

## Gastroporn on Social Media and Its Association with Food Choices and Body Mass Index Among Youth

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### Abstract

The evident upsurge in food related social media accounts has led to a hedonistic indulgence in foods. The trend is however upsetting the food choices made by the youth due to this enormous social media influence. In view of the limited studies exploring the food based social media usage and its relation with food choices and body mass index among the youth at India, the present study observed such food based social media account usage and its relation with food choices, and Body mass index (BMI) among the youth. This cross sectional study was conducted among 18-24 years old youth (n=114) by administering a social media usage questionnaire, food frequency questionnaire along with assessment of anthropometric data of height(cm), weight (kgs) BMI. The data was statistically analyzed using descriptive statistics and chi square test of association. It was observed that 78.9% of young adults engaged in food related social media surfing for an average of 2.8±0.3 hours per day. 71.1% of the youth craved bakery-confectionary items and alcohol after visiting an image-based food account on social media. The number of hours spent on

social media usage was significantly associated with the consumption of bakery and confectionary items and alcohol consumed and BMI among youngsters (p value < 0.05). The current study suggests that image-based account usage on social media was strongly correlated with the consumption of HFSS foods and the body mass index of youths. This calls for deliberate interventions in propagating healthy food choices through social media.

**Keywords:** gastroporn, food choices, social media, food porn, digital media

## **Introduction**

Social media is inescapable; up to 50.64% of the world's 7.77 billion user's use it, making it an "predominant" aspect of numerous people's everyday lives attributable to the rapidity with which information is disseminated throughout the globe via Facebook, Instagram, Twitter, and other social media handles [16,17]. Youth use of recreational social networking sites is exceedingly high [1]. The most favorite recreational themes that have gained popularity are recreational cooking and sharing of food images especially among the millennial [3]. Food trends are becoming popular with the food aesthetics and pejoratively "Gastroporn" taking over the digital interface [3, 21]. The "Gastroporn" or "Food porn" term coined by McBride showcase the foods as visually superior however, not healthful. This term has gained significance due to extensive virtual viewership of appealing food images [19]. The consumption of food is no longer a means of satisfying hunger, ensuring survival, or providing nourishment; rather, it is the presentation of food and the use of some addictive foods that may cause individuals to crave the meal in spite of disparities in geography, society, and culture. The food images and recipes shared on social media are not only visually pleasing but consist of gratifying ingredients which are also energy dense, high carbohydrate, high sugar and salt foods [10]. Often these sites support advertising of HFSS food items with appetizing images and the major audience users are adolescents and youngsters [8, 20]. These food images are shown to negatively impact the eating behaviors by creating a 'Visual Hunger' experienced through the food images [14,22]. The social media grazing craze slowly has permeated the dietary routines among youngsters affecting their dietary choices and pattern of food consumption globally. Besides, the consequences of such visually delicious content on health are often ignored. Studies on recipe selection bias due to food images on various social networking sites such as Pinterest, Facebook, Instagram Twitter etc display the foods in a manner 'as easy and quick to prepare' preparing the consumers for the food consumption by activating the gustatory sensations in the brain [22,24]. These high calorie foods are found to be a major reason for the rising obesity especially among the youth [11, 12]. With the evidences gathered from various studies on food social media accounts usage and its relation with food

choices and Body Mass Index (BMI), the present study explored the association between the food based social media usage among Indian youths and its association with their food preferences and BMI. The primary objective was to determine the relationship between social media usage and food preferences among youth. The secondary objective of the study was to find self-reported screen time on food based social networking sites among the youth.

## **Methodology**

### **Study design and sampling**

The study was a cross-sectional, observational study which used a convenience sampling method for the collection data through online Google forms circulated on various social media portals. The sample size of 114 was estimated using Raosoft Inc. sample size calculator. Youth following image-based food blog accounts between the age group of 18-24 across genders were included in the study.

**Data collection tools:** Ethical approvals were taken from the Independent Ethics Committee (IEC) of Symbiosis International University and Informed consent was taken from respondents through an online goggle form. The inclusion criterion for the selection of respondents was young adults between the age group of 18-24 years without any physical and psychotic health issues, who are residents of India and the population residing outside India was excluded from the study. Through the telephonic follow-up on the consents obtained the inclusion and exclusion criteria was confirmed. The aims and objectives of the study were explained to the respondents in the consent form itself. The respondents were approached through various social media platforms such as Facebook, Instagram, Twitter, through groups and forums on social media.

**Questionnaires:** Personal information questionnaire were circulated online containing details about the age, gender, marital status, religion, education, and occupation. A structured food based social media usage questionnaire was developed using an online survey using social media usage questionnaire and literature review study [7, 11] and pretested on a sample of 10 respondents. The dietary pattern of the participants for the last one month was assessed using a food frequency questionnaire containing all food groups, commonly consumed processed and packaged foods and alcoholic beverages. Anthropometric data on self-reported height, weight, was collected and BMI was calculated using WHO ANTHRO software using the Asian classification cutoffs given by WHO [5]. For ensuring minimum errors in self-reporting of height and weight telephonic follow-up was conducted and respondents were asked to report the latest weight taken and the height measurements in centimeters were confirmed.

**Statistical analysis:** The data was entered and analyzed using IBM SPSS version 20. The normality of the data was checked using Shapiro–Wilk test. Descriptive

statistics was used to calculate the frequencies of various variables for the social media usage questionnaire and food frequency questionnaire. Chi square test was used to find the association between social media usage and body mass index of the youth; associations between body mass index and frequency of consumption of various food groups was also assessed statistically using chi square test. The p value of less than 0.05 was considered as statistically significant.

## Results

It was observed that the mean age of the participants was  $22.2 \pm 0.5$ . It was observed that all the participants were unmarried; majority was undergraduates and was females (Table 1). The Table 2 discussed the social media usage questionnaire. The food frequency of the participants for food group consumption processed and packaged food consumption and alcoholic beverages and non-alcoholic beverage consumption is discussed in Table 3. Table 4 elaborates on the association between social media usage and Body Mass Index of participants (n=114). Table 5 shows the association between social media usage items and choices of foods among the youth (n=114).

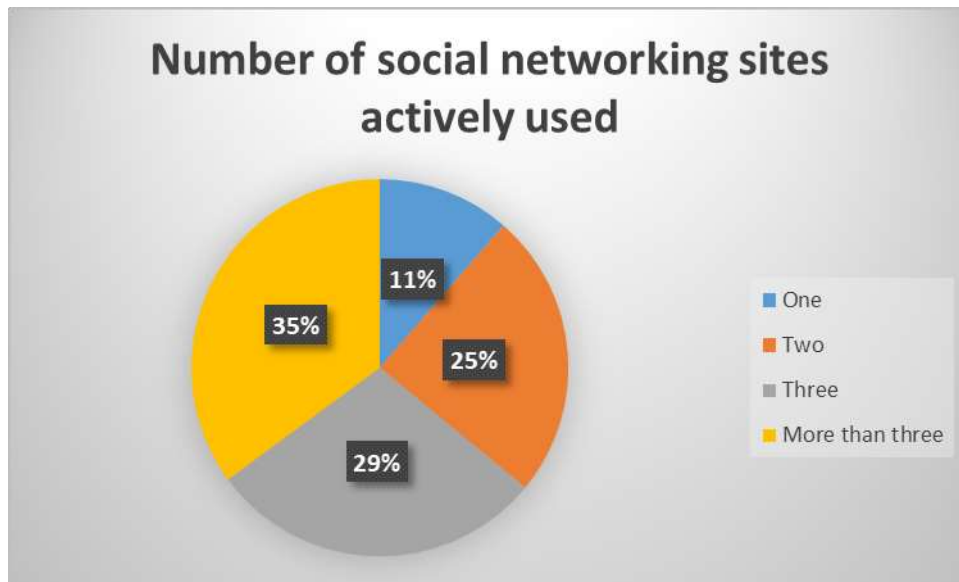
**Table 1** Socio-demographic profile of the participants (n=114)

Socio-demographics profile		Gender					
		Male		Female		Total	
		n	%	n	%	n	%
Age (years)	18 to 20 years	1	2.6	5	6.7	6	5.3
	21 to 24 years	38	97.4	70	93.3	108	94.7
Marital Status (n=114)	Unmarried	39	100.0	75	100.0	114	100.0
Religion (n=114)	Hindu	37	32.4	70	61.4.	107	93.8
	Muslim	0	0.0	3	4.0	3	2.6

**Table 1 (continued)** Socio-demographic profile of the participants (n=114)

	<b>Sikh</b>	2	5.1	0	0.0	2	1.8
	<b>Christians</b>	0	0.0	2	1.8	2	1.8
<b>Education (n=114)</b>	<b>Higher Secondary</b>	0	0.0	2	2.7	2	1.8
	<b>Undergraduate</b>	39	100.0	69	92.0	108	94.7
	<b>Postgraduate</b>	0	0.0	4	100.0	4	3.5
<b>Occupation (n=114)</b>	<b>Student</b>	18	46.2	46	61.3	64	56.1
	<b>Working</b>	21	53.8	29	38.7	50	43.9
<b>Anthropometric data</b>	<b>Mean height (cm) Males</b>	<b>Mean weight (kg) Males</b>		<b>Mean height (cm) Females</b>		<b>Mean weight (kg) Females</b>	
	164.1 ± 9.39	63.4 ± 11.9		155.2±2.8		62.4±1.4	
<b>BMI (n=114)</b>	<b>Mean BMI 23.3± 4.08</b>	<b>Males</b>		<b>Females</b>		<b>Total</b>	<b>%</b>
		n	%	n	%		
	<b>Underweight</b>	2	5.1	9	12.0	11	9.6
	<b>Normal</b>	28	71.8	40	53.3	68	59.6
	<b>Overweight</b>	8	20.5	21	28.0	29	25.4
	<b>Obese</b>	1	2.6	5	6.7	6	5.3

The table above shows the socio-demographic profile of adolescents. The anthropometric data of the respondents presented showed that 59.6% of the respondents had a normal body mass index and 25.4% and 5.3% were found to be overweight and obese while 9.6 % respondents were undernourished as per the Asian BMI classification.



**Figure 1** Number of social networking sites actively being used by respondents (n=114)

The figure 1 demonstrates the number of social networking sites actively being used by the respondents. It was observed that 35% of the respondents were actively using more than three social media sites while only 11% were surfing a single social media site.

The table 2 shows the association between foods based social media usage and body mass index among the respondents. It was observed that the average time spent on food based social media account was  $2.82.8 \pm 0.30$ . It was observed that the bakery confectionary items consumption, alcohol consumption significantly associated with the body mass index of the respondents.

**Table 2** Association between food based social media usage among participants and body mass index of respondents (n=114)

S No.	Items	Options	Frequenc y(n)	Percentage %	P Value
1.	Social networking sites being actively used (For example, Instagram, Twitter, Facebook, others)	One	13	11.4	>0.05
		Two	28	24.6	
		Three	33	28.9	
		More than three	40	35.1	
2.	Number of hours spent on social media /day	1	4	3.5	<0.05*
		2	14	12.3	
		3	90	78.9	
		4 and above	6	5.3	
3.	Social networking sites frequently preferred for food contents	Twitter	1	0.9	> 0.05
		Facebook	5	4.4	
		YouTube	29	25.4	
		Instagram	79	69.3	
4	Use of multiple food based accounts on social networking sites	Not so frequently	19	16.7	<0.05
		Frequently	95	83.3	

**Table 2 (continued)** Association between food based social media usage among participants and body mass index of respondents (n=114)

5	Craving for a particular type of food after visiting an image-based food account?	No	25	21.9	<0.05
		Yes	82	71.9	
		Occasionally	5	4.3	
6	#Types of food consumed after visiting food-based social media accounts	Bakery and Confectionary items such as Breads, Cakes, Puffs, Croissants, Savory bakery items	46	40.4	<0.05
		Packaged foods, Ready-to-eat foods such as Maggi, Pasta, Ready to fry foods	54	47.4	> 0.05
		Regular Food groups	14	12.3	> 0.05
7.		Alcoholic beverages	63	55	<0.05*
	The use of food based accounts influencing the food choices respondents are planning to make and consume in meals	No	40	35.0	<0.05*
		Yes	60	52.6	
		Occasionally	14	12.3	

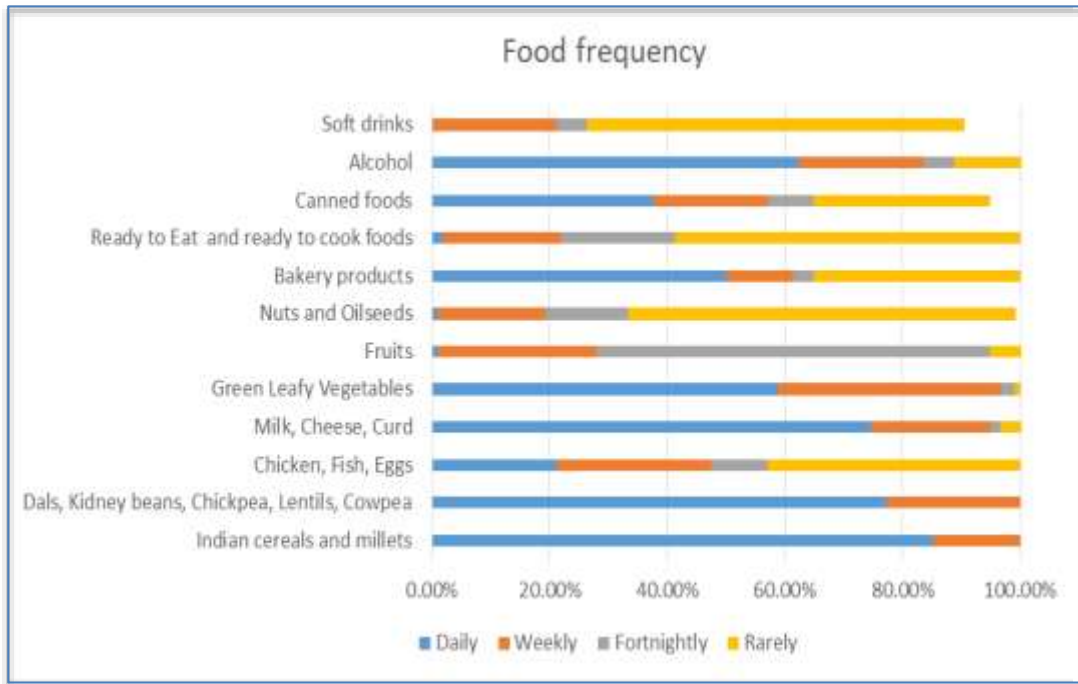
**Table 2 (continued)** Association between food based social media usage among participants and body mass index of respondents (n=114)

8.	Foods order from restaurants after visiting the food based social media sites?	No	46	40.4	<0.05*
		Yes	54	47.4	
		Occasionally	14	12.3	
9.	Number of hours spent on food based social media sites	< 1 hour	10	8.7	< 0.05*
		1-3 hours	14	12.3	
		> 3 hours	90	78.9	
10.	Average number of hours spent on food based social media sites	2.8 ± 0.30			

*Chi-square test, between social media usage variables and body mass index \*p<0.05; #The types of food consumed after visiting food-based social media accounts have been classified into food groups (inclusive of all food groups and Indian regular food items present in meals), bakery and confectionary items, alcohols, Ready to eat and ready to cook foods.*

It was observed that 50% of the respondents consumed bakery and confectionary products daily and 63% of the respondents consumed alcohol daily. There was a statistical significance observed between the use of food based social media networking sites, the choices of food made for meals, the cravings for food, for the ordering of foods from eateries and bakery and confectionary consumption along with the alcohol consumption (p =0.03).

**Figure 2** Food Frequency table of food groups consumption and processed foods and beverage consumption (n=114)



## Discussion

The term "food porn" or "gastro porn" is popular among social media users, particularly among young people who like to take pictures of their food before eating it. The purpose of this study was to determine whether there is a connection between youth use of food-related social media profiles and their body mass index. More over three-fourths of young adults used social media for 2.8 hours each day, according to the current study. The statistics gathered by Global Statistics 2021, which noted the population of India's rising use of social media, might be used to corroborate the information [9]. It was revealed that about 448 million Indians are active on social media, while the average estimated time spent by Indians on social media was reported to be 2 hours 25minutes. In a US-based study, Dr. Mary Story et al. revealed that both individual and environmental factors had a significant impact on the food preferences of children and adolescents [22, 7]. The study highlighted the significant role that the media and social environment play in influencing children's dietary preferences between the ages of 8 and 18. It was believed that as people are exposed to social media, their eating habits, approaches to foods, and perceptions of food will

change, which will alter their pattern of food consumption. Results indicated a strong positive association between respondents' use of social media and the types of foods they consumed. After visiting an image-based food account, 71.1% of young people reported craving bread and confectionary items. Likewise, the present study found that 63% of respondents regularly drank alcohol, and 50% of respondents consumed bread and confectionery products every day. Hence, the current study confirms the findings of the earlier study, which found a favorable association between social media use, food preferences for meals, food cravings, ordering food from restaurants, and consumption of baked goods and sweets together with alcohol intake. This underlines the significant influences that media representations of food have on the rising demand for higher-fat and sugary foods among youth. Another mixed-study literature review on the effects of social media on teenagers focused on two findings from their research, which suggested that teenagers were more likely to remember a large number of unhealthy foods because of the overpowering strategies used by media sources [13]. The prevalence of food delivery marketing on social media, as well as incentives, prizes, and discounts offered on large food orders, have all contributed to an increase in the consumption of junk food. In addition, the information that we find while browsing culinary blogs on social media tempts people to place meal orders which are often empty calories junk foods [4, 28]. The sensory perceptions towards food are the strongest with the appetizing foods in motion shown through food based social media accounts. Research demonstrates widespread activation of a variety of brain areas, including the reward and taste centers, in reaction to images of appetizing or highly attractive foods [26]. The amount of time youth spent on social media was linked to an increase in their BMI [27]. Various studies have shown a favorable correlation between increasing screen time or social media use and a BMI above 25, poor sleep quality, and obesity in young adults [2, 27]. The popularity of 'Mukbang videos' in which a person desires for whatever the person is eating in front of screen has also been an important influencer for unhealthy food choices due to social media [25]. Correspondingly the health and lifestyle practices of youth might alter reflected through the unhealthy food choices and rising BMI. The findings of this study are consistent with earlier research on young people to determine potential changes in lifestyle and health habits [24]. The study convincingly reveals the substantial and positive relationship between higher BMI and high intake of ready-to-eat meals high in fat, salt, and sugar and social media usage. The study recommends social media campaigns and interventions using food-related social media accounts to encourage the consumption of healthy foods, portion control techniques, and dietary composition. Young adults making decisions about their eating habits and sense of health could find a lot of information and support from social media.

## Strengths and Limitations

The present data highlights the social media usage among youngsters, specifically the food based social sites usage and its association with food choices and their body mass index .Data was collected online by circulating Google forms containing all the three questionnaires which make it a cost-effective study. Although a significant association was observed between social media usage and food preference, these findings cannot be generalized as the sample size was limited. It was also found that the online data collection follow up was time consuming.

## Conclusion

The current study suggests that image-based social media accounts usage was significantly associated with the foods consumed such as bakery, confectionary items and alcohol and body mass index of participants. The study emphasized that apart from the physiological hunger, the food environment cues such as influence of social media is an important factor which affects the food choices. The study findings also revealed the association between visual hungers observed through food based social media and its influence on body mass index among youth. The study findings recommend counseling strategies and interventions to be adopted by health care practitioners towards preventing the food porn and its impact on rising weight among youth.

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