

# **Knowledge, Perception and Consumption of Organic Foods in Dhaka City, Bangladesh**

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## **ABSTRACT**

**Background:** Now-a-days, food consumption patterns are rapidly changing. Consumers are concerned about issues related to the nutritional value of food and health. Raising awareness regarding the health implications of food is increasing for safe food consumption, which includes organic produces. Organic food is a relatively new phenomenon in developing countries like Bangladesh to get rid of chronic lifestyle diseases. The aim of this study is generally to comprehend the outlook of local consumers on their knowledge, perception, and consumption towards organic food products.

**Methodology:** The study was a descriptive and cross-sectional study. A simple random sampling technique was applied to select a total of 400 samples from four different areas in Dhaka city as 100 samples per area. Data were collected using a semi-structured interview schedule including information concerning some selected parameters such as socio-economic conditions, knowledge about organic foods such as organic fruits, vegetables, egg, and meats, etc., perception about organic foods, the nutritional value of organic foods, consumption frequency and patterns of organic foods.

**Results:** Our study findings indicate that although 70% of participants knew about organic foods, only 2% consumed those on a regular basis. About 48% of respondent's perception was organic food is mainly natural product, 29% respondent said they are higher in nutrient content, and 17% were said organic food is safer and more nutritious. Therefore, most of the consumers of organic food consume organic food due to health benefits and disease prevention; such as about 35% of respondents said organic foods protect from various diseases like cancer, diabetes, etc. 28% of the respondent said that organic foods could prevent skin diseases. We have also found significant correlations between organic food consumption and income level as well as educational status.

**Conclusion:** Although the knowledge regarding organic food is satisfactory, the consumption and availability of organic food are not. Therefore, the cultivation of organic food should be encouraged, and the price, as well as the quality of organic food, should be monitored by the authorities.

**Keywords:** Organic food, Health benefit, Perception, Knowledge, Bangladesh

## **1. INTRODUCTION**

Food consumption patterns are shifting their dynamics due to urbanization and globalization [1]. Consumers are concerned about issues related to the nutritional value of food and health. Raising awareness regarding the health implications of food is increasing for safe food consumption, which includes organic produces. The consumption of

organic food reflects the attitude of consumers towards individual health and perception with environmental protection. Therefore, environmentally friendly products are gaining popularity among consumers, who are increasingly aware of their health and the environment [2].

Organic foods are those produced and processed through a system that encourages natural biological processes on the farm, allows farm plants/animals to exhibit natural behavior, and excludes the use of synthetic pesticides, chemical fertilizers, antibiotics, and genetically modified organisms [3]. Organic foods are foods that are produced using methods of organic farming – that do not involve modern synthetic inputs such as synthetic pesticides and chemical fertilizers [4].

Organic food consumption is increasing because of concerns over environmental and health issues associated with food production. Consumers buy organic foods because they associate this kind of food with a healthy and sustainable lifestyle [5, 6]. Some consumers are willing to pay a higher price for organic products with additional ethical attributes, such as environmental protection, animal welfare, fair trade, or due to safety concerns, such as pesticide residues or antibiotics [7]. Enhancement of both subjective and objective knowledge regarding organic food can enhance both organic food production and consumption [8]. Along with attitude, subjective and personal norms and (perceived) behavioral control have an impact on the consumers of organic food [9].

In the USA, Organic food sales in 2018 had a value of 52.5 billion US \$ (an increase of 6.3%). Organic retail sales reached 37.3 billion euros in Europe in 2017. Among the European countries, Germany had the highest share with 10 billion euros, followed by France, Italy, and Switzerland [10, 11].

Organic food is a relatively new phenomenon in developing countries like Bangladesh to get rid of chronic lifestyle diseases. It is time to identify the safe and organic fruits and vegetable consumption patterns at the household level for the prevention of health and nutritional disorders. Therefore, to ensure the production and consumption of safe and nutritious foods, many producers and consumers have opted to use organic products.

The aim of this study is generally to comprehend the outlook of local consumers on their knowledge, perception, and consumption towards organic food products. In the present study, an attempt is made to describe the existing situation regarding Bangladeshi consumers' perceptions of organic foods. Therefore, the present study aims to understand the perceptions and attitudes towards organic food products in this region, to collect detailed information on the demographic characteristics, and to identify the reasons affecting consumers' behavior towards organic food products.

## 2. METHODOLOGY

### Study design, sample population and sampling technique:

The study was a descriptive and cross-sectional study. This study was conducted from June 2019 to December 2019 in different areas of Dhaka city, such as Mohammadpur, Mirpur, Azimpur, and Dhanmondi areas. A simple random sampling technique was applied to avoid respondent bias. Sample size (n) was calculated by the following equation [12]:

$$n = \frac{z^2 pq}{d^2}$$
$$= (1.96)^2 \times 0.5 \times 0.5 / (0.05)^2 = 384.6 \approx 385$$

Here, n = Sample size,

Z = 1.96; Value of the normal variable which is equal to 1.96 at 5% level of significance,

P = Prevalence rate (Expected rate 0.5),

Q = (1-P) = (1-0.5) = 0.5,

d = 5% level of confidence interval = 0.05.

Although the maximum sample size was calculated 385 households, we collected a total of 400 samples from four different areas in Dhaka city as 100 samples per area. However, each household was selected in this study by using a simple random sampling technique.

### Data collection instrument

After preliminary observations and a literature review, a semi-structured interview schedule was developed. This included information with regard to some selected parameters such as socio-economic conditions, knowledge about organic foods such as organic fruits, vegetables, egg, and meats etc., perception about organic foods, the nutritional value of organic foods, consumption frequency, and patterns of organic foods. The interview schedule was finalized after modification based on a pilot survey. Since the respondents were a mixture of community people of different socio-demographic characteristics, they had different levels of education and understandings. The interview schedule was structured to minimize time and to gather information systematically. A small portion of the interview schedule was, however, kept open where there were no other alternatives.

### Data analysis

The statistical analyses were done using the Statistical Package for Social Science (SPSS) version 23.0. The data set was first checked, cleaned, and entered into the computer. The data was edited if there is any discrepancy and then cleaned it. The frequency distributions of all variables were checked by using SPSS. For tabular charts and graphical representations, Microsoft Word and Microsoft Excel were used to get the results in accordance with the objective of this study. Chi square test were used to find out the significance among different groups.

## 3. RESULTS AND DISCUSSION

From the demographic data, we can see that the majority of the sample population were aged between 30-39 years. Almost 90% of the sample population had finished their graduation. Most of the respondents were service holders, and only 4% of the household's monthly income is less than 20,000 Taka. 14% of the households had more than eight family members (Table 1).

**Table 1. Demographic characteristics of the study population**

Variable	Frequency	Percentages (%)
Gender (n= 400)		
Male	184	46.0
Female	216	54.0
Age group (n= 400)		
20-29	64	16.0
30-39	208	52.0

>40	128	32.0
Religion (n= 400)		
Islam	356	89.0
Hinduism	38	9.5
Others	6	1.5
Educational qualification of male respondents (n= 184)		
Up to S.S.C	4	2.2
H.S.C	16	8.7
Graduation	90	48.9
Post-graduation	74	40.2
Educational qualification of female respondents (n= 216)		
Up to S.S.C	20	9.3
H.S.C	88	40.7
Graduation	76	35.2
Post-graduation	32	14.8
Occupation of male respondents (n= 184)		
Govt. Service Holder	72	39.1
Private Service Holder	88	47.8
Business	24	13.1
Occupation of female respondents (n= 216)		
Housewife	76	35.1
Business	12	5.6
Service Holder	128	59.3
Households' monthly income (BDT) (n= 400)		
Below 20,000	16	4.0
20,000-29,999	72	18.0
30,000-39,999	92	23.0
40,000-49,999	168	42.0
Above 50,000	52	13.0
Households' monthly expenditure (BDT) (n= 400)		
Below 10,000	6	1.5
10,000-19,999	144	36.0
20,000-29,999	176	44.0
Above 30,000	74	18.5
Number of family member of the respondents (n=400)		
<5	176	44.0
5-8	168	42.0
>8	56	14.0

Our study findings indicate that although 70% of participants knew about organic foods, only 2% consumed those regularly, weekly consumed 20.5%, occasionally consumed 61.5%, and not consumed yet 16% (Figure 1).

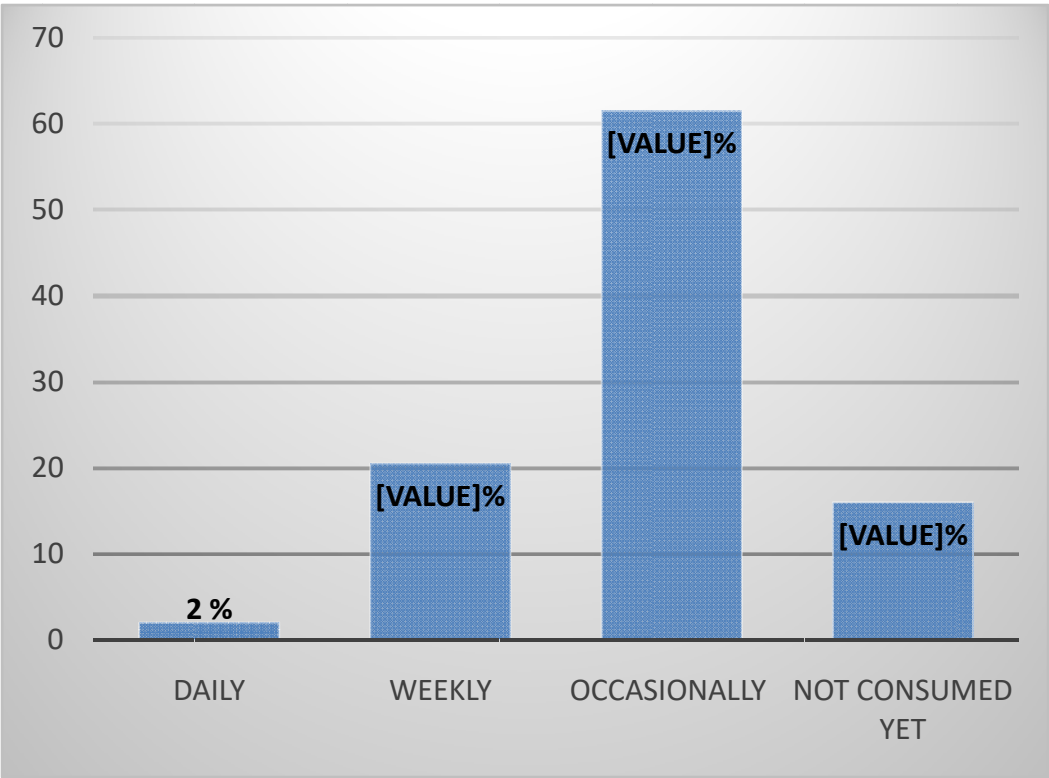


Fig. 1. Consumption frequency of the organic foods

About 48% of respondent's perception was organic food is mainly natural product, 29% respondent said they are higher in nutrient content, 17% were said organic food is safer and more nutritious, and 6% were said organic food is tastier than non-organic food (Figure 2).

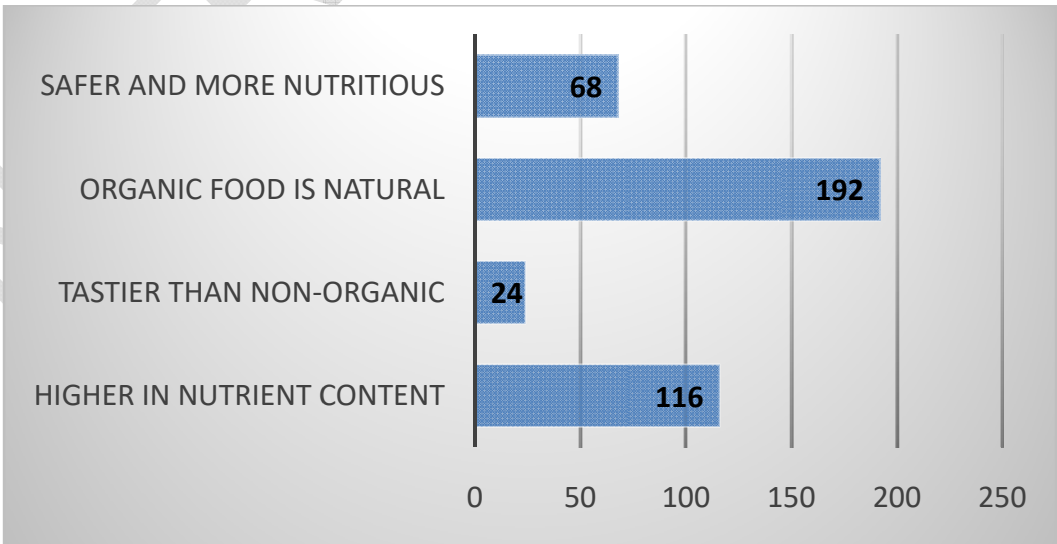
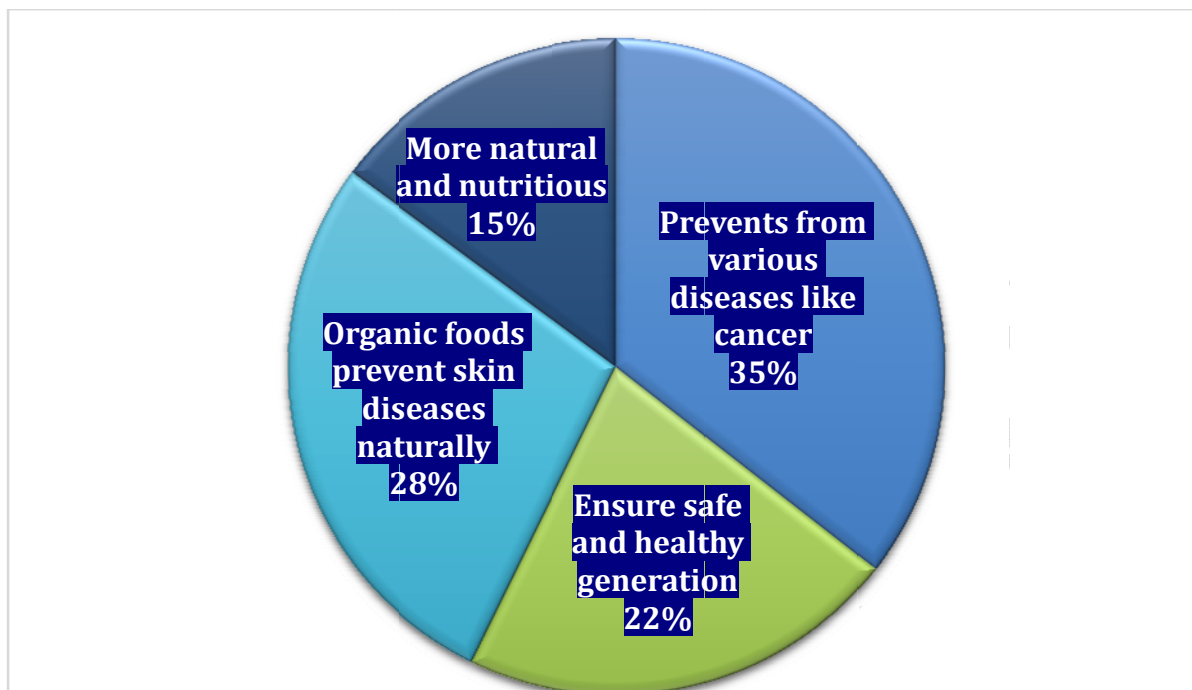


Fig. 2. Distribution of respondent's perception about different types of organic foods

Therefore, most of the consumers of organic food consume organic food due to health benefits and disease prevention; such as about 35% of respondents said organic foods protect from various diseases like cancer, 28% said organic foods prevent skin diseases, 22% said organic foods ensure safe and healthy generation, 15% said organic foods more natural and nutritious (Figure 3).



**Fig. 3. Distribution of the respondent's knowledge and perception about the health benefits of organic foods**

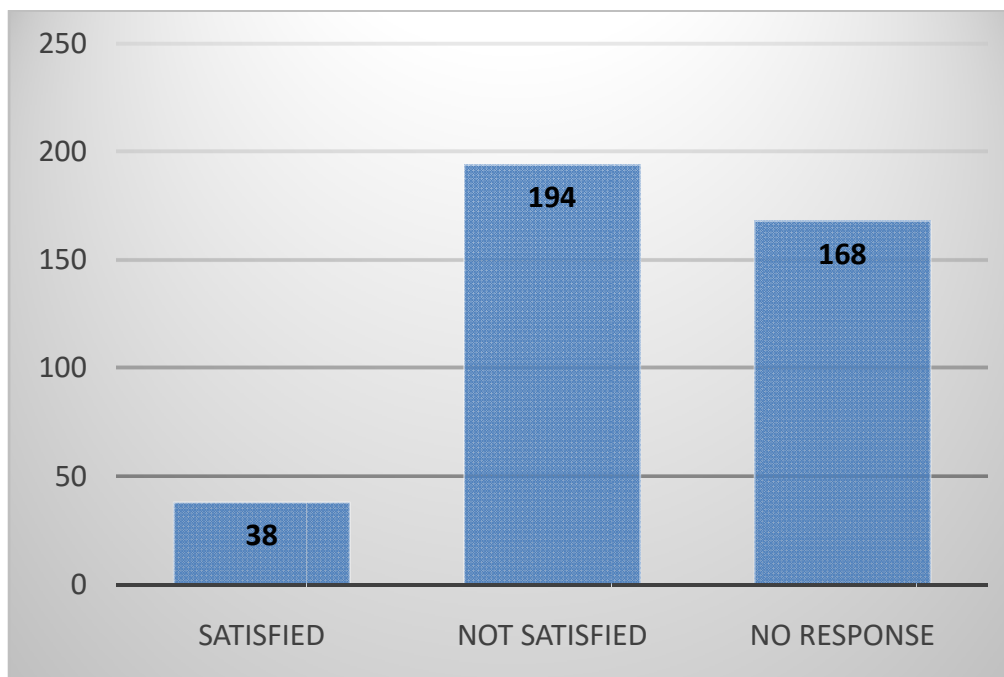
We have also found a significant association between organic food consumption and income level as well as educational status (Table 2).

**Table 2: Correlation between organic food consumption and different socio-economic factors**

Variable		Consumption frequency of organic foods				Total	Chi-Square value	P-value
		Daily	Weekly	Occasional	Never			
Gender	Male	6	35	116	27	184	3.5782	0.31
	Female	2	47	130	37	216		
Religion	Islam	4	78	212	62	356	27.7913	0.07
	Hinduism	4	3	30	1	38		
	Others	0	2	4	0	6		
Level of education	Up to S.S.C	1	3	18	2	24	76.8248	0.00**
	H.S.C	1	19	40	44	104		
	Graduation	4	40	112	10	166		
	Post-graduation	2	20	76	8	106		
Level of income	Below 20,000	1	1	5	9	16	44.359	0.00**
	20,000-29,999	1	15	36	20	72		
	30,000-39,999	4	20	58	10	92		
	40,000-49,999	1	38	106	23	168		
	<50,000	1	8	41	2	52		
Family size	<5	3	39	115	19	176	18.514	0.19
	5-8	1	36	100	31	168		
	>8	4	7	31	14	56		

\*\*=Significant of p value

About 194 participants of the consumers are not satisfied with the availability and price of the organic products, 168 participants of the consumers are no response and 38 participants of the consumers are satisfied with the availability and price of the organic products (Figure 4).



**Fig. 4: Consumer satisfaction level on the availability and price of organic food in the local market**

The level of educational qualification among the respondent was found satisfactory. Education, more particularly, nutrition education, can play an essential role in organic food consumption [13]. Although there is an argument- whether nutritional knowledge is enough to change the food consumption behavior or not [14], we have found a significant correlation between organic food consumption frequency and educational status. Most of the respondents know about organic food and its beneficial effects. These beneficial effects of organic foods can attract consumers towards organic products [15], but the consumption frequency is very poor. It can be due to the higher price of organic products. Knowledge about organic foods effects on organic foods consumption.

A significant factor in understanding the preference of consumption of organic vegetables has been shown to be subjective information about organic vegetables. Subjective information was correlated substantially, relatively strongly, and specifically with the consumption of organic vegetables. In comparison, empirical knowledge was only indirectly connected to the consumption of organic vegetables, through improved subjective knowledge and a more favorable general attitude towards organic vegetables. In addition to persuading new individuals to try organic products, greater subjective awareness of organic food products would most likely increase the frequency and level of consumption among current consumers as well. Increasing the subjective awareness of consumers, such as through advertising campaigns that briefly sell organic food at lower prices, may lead customers to buy and experience certain items [16]. Organic products are mainly top-shelf products since the production cost is higher for organic food [17]. People are willing to pay higher prices for these premium products [18]. People of higher-income strata are able to pay this marginal cost [15, 19]. Therefore, the household's income level and organic food consumption are significantly correlated. Consumers who buy organic

products from the high price tier are less likely to switch to other price tiers than consumers who buy low or medium price organic products (i.e. there is a spillover of high price organic food purchases to other product categories) [20]. The study was based on Dhaka city. Despite being the capital, the availability of organic foods was not satisfactory. There has not any correlation between organic food consumption and gender been observed, as both males and females had similar kinds of education and income level. Furthermore, there is no specific regulation regarding organic food in any of the existing laws in Bangladesh was found, and there are no incentives provided to farmers for organic food production. The incentives can increase the organic farming, thus the availability of these products [21]. This study depicts the knowledge, attitude, and practice of people of Dhaka city towards the organic foods based on a questionnaire survey, which can be error-prone for several reasons such as interviewer's bias, incorrect answers, no responses, etc., [22]. However, this study can provide an important baseline for the development of the organic food market in Dhaka city.

#### 4. CONCLUSION

Although the knowledge regarding organic food is satisfactory, the consumption and availability of organic food are not. Therefore, the cultivation of organic food should be encouraged by providing subsidies and training farmers on modern cultivation and preservation techniques.

Furthermore, the price, as well as the quality of organic food, should be monitored by the authorities. In order to do so, the government should formulate new regulations and special seal or trademark for organic products.

#### CONSENT

*All participants were informed about the study and written consent was taken from all participants.*

#### ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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