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Need of effective educational programme on fast food for awareness among teenagers of Sabour block in Bhagalpur district of India

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Abstract

The rise in fast food consumption pattern among teenagers has led to several socio-economical and health issues in India. The present survey was conducted to find whether there is need of fast food-related educational programme among teenagers using the questionnaires-cum-structured interviews. In the present survey, when we enquired from respondents for having earlier educational knowledge or educational programme about IFF (Indian Fast Food) and WFF (Western Fast Food), the answer in case of IFF was, “Yes” (girls, 67.6%; boys, 62%), and “No” (girls, 30.8%; boys, 36%); While in case of WFF, “Yes” (girls, 66%, boys, 53.6%), and “No” (girls, 31.2%; boys, 41.6%). In response to a query, where from they get knowledge or information, the response was mostly from regular curriculum (girls, 25.2%, boys, 14.8%), internet (girls, 23.2%; boys, 23.2%), newspaper (girls, 11.2%; boys, 12%), and to some extent from magazine (girls, 2.4%; boys, 10.4%), TV/Radio (girls, 3.6%; boys, 12.4%), and health awareness programme (girls, 14.2%, boys, 8.9%). While, in case of WFF, it was from the regular curriculum (girls, 20.6%; boys, 6.4%), internet (girls, 29.2%; boys, 23.2%), magazine (girls, 3.2%; boys, 12%), newspaper (girls, 7.6%; boys, 5.2%), TV/Radio (girls, 7.2%, boys; 14.8%), and health awareness programme (girls, 9.6%; boys, 11.6%). Though, most of the respondents had the prior knowledge/information about fast foods from educational programmes, yet they lacked the factual information. Hence, there is need to revisit the ongoing educational programme or to start some effective educational programme to enrich their knowledge.

Keywords: Fast food, educational programme, teenagers

Introduction

Once, Hippocrates had rightly said about food that “*Let food be thy medicine and medicine be thy food*” (let food be your medicine and medicine be your food). This is being observed in recent times that there is rapid shift in consumer’s life-style due to change in standard of living, work culture, hectic work schedule, and free-thinking and global perspective. These impact our dietary pattern and routine food consumption. Out of various foods consumed across the world, “fast food” is one that is becoming popular among masses, especially young generations, thereby it is one of the fastest growing industries. Hence, it is pertinent to know about the fast food and its impact on teenagers. “Fast food” as the name suggests it is the food which can be prepared and served in very short time. National Institute of Health (USA) defines the fast food as quick and cheap alternatives to home meals. These foods are rich in saturated fat, sugar, salt and calories.

Eating out in India has evolved from an event driven activity to a daily activity, and fast-food has become a important symbol for the modern culture as it tends to satisfy customers in a relatively short time (Narayan and Prabhu, 2015) [6]. India also has long tradition foods with variety of recipes that still prevail in various part of country. Indian foods that includes in fast food lists are Alloo-tikki, Bhelपुरi, Panipurī, Paav-bhaji, Chat, Pakora, Samosa, Kachaudi, Chole-Bhature, Idali, Dosa, Uttapam, etc. IFFs are traditionally prepared by deep frying in fat (Keshari and Mishra, 2016) [4]. There are enough scientific data in India to substantiate that fast food have become an integral part of diet in all segment of society. It was also found that the youngsters often visit fast food channels just for the sake of fun and some change from daily routine eating (Goyal and Singh, 2007) [1].

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Today, the fast food industry is adapted to Indian food need and is growing at high pace. As fast food is generally considered rich in calorie, fat, sugar, salt and poor in other nutrients, it has contributed to rise of many non-communicable diseases, metabolic diseases such as obesity and over-weight, type II diabetes mellitus, hypertension and cardiovascular diseases among more common. The rise of fast food industry has changed the global urban food culture in India to some extent. In India, fast food culture started to rise post independence, however, over a period of time with increase in the number of nuclear families as well working parents, increasing per capita income as well as globalization. The fast food culture gained prominence with the liberalized Indian economy post 1990's, several multi-national companies (MNCs) forayed in IFF market with their outlets in metro- and small cities largely functioning in shopping malls and other public areas. MNCs like Burger King, Pizza Hut, Domino's pizza, McDonald and KFC (Kentucky Fried Chicken) are serving several Western fast foods including Burger, French fries, Pizza and Hamburgers, etc. to satisfy the Indian consumer's taste buds. It is evident from our earlier reports (Kumari and Kumari, 2019; Kumari and Kumari, 2020a; Kumari and Kumari, 2020b) [7, 8, 9] that teenagers in rural-urban areas lack the information or knowledge on the quality aspects of fast foods and factors affecting the choice of fast food. In this paper, we reports why there is urgent need to educate the teenagers through the effective educational programmes.

2. Methods

The present study was conducted at Sabour Block of Bhagalpur district (Bihar). A convenient selection of ten schools/colleges was made for study purpose. Total 500 respondents, which include 250 boys and 250 girls (~50 students from each school/college) of age 12-18 years, were randomly selected for present study. The permission to conduct study was obtained from the respective school principals. Also, the consent from the parents or guardians in addition to assent from each student was obtained after providing them information and purpose of this study. The questionnaires-cum-structured interviews were conducted to as many consenting students chosen randomly in each class. It contained structured questions on fast food consumption. Data was collected with the help of questionnaire-cum-structured interview schedule. Accordingly, wherever necessary information from secondary sources such as books, journals, newspapers, and internet was used.

Initially we conducted the pilot survey to check that the questions we have asked are providing us the relevant information regarding the main objectives of our survey or not, and then to check the various factors like approximate time needed to fill up a schedule, for getting the feedback of the respondent if they find any question irrelevant or illogical to check what type of response we are getting while doing the survey i.e. the respondent should not find the question uninteresting. Also the pilot survey helped us in finding out the most effective way to ask questions so as to get the best possible response from the respondent. Moreover, the pilot survey helped in pre-testing the schedule and to get an idea about the procedure of the survey. Ten schedules were given to respondents (teenagers) prior to actual survey.

Collected data from the field was properly analyzed and presented in the tables and graphic forms with the help of several statistics tools as per the need of study. On the basis of collected data to draw different conclusions and inference, the

statistical procedure were adopted, (1) Tabulation of data by using frequency tables and cross tabulation, (2) Graphical representation, and (3) Testing of Hypotheses by applying the Chi-square (χ^2) test.

The information gathered and obtained for the study was carefully construed and condensed into a master chart. The data was then arranged, tabulated and discussed upon and was presented with the help of tables and figures. The data was further statistically analyzed. Chi-Square (χ^2) Test of independence was followed as it is a procedure for testing if two categorical variables are related in some population. The P-value was calculated using P-value Calculator available online

(<https://www.socscistatistics.com/pvalues/chidistribution.aspx>; <https://www.graphpad.com/quickcalcs/pvalue1.cfm>).

The Body Mass Index (BMI) was calculated to screen for overweight and obesity among Indian children based on standard guidelines was used to categorize BMI.

BMI was calculated by the following formula: Weight (kg)/Height (m) \times Height (m)

It is a popular tool used to classify the degree of obesity. It is based upon a relationship between height and weight. It is used to assess thinness or obesity in the sample. Four categories on the basis of BMI were, Under Weight (< 18.5), Normal range (18.5 to < 25), Over Weight (25 < 30), and Obesity (> 30) and health risk associated moderate, low, high and very high, respectively [Sutra (2005) [11], Food and Nutrition World, Institute of Science Bangalore].

Socio-economic scales are also widely used in community surveys and studies to assess the socioeconomic status of the family. We used the revised modified BG Prasad socioeconomic classification scale (2016) in the present study that is applicable to both urban and rural areas, based on monthly per capita income is the only indicator, applicable for both families and individual and relatively simple (upper class, \geq Rs. 6346; upper middle class, Rs. 3173 -6345; middle class, Rs 1904-3172; lower middle class, Rs. 952-1903; lower class, Rs. \leq 951) (Shaikh and Pathak, 2016) [10].

3. Results and Discussion

In recent times, any kind of information including fast food-related is flowing immensely through social media or through internet. But, the quality and authenticity of these information is very important as many of such information is being misinterpreted or wrongly perceived or lack authenticity. The advertisement or any promotional activity or publicity of fast food in print or electronic media may impact the adolescent or young minds and influence their consumption. The Union of European beverages association (UNESDA) has laid down procedure to check the marketing communication to be placed in printed media, web sites, or programs aimed at children. Further, it directs not to directly appeal to children to persuade their parents to buy their products, and also should not let the promotional activities that led children to consume greater quantities for participation (www.unesda.org/our-unesda-commitments-act-responsibly; Kaushik *et al.*, 2011) [3]. In India, media advertisement and publicity is under the control of ministry of information and broadcasting (Government of India) that has set up a committee to review the complaints related to advertisement in electronic media under India cable television network act 1994 and advertising standard council of India (ASCI). In such cases, imparting training or educating teenagers after evaluating their depth of knowledge is very crucial. The observations of the present study are being discussed under following sub-heads:

3.1 Age of respondent

Total 500 respondents, which included 250 boys and 250 girls (~50 students from each school/college) of age 12-18 years,

were randomly selected for present study. Respondent comprised girls and boys aged 12-14, 52.8% and 50%, respectively (Table 1; Fig. 1).

Table 1: Age of respondents

Variables	Values [#]		Chi-square	P-value
	Girls (n=250)	Boys (n=250)		
12 to 14	52.8	50	$\chi^2= 25.7$	The P-Value is < .00001. The result is significant at $p < .05$, 2 df
15 to 17	9.2	25.2		
18 and above	38	24.8		

[#]Data are presented as No. (%); df: degree of freedom

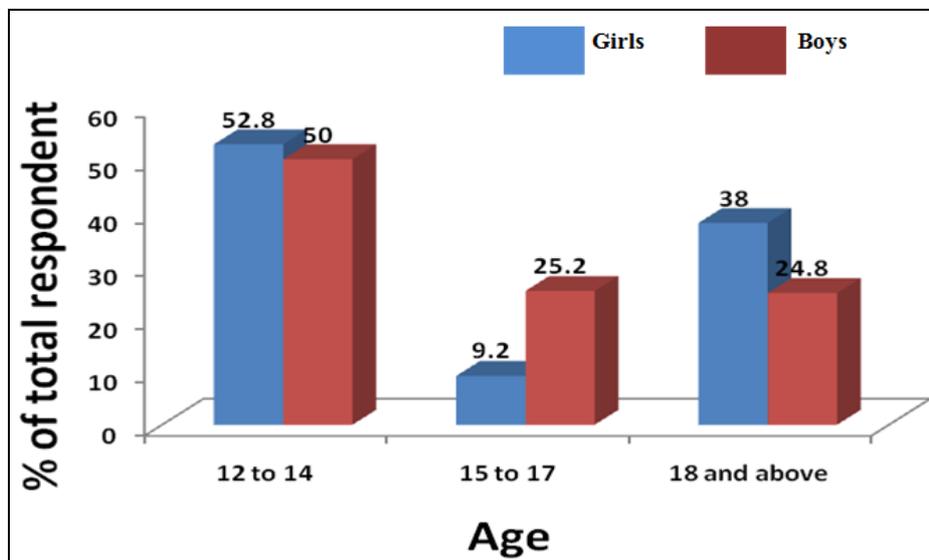


Fig 1: Graphical representation of Age of respondents

3.2 Education level

Students comprised girls and boys of class 9 and 10 mostly

56.8 and 76.4%, followed by graduate 37.6 and 18%, respectively (Table 2; Fig. 2).

Table 2: Education of respondents

Variables	Values [#]		Chi-square	P-value
	Girls (n=250)	Boys (n=250)		
6 to 8	1.2	2.8	$\chi^2= 33.3$	The P-Value is < .00001. The result is significant at $p < .05$, 3 df
9 to 10	56.8	76.4		
Intermediate	4.4	2.8		
Graduation	37.6	18		

[#]Data are presented as No. (%); df: degree of freedom

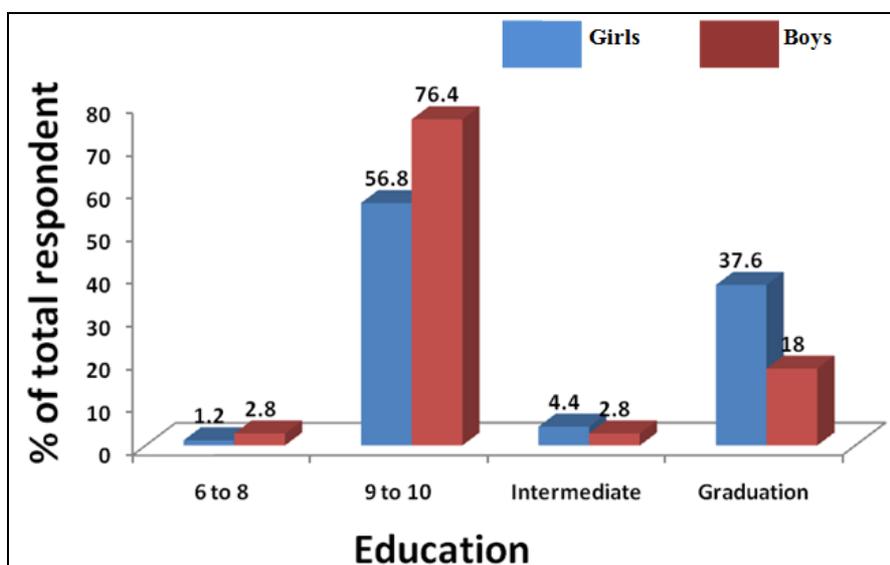


Fig 2: Graphical representation of Education of respondents

3.3 BMI (Kg/m²)

On the basis of BMI, proportion of student were found to be underweight i.e. BMI, less than 18.5 was the highest (girls, 54.8% and boys, 48.8%), followed by normal weight i.e.

BMI, 18.5 to 24.9 (girls, 41.2% and boys, 46.8%), overweight i.e. 25 to 29.9 (girls, 2.8% and boys, 4%) and obese i.e. BMI, more than 30 was none (Table 3; Fig. 3).

Table 3: BMI of respondents

Variables	Values [#]		Chi-square	P-value
	Girls (n=250)	Boys (n=250)		
Less than 18.5 (underweight)	54.8	48.8	χ^2 cal=3.29	The P-Value is 0.349037. The result is not significant at $p < .05$, 3df
18.5 to 24.9 (normal weight)	41.2	46.8		
25 to 29.9 (overweight)	2.8	4		
More than 30 (obese)	0	0		

[#]Data are presented as No. (%); df: degree of freedom

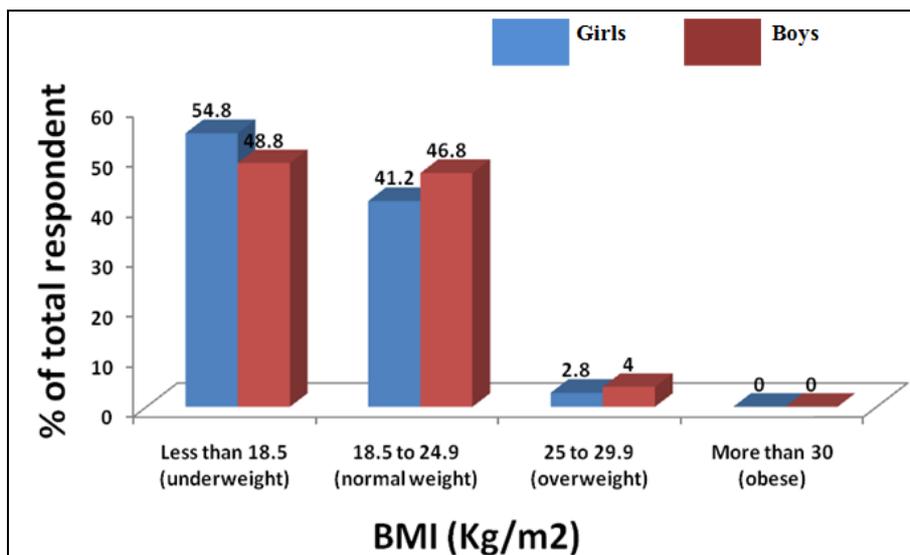


Fig 3: Graphical representation of BMI (Kg/m²) of

3.4 Food habit

The highest percentage of girls were vegetarian (girls, 51.2%) and only 48.8% were non-vegetarian, while boys were mostly

non-vegetarian 60.8% and only 36.4% were vegetarian (Table 4; Fig. 4).

Table 4: Food habits of respondents

Variables	Values [#]		Chi-square	P-value
	Girls (n=250)	Boys (n=250)		
Vegetarian	51.2	36.4	$\chi^2=9.44$	The P-Value is 0.002123. The result is significant at $p < 0.05$, 1 df
Non-vegetarian	48.8	60.8		

[#]Data are presented as No. (%); df: degree of freedom

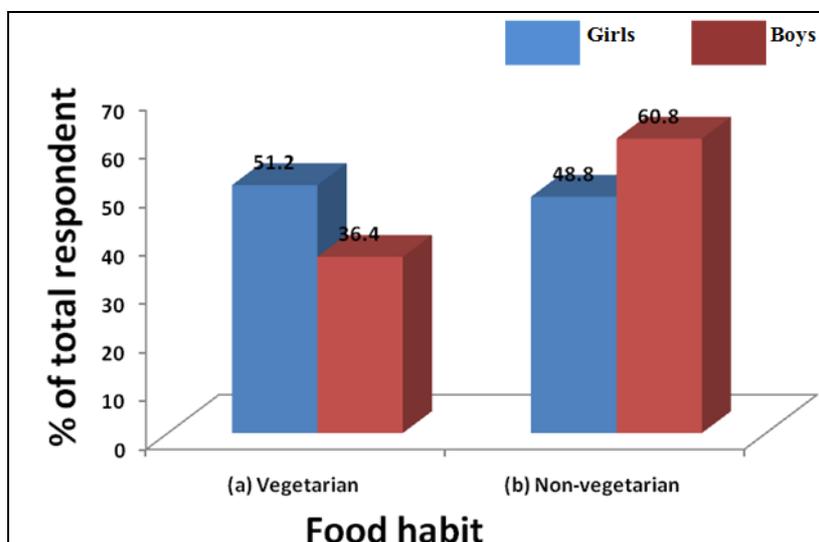


Fig 4: Graphical representation of Food habits of respondents

3.5 Family type

The girls were largely from nuclear family (58%) and only 42% belonged to the joint family, while boys 44.4%, and

55.2%, respectively belonged to these families (Table 5; Fig. 5).

Table 5: Family type of respondents

Variables	Values [#]		Chi-square	P-value
	Girls (n=250)	Boys (n=250)		
Nuclear	58	44.4	$\chi^2=9.0$	The P-Value is 0.0027. The result is significant at $p < 0.05$, 1 df
Joint	42	55.2		

[#]Data are presented as No. (%); df: degree of freedom

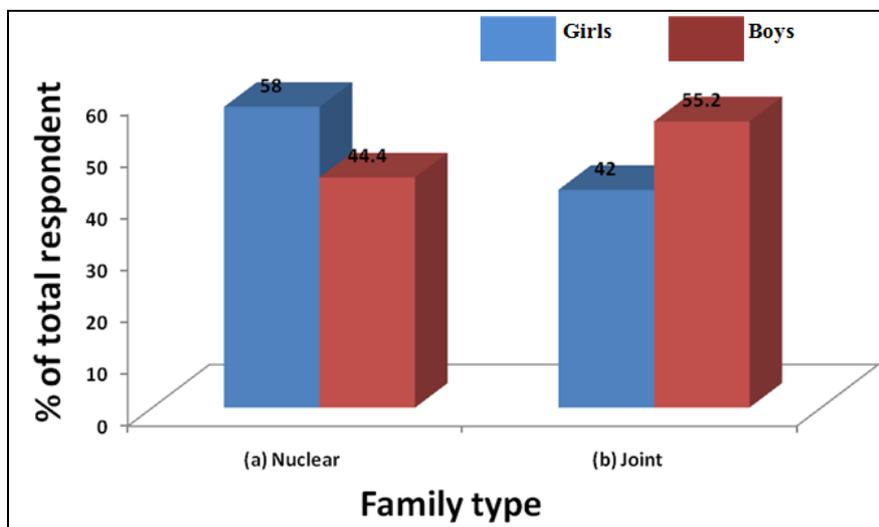


Fig 5: Graphical representation of Family type of respondents

3.6 Occupation of father and mother

The highest percentages of student's father were in government job (Girls, 40.8 and boys, 26.8%), followed by business (girls, 30.4% and boys, 34.4%), non-Govt. job (girls, 10% and boys, 14%) and other (girls, 16% and boys, 20.4%)

(Table 6; Fig. 6). On the other hand, the highest percentages of student's mother were house-wife (girls, 75.6% and boys, 77.6%), followed by govt. job (girls, 17.6% and boys, 11.2%), non-Govt. job (girls, 4.8% and boys, 8.8%) and business (girls, 2% and boys, 0%) (Table 7; Fig. 7).

Table 6: Occupation of father respondents

Variables	Values [#]		Chi-square	P-value
	Girls (n=250)	Boys (n=250)		
Unemployed	2.8	4.8	$\chi^2=15.29$	The P-Value is 0.004136. The result is significant at $p < .05$, 4df
Govt. Job	40.8	26.8		
Non-Govt. Job	10	14		
Business	30.4	34.4		
Other	16	20.4		

[#]Data are presented as No. (%); df: degree of freedom

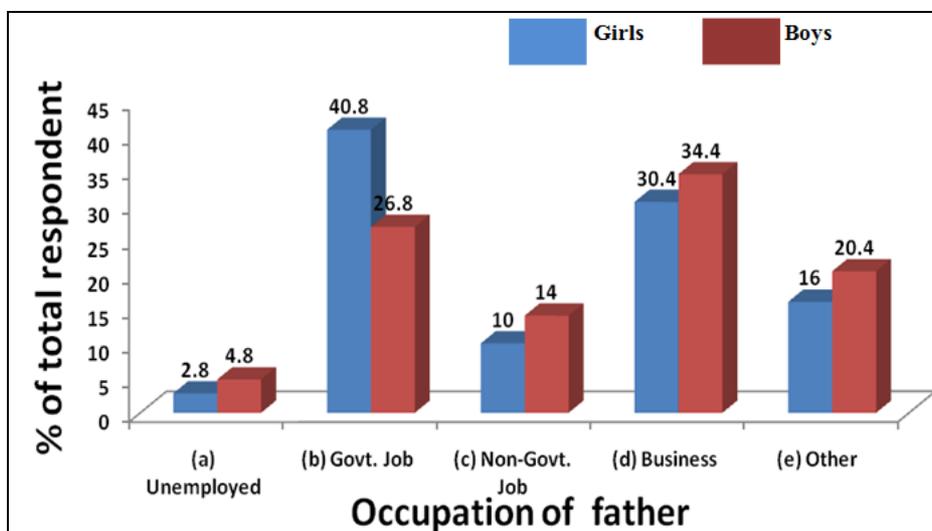


Fig 6: Graphical representation of Occupation of father respondents

Table 7: Occupation of mother of respondents

Variables	Values [#]		Chi-square	P-value
	Girls (n=250)	Boys (n=250)		
Housewife	75.6	77.6	$\chi^2=12.85$	The P-Value is 0.012032. The result is significant at $p < 0.05$, 4 df
Govt. Job	17.6	11.2		
Non-govt. Job	4.8	8.8		
Business	2	0		
Other	0	0		

[#]Data are presented as No. (%); df: degree of freedom

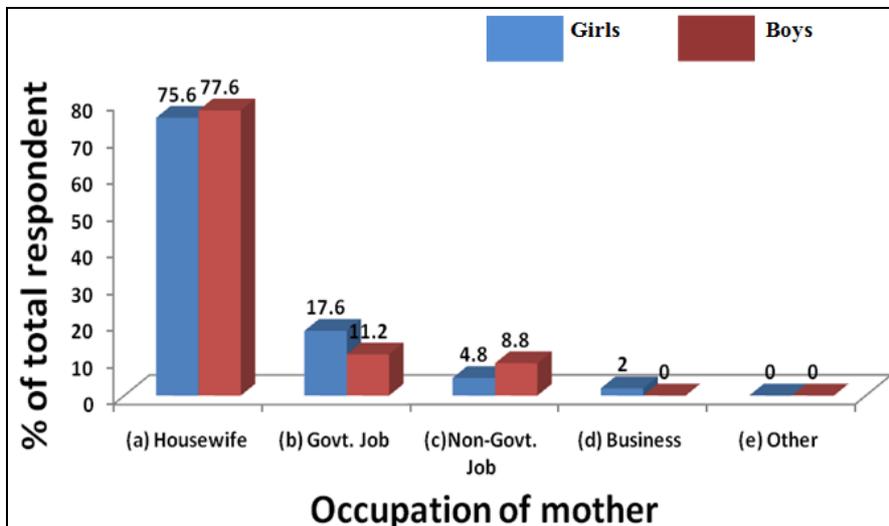


Fig 7: Graphical representation of occupation of mother of respondents

3.7 Total earning members in family

The single hand earning in family of students was the highest (Girls, 60.8% and boys, 60.8%), followed by two (girls,

29.6% and boys, 28.4%), three (girls, 6.8% and boys, 1.6%), and more than three (girls, 6.8% and boys, 8%) (Table 8; Fig. 8).

Table 8: Total earnings in family of respondents

Variables	Values [#]		Chi-square	P-value
	Girls (n=250)	Boys (n=250)		
One	60.8	60.8	$\chi^2=10.02$	The P-Value is 0.040092. The result is significant at $p < 0.05$, 4df
Two	29.6	28.4		
Three	6.8	1.6		
More than three	6.8	8		
None	0	0.4		

[#]Data are presented as No. (%); df: degree of freedom

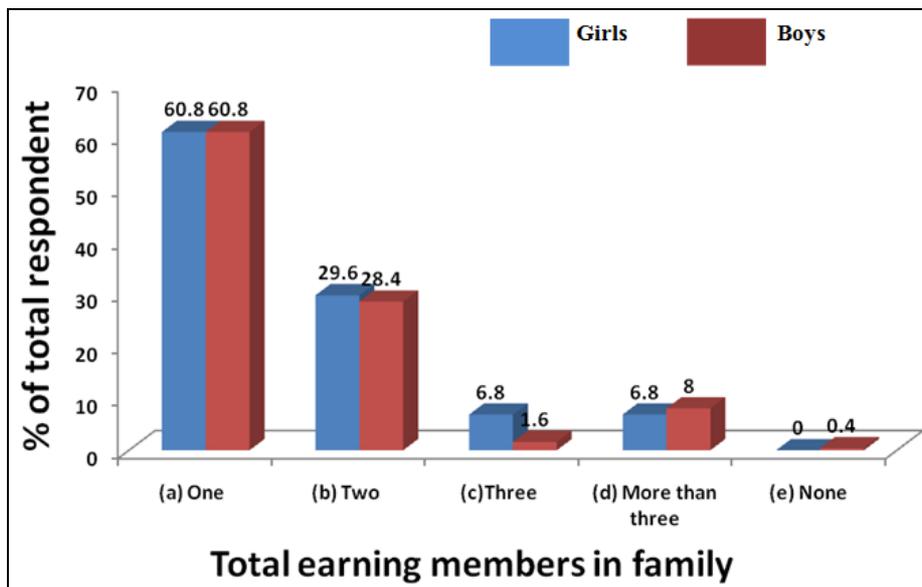


Fig 8: Graphical representation of Total earnings in family of respondents

3.8 Annual income of family

The highest percentages of student's were from family below 1 lakh income group (girls, 42.4% and boys, 39.6%), followed by 1-2 lakh (girls, 24.4% and boys, 28%), 2-5 lakh (girls, 20%

and boys, 20.8%) and the lowest percentage was of more than 5 lakh income group (girls, 8.8% and boys, 10.4%) (Table 9; Fig. 9).

Table 9: Annual income of family of respondents

Variables	Values [#]		Chi-square	P-value
	Girls (n=250)	Boys (n=250)		
Below 1 lakh	42.4	39.6	Girls, $\chi^2=0.68$	The P-Value is 0.877898. The result is not significant at $p < 0.05$, 3 df
1-2 lakh	24.4	28		
2-5 lakh	20	20.8		
Above 5 lakh	8.8	10.4		

[#]Data are presented as No. (%); df: degree of freedom

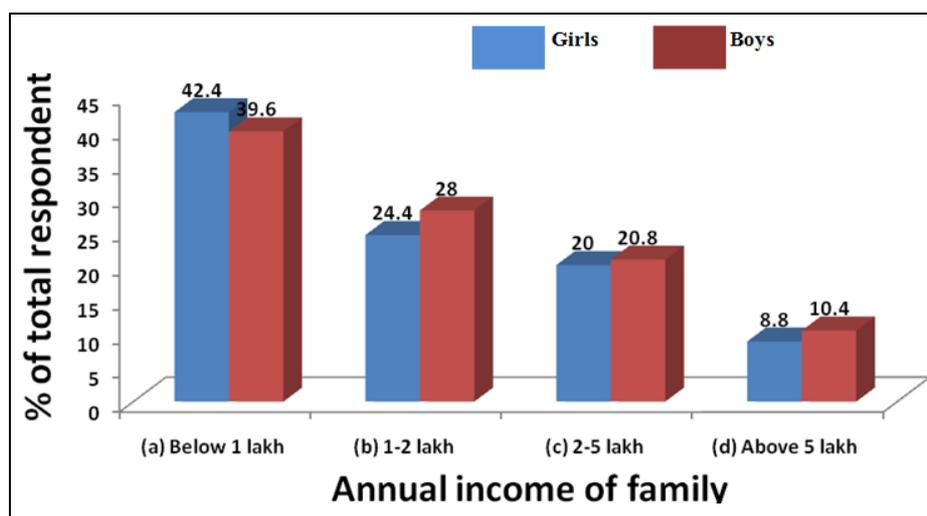


Fig 9: Graphical representation of Annual income of family of respondents

In the present study, on the basis of BMI, the proportion of student found to be underweight was the highest (girls, 54.8%; boys, 48.8%), followed by normal weight (girls, 41.2%; boys, 46.8%), and overweight (girls, 2.8%; boys, 4%). Though, in our study the underweight category scored higher than the normal and overweight. Both underweight and overweight are not good for health. Health risks are associated with both. Being underweight can represent as many health concerns to an individual as being overweight can. If a person is underweight, their body may not be getting the nutrients it needs to build healthy bones, skin, and hair (article by Rachel Nall, 2018). Risks of being underweight includes osteoporosis; skin, hair, or teeth problems, getting sick frequently; feeling tired all the time; anemia; irregular periods; slow or impaired growth. Being underweight and not getting enough calories could mean a person may not develop as expected. Till date, relatively little information is available about health risks of people with low BMI. On the other side, being overweight or obese, puts us at a greater risk for heart disease besides high blood pressure (hypertension), high LDL cholesterol ("bad" cholesterol), low HDL cholesterol ("good" cholesterol), high triglycerides, high blood glucose (sugar), family history of premature heart disease, physical inactivity, and cigarette smoking among the others according to National Heart, Lung and Blood Institute (USA). Earlier reports support these findings that Fast foods popularity among children is due to taste, appearance and advertisements (Joseph *et al.*, 2015) [2].

In our survey, we have included the socio-demographic characteristics of respondents as it could affect the consumption of fast food. As per the revised modified BG Prasad socioeconomic classification scale (2016), the

respondents belonged to largely from upper, upper middle class and middle class. It was found that the highest percentage of girls was vegetarian, while boys were mostly non-vegetarian. As it is well known, in states like Bihar, it is a general trend that the percentage of girls prefer vegetarian food is more than the boys. When the BMI was calculated, the proportion of respondents under the underweight category was the highest followed by normal weight, and overweight. Though, in our study the underweight category scored higher than the normal and overweight. The teenagers liked to consume both of the fast foods mostly and were nearly equal among both the genders. In our previous report (Ruchi Kumari and Mamta Kumari (2020a) [8], we found that among the IFFs liking for Chat, Pokora, Samosa, Patties, Panipuri was higher than followed by Puri-Kachodi, Chhole-Bhature, Stuffed Paratha. Among the WFFs pizza liked mostly followed by noodles and burger. Teenagers differed gender-wise for choice of different fast food. Earlier reports showed that boys were more interested in eating fast food than girls; both these groups mentioned different reasons for their varying level of interest in fast food.

As per National Health portal of India, beverages like buttermilk, lassi, fruit juices, and coconut water are better options for beverages than synthetic drinks (<https://www.nhp.gov.in/healthyliving/healthy-diet>). The highest percentage of girls were vegetarian (girls, 51.2%) and only 48.8% were non-vegetarian, while boys were mostly non-vegetarian 60.8% and only 36.4% were vegetarian. In states like Bihar, it is a general trend that the percentage of girls having vegetarian food habit is more than boys. The 'junk food' pattern among Greek adolescents was reported to be positively related to smoking status and the

'vegetarian/healthy' pattern was positively correlated with sports activities outside school (Kourlaba *et al.*, 2009) [5].

3.9 Having earlier educational knowledge or attended any educational on fast food

In our survey, when the respondents enquired for having earlier educational knowledge or educational programme about IFF and WFF, the answer was as follows, in case of IFF, "Yes" (girls, 67.6%; boys, 62%), and "No" (girls, 30.8%; boys, 36%) (Table 10; Fig. 10A); While in case of WFF, "Yes" (girls, 66%, boys, 53.6%), and "No" (girls, 31.2%; boys, 41.6%) (Table 10; Fig. 11A). If yes, in case of IFF from where did you get this information: from regular curriculum

(girls, 25.2%, boys, 14.8%), internet (girls, 23.2%; boys, 23.2%), magazine (girls, 2.4%; boys, 10.4%), newspaper (girls, 11.2%; boys, 12%), TV/Radio (girls, 3.6%; boys, 12.4%), and health awareness programme (girls, 14.2%, boys, 8.9%) (Table 11; Fig. 10B). In case of WFF, it was regular curriculum (girls, 20.6%; boys, 6.4%), internet (girls, 29.2%; boys, 23.2%), magazine (girls, 3.2%; boys, 12%), newspaper (girls, 7.6%; boys, 5.2%), TV/Radio (girls, 7.2%, boys; 14.8%), and health awareness programme (girls, 9.6%; boys, 11.6%) (Table 11; Fig. 11B). Hence, there is need to spread educational knowledge about IFF and WFF using magazine, TV/Radio and health awareness among teenagers, so that maximum get educated.

Table 10: Having earlier educational knowledge or educational programme about fast food

Variables	Values [#]				Chi-square	P-value
	Girls (n=250)		Boys (n=250)			
	IFF	WFF	IFF	WFF		
Yes	67.6	66	62	53.6	Girls, $\chi^2=0.035$ Boys, $\chi^2= 2.44$	P-value 0.849722. The result is not significant. $p < 0.05$, 1 df P-value 0.118276. The result is not significant, $p < 0.05$, 1df
No	30.8	31.2	36	41.6		

[#]Data are presented as No. (%).

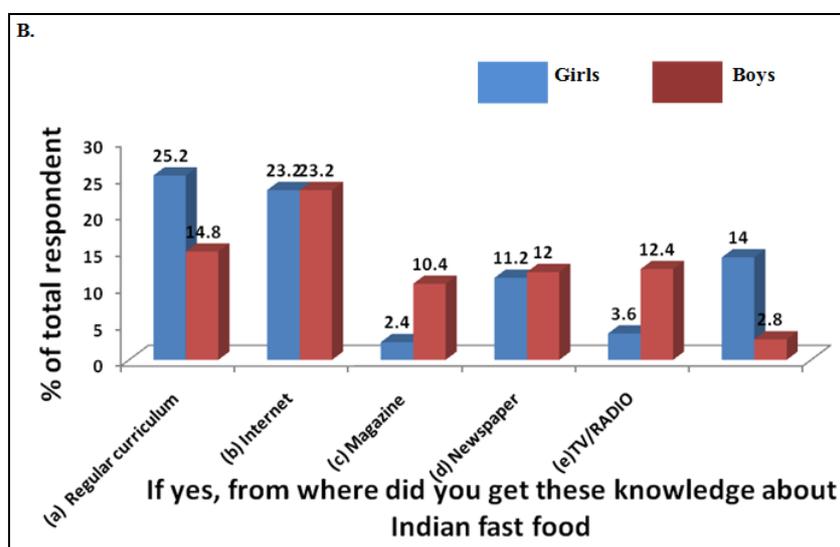
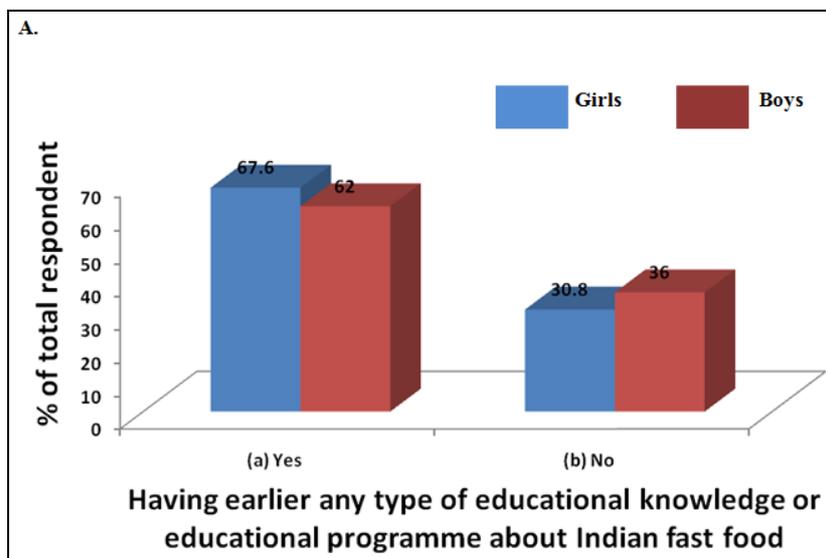


Fig 10: Graphical representation of having earlier educational knowledge or educational programme about IFF preferred by respondents (A and B)

Table 11: Having earlier educational knowledge or educational programme about IFF and WFF preferred by respondents

Variables	Values [#]				Chi-square	P -value
	Girls (n=250)		Boys (n=250)			
	IFF	WFF	IFF	WFF		
Regular curriculum	25.2	20	14.8	6.4	Girls, $\chi^2= 10.15$ Boys, $\chi^2= 29.21$	P-value 0.071068. The result is not significant. $p < 0.05$, 5df P-value 0.000021. The result is significant, $p < 0.05$, 5 df
Internet	23.2	29.2	23.2	23.2		
Magazine	2.4	3.2	10.4	12		
Newspaper	11.2	7.6	12	5.2		
TV/RADIO	3.6	7.2	12.4	14.8		
Health awareness programme	14	9.6	2.8	11.6		

[#]Data are presented as No. (%)

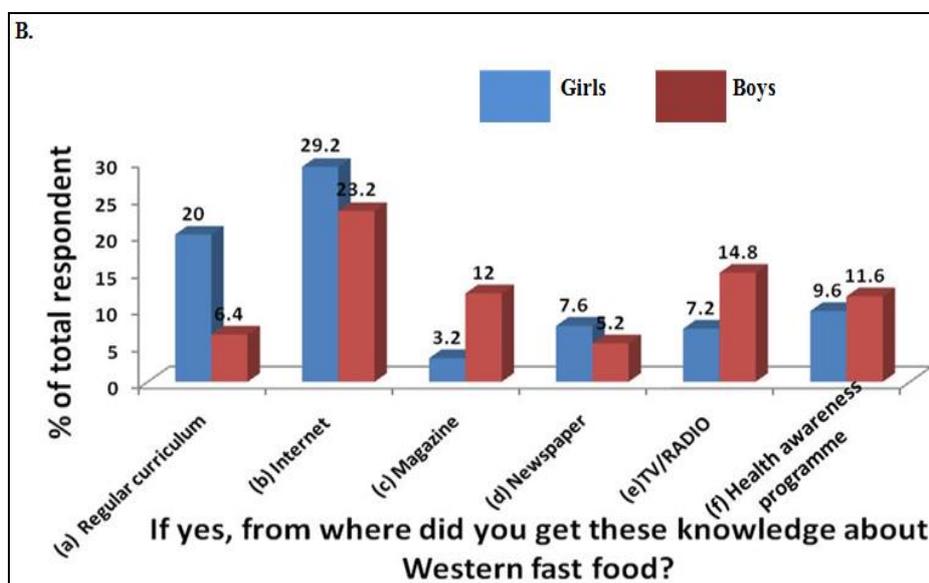
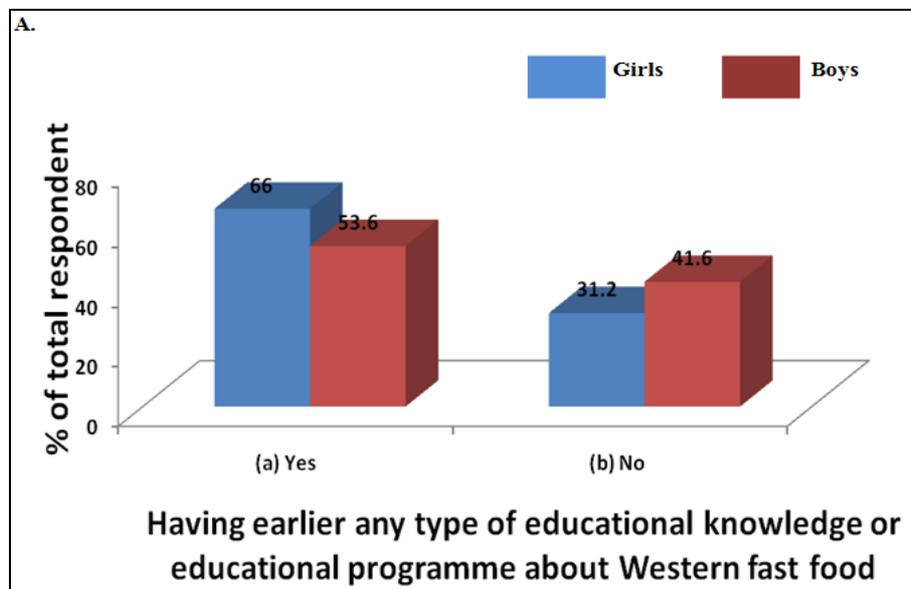


Fig 11: Graphical representation of having earlier educational knowledge or educational programme about WFF preferred by respondents (A and B)

Earlier, we reported PCA analysis “respondents having earlier any type of educational knowledge or educational programme about fast foods” through involving variables, namely, regular curriculum, internet, magazine, newspaper, TV/radio, and health awareness programme (Kumari and Kumari, 2019) [7]. The first two principal components account for nearly 83.3% of the variance in the original six variables, whilst the first three components account for nearly 100%. The first principal component is correlated with three of the original variables (regular curriculum, internet, magazine, newspaper, TV/Radio, health awareness programme). The first principal

component increased with increase in the value of variables like magazine and TV/Radio and by decrease in the value of regular curriculum. This component can be viewed as newspaper based awareness is good but there is need for improvement in health awareness programme. In conclusion, we can say that, though, most of the respondents had the prior knowledge/information about fast foods from educational programmes, yet they lacked the factual information. Hence, there is need to revisit the ongoing educational programme or to start some effective educational programme to enrich their knowledge.

4. Acknowledgement

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