School Children in Nambur Mandal, Guntur (Dt.) Andhra Pradesh, *IndiaResearch Journal of Pharmaceutical, Biological and Chemical Sciences*, 2016, 7(1), 1054 – 1062.
9. Kumar Reddy, P.V.V., Teja, V.S., Kumar, P.M. Engineered impact of tangibles on repurchase intentions in organized fast food industry, *International Journal of Mechanical Engineering and Technology*, 2018, 9(2), 888-899.
10. J Hemamalini¹, and B Babitha, Development Of Nutritional Status By Nutrition Education For School Going Boys (13 To 15 Years) In Vijayawada And Chennai, *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 2018, 9(4), 1041 – 1048.
11. Ramyasri, R., Ishasanjida, S., Parasa, D., Bano, S. Food survey using exploratory data analysis, 2019 2nd International Conference on Intelligent Communication and Computational Techniques, ICCT 2019, 2019, 258 – 264.