

## Original Article

# Consumers' preference index of some selected sweetmeat products available in Barisal City Corporation of Bangladesh

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### ABSTRACT

A survey was conducted through structured questionnaire at different locations of Barisal City Corporation regarding the consumers' preference to different sweetmeats products. A total of 70 respondents of different age categories were directly interviewed to serve the purpose of the study. Level of preferences for different sweetmeats was categorized as high, medium, low, and no preference. The respondents of all ages represented that Dhai is the top among the highly preferred sweetmeat products (41% of total response), more than 27% responses of medium preference were to Rasagolla, and approximately 16% of the no preference response were directed to Chhana and Khirsha, respectively. Computed preference index (CPI) of different sweetmeats for all the respondents was calculated. The rank order on the basis of CPI for different sweetmeats was Dhai > Rasagolla > Rasamalai > Monda > Kalojam > Samdesh > Malaikari > Chamcham > Dry misty > Chhana > Khirsha. We have also analyzed and discussed the effect of age of the consumer on the preference toward different sweetmeat items. Dhai, Monda, Rasagolla, and Rasamalai were mostly preferred by the respondents aged <50 years. Dhai, Rasagolla, and Rasamalai are also preferred most by people above 50 year of age but they like Monda to the least level. Overall, preference toward different sweetmeat products by consumers of different age category varies widely. While Dhai, Rasagolla, Rasamalai, and Malaikari are preferred by most consumers irrespective of age, majority of the consumers showed no preference to products such as Khirsha and Chhana. Further study in a broader scale can help sweetmeat shops to figuring out the products most preferred by consumers of different age and categorization of product for different consumer groups.

**Keywords:** Sweetmeat, Preference index, age category, consumer survey

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## INTRODUCTION

Sweetmeats are foods rich in sugar with milk. It is really difficult to find someone who does not like sweets. Bangladeshi people also prefer to eat milk made sweets. In Bengali's daily life without milk made sweets, no festivals can be celebrated. For that reason, sweetmeat shops are found everywhere in Bangladesh. A huge number of milk made sweetmeat industries established to fulfill the demand of mass people in Bangladesh. These sweetmeat industries produce hundreds of items across the urban and rural areas of Bangladesh. Commonly made sweetmeat products are available in four categories, such as dry sweet, wet sweet, yogurt, and others. Various types of

sweetmeats such as Dhai, Rasagolla, Rasamalai, Malaikari, Chamcham, Kalojam, Samdesh, Rajvog, Kanchagolla, Rosokadam, and Khirsha are being produced from milk. However, most commonly named dairy sweet products in Barisal are Rosogolla, Blackjam/Blackjamun/Kalojam, Yogurt, Chamcham, Malaikari, Samdesh, Chhana, Dry misty, Khirsha, and Monda.

Similar to milk, sweetmeats are healthy and delicious food due to its high nutritive and therapeutic value. Indigenous sweetmeats are unparalleled in taste, flavour and feel, and very popular milk products in Bangladesh. In this era of industrialization, food habit of common people is changing

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day by day and an increased demand and consumption pattern of milk products are seen due to rapid growth of population as well as income and their status. That's why a good number of entrepreneurs have already come forward to deal with sweetmeat business by brand value in sweetmeat production and marketing.

Sweetmeats encompasses an important place in the diet of Bengalis and at their social festivities. It is a ritual to distribute sweetmeats at different religious offerings. Conventionally, Bengalis distribute sweets among neighbors and relatives on a variety of occasion such as birthday, engagements, wedding, and examinations success. Because Bengali misty (sweets) made from different curd, they form an important part of daily diet. The sweetmeat industry has flourished because of its close links with social and religious ceremonies. Competition and changing tastes have helped to create many new sweets, and today, this industry has grown not only within the country but has also been spread abroad.

Occasions and sweetmeats are the two inseparable part of Bengali tradition as Bangladeshi people are very much fond of sweetmeats. In this country, people could not think to celebrate any auspicious events without sweetmeats. Not only in the country, Bangladeshi sweetmeats also famous to all over the world. A huge variety of sweetmeats are produced in our country; they are mostly different from other according to their sizes, colors, and tastes. Akanda (2000)<sup>[1]</sup> and Roy *et al.* (2002)<sup>[2]</sup> carried out research works based on processing and marketing of sweetmeats in some selected areas of Bangladesh. However, there is no specific and systematic study in this regard based on uses, consumer preferences, and marketing of milk products. A good number of studies have been conducted on consumption pattern of sweetmeats in Bangladesh. However, to the best of our knowledge, some sporadic study on consumer preferences for sweetmeats are conducted in Bangladesh with non-conclusive findings that could suggest sweetmeat manufacturers regarding consumers' preference. This gap in knowledge has inspired us to conduct a study on consumer preference of sweetmeats on a pilot scale. The study, therefore, may serve as a basis for further extensive study covering the countrywide market of sweetmeat products. The specific objectives of the study were to determine the consumer preferences to different sweetmeat products available in Barisal City Corporation of Bangladesh and thereby helping the sweetmeat manufacturers to shape products range based on customer demand.

## MATERIALS AND METHODS

### Study Area and Duration

The present study was conducted at different locations in Barisal City Corporation of Bangladesh and data were collected by direct interviewing of participants from April to September 2016.

### Selection of Sweetmeats

Different types of sweetmeats were selected based on consumption patterns by the consumers of different areas. Dhai, Rasagolla, Malaikari, Rasamalai, Chamcham, Kalojam, Samdesh, Chhana, Dry misty, Khirsha, and Monda were selected for this study purpose.

### Age

Age of respondents were recorded in terms of actual years from birth to the time of interview or assumed based on their statement. Age was expressed as numerical round figures.

### Selection of Consumers

In this study, 70 consumers were selected from different locations in Barisal City Corporation in Bangladesh. Consumers of different ages and representative of all places within the Barisal City Corporation jurisdiction were communicated beforehand for the consent to participate in this study, final study group was selected randomly from within the agreed participants.

### Preparation of Interview Schedule

The interview schedule was prepared to meet the objective of the study. A preliminary schedule was tested for recording data to be obtained from consumer. The contents and appropriateness of the interview schedule were judged by the advisory committee. A draft interview schedule was prepared keeping in mind the following things such as (i) to test appropriateness of the selected sweetmeat items, (ii) to test and verify completeness of the questionnaire, (iii) to identify ambiguous questions, and (iv) to assess the respondents' feedback. A simplified data collection sheet was constructed for the final interviewing of the participants, initial preliminary observations and feedbacks were incorporated in the final form for ease of information gathering. The questions were listed in a logical and sequential order for respondents' convenience such that no information is missed.

### Collection of Data

The whole survey was conducted by the first named author after the preparation of the final data collection sheet. Data were collected from the selected respondents by direct interviewing. With prior consent, the aims and objectives of the study were explained to the respondent so that they can fearlessly and happily share information with the researcher of the designated study. The information were collected in a friendly manner with explanation of questions while needed. Upon reaching to every respondent, information collection happened in a logical sequence in the form of everyday discussion. Rapport building has been considered crucial before going to the questions relating to our purpose of the study. After completion of each interview, the schedule was checked to be sure that all the answers of the questionnaire were collected. To minimize errors, data were collected in local language and units, and these were subsequently converted into appropriate standard

text and units. The respondents name, address and contact information were used to amend information in case of any confusion during data processing.

**Measurement of Dependent Variable**

Preferences of sweetmeats were dependent variable for this study. To measure the preference of sweetmeats, a consumer selected sweetmeats were identified during choice of the interview schedule. A 4-point numerical rating scale was developed to explore the extent of preference of sweetmeats. The weights were assigned to each of the responses as described in Table 1. Respondents’ age category is given in Table 1a.

Preference score of a respondent could range from 0 to 3, 0 indicating no preference, 3 indicating high preference, 2 indicating moderate preference, and 1 indicating little preference. For clear

understanding and in-depth analysis of preference of a respondent to sweetmeats was computed using the following formulae<sup>[3]</sup>:

$$\text{Computed Preference Index (CPI)} = C_{hp} \times 3 + C_{mp} \times 2 + C_{lp} \times 1 + C_{np} \times 0$$

Where,

- $C_{hp}$  = Consumers with high preference
- $C_{mp}$  = Consumers with moderate preference
- $C_{lp}$  = Consumers with little preference
- $C_{np}$  = Consumers with no preference

The CPI value for a sweetmeat could range from 0 to 210 (since the total respondents were 70), 0 indicating no preference and 210 the very high preference.

**Data Analysis**

Collected data were checked and crosschecked before transferring to the computer. In analyzing the data, pivot tables and statistical methods in Microsoft Excel (Microsoft Corporation, 2017) were used to fulfill the objectives of the study.

**RESULTS**

A survey was conducted through structured questionnaire at different locations in Barisal City Corporation of Bangladesh regarding the consumers’ preference to different sweetmeats products. The age category of the respondents is given in Table 1a. It is evident that about 50% of the respondents were of the middle-aged (30–50 years) adult peoples, representing mostly the employed demographic group in the society.

**Table 1: Extent of preference and their measurements<sup>[5]</sup>**

Extent of preference	Weightss
No preference at all	0
Little preference	1
Moderate preference	2
High preference	3

**Table 1a: Age category of the respondents interviewed**

Age	Respondents	Total respondents
Up to 30 years	17	70
30–50 years	34	
Above 50 years	19	

**Table 2: Preference to different sweetmeats among all the respondents irrespective of age**

Name of sweetmeat	Level of Preference								Total response for each sweetmeat category
	High		Medium		Low		No preference		
	Positive response	% of total*	Positive response	% of total	Positive response	% of total	Positive response	% of total	
Dhai	32	41.0	28	17.0	3	1.8	7	2.0	70
Rasagolla	8	10.3	45	27.3	10	5.9	7	2.0	70
Rasamalai	14	17.9	28	17.0	20	11.8	8	2.2	70
Malaikari	-	0.0	14	8.5	9	5.3	47	13.1	70
Kaloram	-	0.0	19	11.5	20	11.8	31	8.7	70
Chamcham	-	0.0	7	4.2	22	13.0	41	11.5	70
Samdesh	1	1.3	2	1.2	31	18.3	36	10.1	70
Chhana	-	0.0	1	0.6	11	6.5	58	16.2	70
Dry misty	-	0.0	1	0.6	26	15.4	43	12.0	70
Khirsha	-	0.0	0	0.0	12	7.1	58	16.2	70
Monda	23	29.5	20	12.1	5	3.0	22	6.1	70
Total response for preference category	77	100	165	100	169	100	358	100	770

\*Determined based on total response within specific preference category.

Level of preferences to different sweetmeats by respondents of all ages is given in Table 2. Table 2 represents that Dhai was the top among the highly preferred sweetmeat products (41% of responses), more than 27% of responses showed medium preference for Rasagolla and more than 16% of

**Table 3: Computed preference index (CPI) of different sweetmeats for all respondents**

Name of Sweetmeat	Probable minimum CPI	Probable maximum CPI	Calculated CPI
Dhai	0	210	155
Rasagolla	0	210	124
Rasamalai	0	210	118
Malaikari	0	210	37
Kalojam	0	210	58
Chamcham	0	210	36
Samdesh	0	210	38
Chhana	0	210	13
Dry misty	0	210	28
Khirsha	0	210	12
Monda	0	210	114

**Table 4: Classification of sweetmeats on the basis of CPI for all the respondents**

Preference category	Ranges of CPI	Sweetmeats
Low	0–29	Khirsha, Dry misty, Chhana
Moderate	30–79	Chamcham, Kalojam, Malaikari, Samdesh
High	Above 80	Dhai, Rasagolla, Rasamalai, Monda

**Table 5: Preference to different sweetmeats for the respondents aged <30 years**

Name of sweetmeat	Level of preference								Total response
	High		Medium		Low		No preference		
	Positive response	% of total*	Positive response	% of total	Positive response	% of total	Positive response	% of total	
Dhai	8	44.4	7	15.2	-	-	2	2.5	17
Rasagolla	-	0.0	12	26.1	2	4.7	3	3.8	17
Rasamalai	1	5.6	7	15.2	6	14.0	3	3.8	17
Malaikari	-	0.0	2	4.3	2	4.7	13	16.3	17
Kalojam	-	0.0	8	17.4	4	9.3	5	6.3	17
Chamcham	-	0.0	2	4.3	5	11.6	10	12.5	17
Samdesh	1	5.6	1	2.2	7	16.3	8	10.0	17
Chhana	-	0.0	-	0.0	5	11.6	12	15.0	17
Dry misty	-	0.0	1	2.2	8	18.6	8	10.0	17
Khirsha	-	0.0	-	0.0	2	4.7	15	18.8	17
Monda	8	44.4	6	13.0	2	4.7	1	1.3	17
Total response for preference category	18	100	46	100	43	100	80	100	187

\*Determined based on total response within specific preference category.

the respondents said that they had no preference for each of Chhana or Khirsha.

Computed preference index (CPI) of different sweetmeats for all the respondents is presented in Table 3. The rank order on the basis of CPI for different sweetmeats was Dhai > Rasagolla > Rasamalai > Monda > Kalojam > Samdesh > Malaikari > Chamcham > Dry misty > Chhana > Khirsha.

On the basis of consumer preference of sweetmeats from computed preference index (CPI), sweetmeats can be classified into three categories (Table 4). Low preference category was designated for Khirsha, Dry misty, and Chhana with a CPI less than 30, moderate preference was assigned for CPI range from 30 to 79 which represented by Chamcham, Kalojam, Malaikari, and Samdesh. Any product with CPI greater than 80 was considered as high preference category, that is, Dhai, Rasagolla, Rasamalai, and Monda in our study based on consumers' age.

We have also analyzed and discussed the effect of age of the consumer on the preference toward different sweetmeat items. Table 5 represents the preference to different sweetmeats for the respondents aged less than 30 years. Dhai, Monda, and Rasagolla were mostly preferred by the respondents of this age category.

Computed preference index (Table 6) for this age category also suggests that Dhai, Monda, Rasagolla, and Rasamalai are preferred most by peoples under 30 years of age.

Table 7 shows that people of 30–50 years mostly prefers Dhai, Monda, Rasagolla, and Rasamalai. This is also supported by

CPI of different sweetmeats for respondents aged between 30 and 50 years (Table 8).

Tables 9 and 10 represent that Dhai, Rasagolla, and Rasamalai are preferred most by people above 50 years of age but they like Monda to the least level.

## DISCUSSION

Overall preference toward different sweetmeat products by consumers of different age categories varies widely. However,

**Table 6: Computed preference index (CPI) of different sweetmeats for respondents aged <30 years**

Name of sweetmeat	Probable minimum CPI	Probable maximum CPI	Calculated CPI
Dhai	0	51	38
Rasagolla	0	51	26
Rasamalai	0	51	23
Malaikari	0	51	6
Kaloram	0	51	20
Chamcham	0	51	9
Samdesh	0	51	12
Chhana	0	51	5
Dry misty	0	51	11
Khirsha	0	51	2
Monda	0	51	38

Dhai, Rasagolla, Rasamalai, and Malaikari are preferred by most consumers irrespective of age, whereas majority of the consumers showed no preference to products such as Khirsha and Chhana. Monda was mostly preferred by consumers aged less than 50 years. The differences in the preference to different sweetmeat products by consumers of the different age groups can be attributed to individual differences in the choice of products based on taste, flavor, and price, however, are representative of the fact that preference of sweetmeat product changes across demographic groups may be due to physiological, mental, and health issues<sup>[4]</sup>. Our findings are consistent with Mila *et al.*<sup>[5]</sup> who discussed that “consumers while purchasing dairy products look for freshness, quality, taste and texture, variety, and convenience. The socioeconomic condition of consumers, namely, income status, occupational position, educational level, age, and region is the major determinants of the consumption patterns of milk and milk products. Since the consumers are not homogenous, the consumption pattern of milk such as quantum of purchase, source of purchase, and brand preference is continually varying”.

The preference of any food item and per capita consumption can also be influenced by sex as is indicated by Wang and Li<sup>[6]</sup> that average consumption of all dairy products by adult men in the United States was 276, 25, 256, and 290 g/capita/d and for women 203, 206, 202, and 240 g/capita/d in 1977–78, 1989–91, 1994–95, and 1999–2004, respectively. Although the participants of our study were within the same City Corporation area, their cultural background may be different and may have

**Table 7: Preference to different sweetmeats among respondents aged between 30 and 50 years**

Name of sweetmeat	Level of preference								Total response
	High		Medium		Low		No preference		
	Positive response	% of total*	Positive response	% of total	Positive response	% of total	Positive response	% of total	
Dhai	15	34.9	14	15.7	2	2.6	3	1.8	34
Rasagolla	3	7.0	24	27.0	5	6.4	2	1.2	34
Rasamalai	10	23.3	16	18.0	6	7.7	2	1.2	34
Malaikari	-	0.0	12	13.5	4	5.1	18	11.0	34
Kaloram	-	0.0	5	5.6	13	16.7	16	9.8	34
Chamcham	-	0.0	4	4.5	13	16.7	17	10.4	34
Samdesh	-	0.0	-	0.0	15	19.2	19	11.6	34
Chhana	-	-	-	-	4	5.1	30	18.3	34
Dry misty	-	0.0	-	0.0	9	11.5	25	15.2	34
Khirsha	-	0.0	-	0.0	5	6.4	29	17.7	34
Monda	15	34.9	14	15.7	2	2.6	3	1.8	34
Total response for preference category	43	100	89	100	78	100	164	100	374

\*Determined based on total response within specific preference category.

affected preference to sweetmeat products (Shepherd and Raats<sup>[7]</sup>; Hoogland *et al.*<sup>[8]</sup>).

Roy *et al.*<sup>[2]</sup> examined “the consumption pattern of milk and milk products among different income groups in some selected area in Bangladesh. Family data were collected through household survey during September 2001–May 2002 for 179 selected household from three different areas of Bangladesh, comprising 40 from rural, 61 from municipality town, and 71 from metropolitan city households form the basis. The sample households were classified into five income groups on monthly income as follows: i) < Tk. 3000; ii) Tk. 3000–6000; iii) Tk.

6000–9000; iv) Tk. 9000–12,000; and v) >Tk.12,000. Among milk and milk products, the major allocation of expenditure was devoted to liquid milk followed by sweetmeats and powder milk and other milk products. The municipality town households consume more milk, sweetmeats, and Dhai than rural and metropolitan city. On the other hand, metropolitan households consume more powder milk, condensed milk, ghee, and ice cream”. Income, mobility, media access (Tse *et al.*)<sup>[9]</sup> and availability of more options (Kim *et al.*)<sup>[10]</sup> to choose from a range of sweetmeat products may also have affected the preference indices of available sweetmeat products.

The sample size and range of products included in this study are not large enough to utilize the findings of this study in a generalized form for sweetmeat shopkeepers of Bangladesh, however, this study forms the basis of further study and clearly shows that sweetmeat manufacturers should be aware of demographic groups of their market to meet their satisfaction and also to grab the opportunity of market share with novelty in products targeting different age groups of interest.

## CONCLUSION

Preference to different sweetmeat products by consumers of different age category varies widely. However, Dhai, Rasagolla, and Rasamalai are preferred by most consumers irrespective of age. Consumers over 50 years of age showed less preference for Monda, whereas majority of the consumers showed no preference to products such as Khirsha and

**Table 8: Computed preference index (CPI) of different sweetmeats for respondents aged between 30 and 50 years**

Name of sweetmeat	Probable minimum CPI	Probable maximum CPI	Calculated CPI
Dhai	0	102	75
Rasagolla	0	102	62
Rasamalai	0	102	68
Malaikari	0	102	28
Kaloram	0	102	23
Chamcham	0	102	21
Samdesh	0	102	15
Chhana	0	102	4
Dry misty	0	102	9
Khirsha	0	102	5
Monda	0	102	75

**Table 9: Preference to different sweetmeats among respondents aged more than 50 years**

Name of sweetmeat	Level of preference								Total response
	High		Medium		Low		No preference		
	Positive response	% of total*	Positive response	% of total	Positive response	% of total	Positive response	% of total	
Dhai	9	52.9	7	23.3	1	2.1	2	1.8	19
Rasagolla	5	29.4	9	30.0	3	6.3	2	1.8	19
Rasamalai	3	17.6	5	16.7	8	16.7	3	2.6	19
Malaikari	-	-	-	0.0	3	6.3	16	14.0	19
Kaloram	-	-	6	20.0	3	6.3	10	8.8	19
Chamcham	-	-	1	3.3	4	8.3	14	12.3	19
Samdesh	-	-	1	3.3	9	18.8	9	7.9	19
Chhana	-	-	1	3.3	2	4.2	16	14.0	19
Dry misty	-	-	-	0.0	9	18.8	10	8.8	19
Khirsha	-	-	-	0.0	5	10.4	14	12.3	19
Monda	-	-	-	0.0	1	2.1	18	15.8	19
Total response for preference category	17	100	30	100	48	100	114	100	209

\*Determined based on total response within specific preference category.

**Table 10: Computed preference index (CPI) of different sweetmeats for respondents aged more than 50 years**

Name of sweetmeat	Probable minimum CPI	Probable maximum CPI	Calculated CPI
Dhai	0	57	42
Rasagolla	0	57	36
Rasamalai	0	57	27
Malaikari	0	57	3
Kaloram	0	57	15
Chamcham	0	57	6
Samdesh	0	57	11
Chhana	0	57	4
Dry misty	0	57	9
Khirsha	0	57	5
Monda	0	57	1

Chhana. All the consumers together constitute the consumer market. Consumers play the key role in guiding an economy to the production of goods and services that they demand. Consumer's research is extremely important to market strategy of sweetmeat products, because knowledge of the factors influencing consumers' buying behavior and consumer's preference toward a product can help increase market share.

### AUTHORS' CONTRIBUTIONS

M. A. Islam conceptualized the design of the experiment and developed the structured interview schedule, and G. S. Munna collected data for this experiment. Data organization, analyses, and drafting of the original manuscript were conducted by M. A. Islam, M. I. Omar, and G. S. Munna. T. Chanda and M. A. Matin contributed to the writing: Critical discussion and editing and fitting the manuscript into present format.

### CONFLICTS OF INTEREST

The original draft of this manuscript was prepared and submitted to the Faculty of Animal Science and Veterinary

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