



## Consumer's Behavior with Regard to Purchase and Consumption of Bakery Products

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### Abstract

A survey was conducted on a total 200 subjects in Ludhiana city to study their behavior in context with purchase and consumption of the bakery products. For this, the selected subjects were divided into two groups namely Youth (Age between 15-34 years) and Older Adults (Age between 35-60 years) having 100 subjects in each. The findings of the study revealed that the average consumption of white bread was  $36.60 \pm 0.71$  g on a weekly basis by the majority of the subjects (61%). The majority of the respondents (50%) consumed  $21.51 \pm 0.23$  g of biscuits once a day. Cookies were consumed by 60 percent of the respondents on weekly basis with an average intake of  $27.71 \pm 1.22$  g. Price and deliciousness were the major influential factors for purchasing most of the bakery products and were kept on first and second rank.

**Keywords:** Bakery Products; Consumption Pattern; Purchase of Bakery Products

### Abbreviations

Bakery products are highly appreciated across the world. A wide range of bakery products such as breads, biscuit, cookies and cakes etc. is available worldwide as per the demand of end users. Owing to consumer demand, a wide diversity of these products is available across the world [1]. Besides, ready-to-eat food stuff such as burger, cutlet, puffs, etc. also subjected to baked foods category. In India, bakery is the third leading industry after wheat and, fruits and vegetables processing [2]. Indian bakery industry has been divided into three categories, bread, biscuits, and cakes and pastries. Major share has been occupied by bread and biscuits accounting about 81 percent of the total bakery products. Breads and biscuits are consumed on a daily basis by the consumers and have been categorized as fast-moving consumer goods (FMCG). Moreover, breads are also used for sandwiches, burgers, snacks, etc in the fast-food chains. Indian bakery market is valued at Rs. 3,295 crore and India has occupied third position in biscuit manufacturing after USA and China [3]. The annual bread production in India has been recorded as 3.75 million tons which is increasing @ 6 percent of growth rate. And, the annual production of biscuits in India is estimated at 1.95 million tonnes. The annual per capita consumption of bakery products in India is estimated around 1-2 kg [2]. The maximum bread consumption has been reported in South India i.e., 32 percent of the total production followed by the north (27%), west (23%) and east (18%) India [4]. However, the biscuits

consumption in India has been documented only 2 kg per year per person which is reasonably lesser than the consumption figures reported in the United States and western part of Europe (about 10 kg), and in Southeast Asian countries (4.2 kg).

Baked food products have become the indispensable ingredient of human nutrition in modern days. The expediency and easy availability associated with these products have comprised of the major reason behind their sustainability in the current market [3]. Now days, aware and health-conscious consumers prefer to look for 'guilt-free' baked products or goods prepared using healthier ingredients such as whole wheat, multigrain and good quality oils etc. Besides large market players, even traditional and local bakeries are also moving ahead with a variety of baked products so as to cater to the emerging demand for healthier foods [1]. Therefore, this study was planned to evaluate the consumer's behavior regarding purchase and consumption of bakery products.

### Materials and Methods

#### Location of study

The current study was conducted in Ludhiana city of Punjab. Ludhiana is representative district of the state of Punjab as it is the most centrally located, the biggest and the most populous district in Punjab accounting for 12.6 percent of its population and also excels in the field of industries and agriculture. It also shares common boundaries with Rupnagar district in the east, Moga district in the

west, and Barnala, Sangrur and Patiala districts in the south and southeast, respectively.

### Experimental design and selection of subjects

A survey was conducted on consumers' behavior in context with purchase and consumption of the bakery products in the Ludhiana city. For this, a total 200 subjects were selected using convenience sampling and was further be divided into two groups namely Youth (Age between 15-34 years) and Older Adults (Age between 35-60 years) having 100 subjects in each.

### Development of interview schedule

For the purpose of gathering the essential data on important components of the research, an interview schedule was developed. Pre-testing was conducted on ten respondents. Based on the results of the pre-testing, the interview schedule was modified. The final study sample did not include the pretesting samples. As a result, the reconstructed interview schedule was used to collect the data for this investigation.

### Data collection

Data collection included general information, socio-economic status, buying behaviour and the consumption of bakery products by the selected subjects.

### General and socio- economic profile

Information about the consumer pertaining to his/her age, education, occupation, family composition and socio- economic status were collected using pretested interview schedule.

### Buying behaviour

Parameters such as product choices, frequency of purchasing, factors that determines the purchasing decision, reasons of preference, frequency of habit of reading the information on the package, judgments about health-wise reliability etc., were studied.

### Consumption of bakery products

Type and quantity of the bakery products consumed were studied using Quantitative Food Frequency Questionnaire

### Statistical analysis

For ranking of influential factors and consumption pattern, mean and standard deviation were computed. Data have been presented in percentages for depicting consumer's behavior.

## Results and Discussion

### General Information

The data revealed that the majority of subjects were graduates (38%), followed by post graduates (26%) and the subjects who

possessed higher secondary/diploma certificates were 23 percent. Only nine and four percent of the subjects were studied up to matric and below matric respectively. Further, the data revealed that subjects who were doing their service (30%), business (22%), private job (6%) and labour (3%). Additionally, 17 percent of the subjects were students and 20 percent of the female subjects were housewives. One recent study also found that 82 percent of men in the 20 to 40 age group were doing service as their occupation [5]. The study discovered that 64 percent subjects were married and 36 percent were unmarried. With respect to family type, majority of the subjects were living in nuclear family i.e.,75 percent and other 25 percent were living in joint family. Similarly, an earlier study revealed that 80 percent of the subjects were living in nuclear family and rest of the 20 percent belonged to joint family system [6]. The data revealed that 36 percent of the total subjects were living in a small family with total four family members. The data revealed that 48 and 43 percent of the total subjects belonged to service and business class, respectively. Majority of the subjects in youth group (21%) and total selected subjects (18%) had their income between Rs. 20,000-40,000. Kumar, *et al.* [7] found that more than half of the subjects belonged to Rs. 30,000-45,000 per month income group.

### Purchasing behavior of the selected subjects

#### Product choices made by the selected subjects

Cookies and cakes were chosen by 91 and 99 percent of the subjects, respectively. Similarly, Choudhary, *et al.* [5] also found that 82 percent of men in the 20 to 40 age group were the biggest consumers of bakery goods. Further, pastries were purchased by 83 percent of the subjects. Similarly, Souki, *et al.* [8] found that people shop at bakeries bought perishable goods or meals for immediate consumption. Wafer, waffles, dry cakes and brownie were chosen by 69, 34, 63 and 81 percent of the subjects. In contrast, previous study reported that the percentage of respondents who preferred to purchase cookies, biscuits, pastries, and cakes was only 21, 40, 25 and 21, respectively [5].

### Frequency of purchasing bakery products by the selected subjects

Among total selected subjects, 55 and 53 percent of the subject bought bread and biscuits once in a week and once in a month, respectively (Table 1). Twenty-five and 23 percent of the respondents reported that they bought cookies twice a month and once a month, respectively. Wafer was purchased twice in a month by the 24 percent of the subjects. Cakes and pastries were purchased by the 43 and 35 percent of the subjects twice in month, respectively. Furthermore, 11 percent of the subjects purchased waffle once in month followed by 10 percent of the subjects purchased them twice in a month. Further, 33 and 26 percent of the subjects bought brownies and dry cakes, respectively once in a month.

Bakery products	Frequency					
	Once a day	Once in a week	Twice in a week	Once in a month	Twice in a month	Once in 6 months
Bread	10	55	30	3	2	0
Biscuits	5	9	11	53	18	4
Cookies	3	21	15	26	23	3
Cakes	0	3	1	37	43	15
Pastries	0	6	5	31	35	6
Wafer	0	13	5	19	24	8
Waffle	0	6	3	11	10	4
Dry cakes	3	15	8	26	9	2
Brownie	2	20	12	33	11	3

**Table 1:** Frequency of purchasing bakery products by the total selected subjects (N = 200).

**Purchasing channels chosen for purchasing bakery products by the selected subjects**

Bread, biscuits, cookies, wafer, brownie and dry cakes were mostly purchased from local market with percentage of 82, 71, 61, 31, 45 and 67, respectively (Table 2). Tanik found that 27 percent of the consumers bought bakery products from the market and 43 percent bought from the baker [9]. Waffles were purchased by 16

percent of the respondents from supermarket. Ninety two percent out of the total selected subjects considered nutritional facts while purchasing bakery products. A study conducted in 2018 stated that 95.8 percent of the participants had knowledge about nutritional labelling whereas only 88 percent of them considered it while purchasing the food product [10].

Bakery products*	Purchasing channels						
	Grocery stores	Supermarkets	Bakery	Patisserie	Sweet shops	Market place	Prepare at home
Bread	44	29	18	3	8	82	0
Biscuit	26	44	19	2	4	71	1
Cookies	8	22	36	6	5	61	0
Cakes and Pastries	0	3	99	48	30	2	5
Wafer	10	20	3	1	3	31	0
Waffle	5	16	13	9	7	10	0
Brownie	2	26	21	7	3	45	0
Dry Cakes	12	32	34	1	4	67	15

**Table 2:** Purchasing channels chosen for purchasing bakery products by the total selected subjects (N = 200).

**Brand dependency level on purchase of bakery products of the selected subjects**

The majority of the subjects (72%) preferred 2 or 3 brands to purchase bread (Table 3). Half of the subjects (52%) and 62 percent of the subjects preferred 2 or 3 brands to buy biscuits and cookies, respectively. The subjects who always preferred 2 or 3 brands in cakes and pastries were determined as 60 percent. Previous study confirmed the proposition that importance given by the consumer for product taste and brand recognition depends on the income of the customer. As income of the consumer increases importance given by the customer for this factor increases [11]. In present study, the findings were in concordance with this statement as family income of majority of the subjects (38%) ranged between Rs. 60,000-80,000 per month. While purchasing wafers,

30 percent always preferred to 2 or 3 brands. While, purchasing waffle, 31 percent preferred to 2 or 3 brands. Thirty-seven and 29 percent respondents preferred same brand to buy brownie and dry cakes, respectively. Gul., *et al.* stated that majority of the consumers preferred to same brand for the purchase of bread and cakes whereas for wafer and biscuits majority of the consumers preferred to 2 or 3 bands [12].

**Factors that determine the purchasing decision of the selected subjects**

Table 4 illustrates the factors that determine the purchasing decision of the total selected subjects. Quality, price, family liking, nutritive value on packaging, habit of reading information on packaging, judgments about health-wise reliability were the major fac-

Bakery products	Brand preference of purchasing			
	Prefer same brand	Prefer 2 or 3 brands	Prefer specific brand for specific period	Change brand
Bread	23	72	2	3
Biscuits	13	52	3	32
Cookies	15	62	4	10
Wafer	23	30	11	5
Waffle	14	18	2	0
Cakes and pastries	10	60	3	19
Brownie	37	26	14	4
Dry cakes	29	25	5	4

**Table 3:** Brand dependency level on purchase of bakery products of the total selected subjects (N = 200).

Factors*	Bakery products							
	Bread	Bis-cuit	Cookies	Cakes & Pastries	Wafer	Waffle	Brownie	Dry Cakes
Quality of the product	76	74	71	66	32	26	42	61
Price of the product	74	71	61	64	30	22	39	58
Liked by family	60	63	57	66	27	18	39	55
Preservatives	13	10	9	10	4	3	4	14
Income level	14	10	9	11	5	4	6	17
Benefits	12	9	7	6	3	4	4	17
Organic	16	11	11	10	3	3	8	18
Odour and color	26	27	29	32	9	14	18	23
Taste wise	36	39	46	60	26	18	37	45
Quantity	29	27	28	39	12	13	25	33
Attractive packaging	22	22	24	32	10	8	12	25
Suitability of the product	21	23	21	29	7	14	13	21
Brand	31	28	30	29	8	14	15	27
Nutritive values on the packaging	56	54	44	21	16	14	19	32
Habit of reading the information on the packaging	57	55	36	18	16	17	24	41
Judgments about health-wise reliability	48	48	30	16	11	11	19	26

**Table 4:** Factors that determine the purchasing decision of the total selected subjects (N = 200).

tors that determine the purchasing decision of subjects for bread with percentage of 76, 74, 60, 56, 57 and 48, respectively. While, purchasing biscuits, purchasing decision of most of the subjects was determined by various factors such as quality (74%), price (71%), family liking (63%), nutritive value on packaging (54%), habit of reading information on packaging (55%). For cakes and pastries, quality, price, family liking and taste were the leading factors determined the decision of 66, 64, 66 and 60 percent of the subjects. Most subjects' purchasing decisions for cookies were influenced by factors such as quality (71%), price (61%) and family liking (57%). Earlier studies have also showed that importance of the price grows with the increasing age and decreases with the increasing consumers' income. The studies underlined the importance of brand, reference and recommendation from family and

friends in selection of bakery brands [13-15]. The prime factors for wafer and waffle were quality and price. Quality (42%), family liking (39%) and price (39%) were the key factors preferred by of the subjects while purchasing brownies. Quality, price and family liking were the major factors that determine the purchasing decision of subjects for dry cakes with percentage of 61, 58 and 55, respectively.

**Ranking of influential factors in the first place in the preference of bakery products by the selected subjects**

The factors such as price, practicality, deliciousness, nutritive value, fillingness and habit which influenced subjects in terms of their preferences during purchase of bakery products were studied.

The ranking of influential factors in the first place in the preference of bakery products by the total selected subjects is presented in table 5. The data revealed that while purchasing bread, price and habit were placed on second rank with an average value of  $2.00 \pm 0.05$  and  $2.73 \pm 0.10$ , respectively among youth group. It was found that price, deliciousness and habit were the influential factors for purchasing biscuits which were kept on second rank with an average value of  $2.33 \pm 0.10$ ,  $2.40 \pm 0.10$  and  $2.69 \pm 0.21$ , respectively by the selected subjects. Price and deliciousness were observed to be major influencing factor for purchasing of cookies which were kept on first position with average values of  $1.72 \pm 0.18$  and  $1.91 \pm 0.06$ , respectively. In case of cakes and pastries, deliciousness, price and habit were the prime influential factor and kept on second rank with mean value of  $2.08 \pm 0.10$ ,  $2.45 \pm 0.10$

and  $2.64 \pm 0.09$ , respectively. In contrast, these factors were kept at third rank with an average value 3.95, 3.07 and 3.17, respectively in the previous study [12]. It was reported that deliciousness, habit, and price were the most influential factors for purchasing wafer, which were ranked first with an average value of  $0.89 \pm 0.13$ ,  $1.10 \pm 0.15$  and  $1.24 \pm 0.21$  by the selected respondents, respectively. The factors such as price, nutritive value, fillingness and practicality with mean value of  $1.15 \pm 0.03$ ,  $1.47 \pm 0.14$ ,  $1.51 \pm 0.33$  and  $1.51 \pm 0.05$ , respectively, were recorded as the first ranked influential factors in case of waffle. The study declared that while purchasing brownies, deliciousness, habit and price were placed on first rank with an average value of  $1.14 \pm 0.00$ ,  $1.31 \pm 0.04$  and  $1.15 \pm 0.03$  respectively. While purchasing dry cakes, the first ranked influential factors were deliciousness with an average value of  $1.93 \pm 0.05$  and price with mean value of  $1.99 \pm 0.13$ .

Bakery products	Influential factors					
	Price	Being Practical	Being Delicious	Being Nutritive	Being Filling	Habit
Bread	$2.00 \pm 0.05$	$3.91 \pm 0.10$	$3.18 \pm 0.09$	$3.96 \pm 0.19$	$5.23 \pm 0.04$	$2.73 \pm 0.10$
Biscuits	$2.33 \pm 0.10$	$4.09 \pm 0.07$	$2.40 \pm 0.10$	$3.98 \pm 0.01$	$5.44 \pm 0.04$	$2.69 \pm 0.21$
Cookies	$1.72 \pm 0.18$	$3.81 \pm 0.11$	$1.91 \pm 0.06$	$4.10 \pm 0.18$	$5.05 \pm 0.15$	$2.46 \pm 0.04$
Cakes and Pastries	$2.45 \pm 0.10$	$4.04 \pm 0.02$	$2.08 \pm 0.10$	$4.49 \pm 0.14$	$5.30 \pm 0.05$	$2.64 \pm 0.09$
Wafer	$1.24 \pm 0.21$	$2.19 \pm 0.24$	$0.89 \pm 0.13$	$2.06 \pm 0.10$	$2.49 \pm 0.22$	$1.10 \pm 0.15$
Waffle	$1.15 \pm 0.03$	$1.51 \pm 0.05$	$0.74 \pm 0.07$	$1.47 \pm 0.14$	$1.51 \pm 0.33$	$0.72 \pm 0.01$
Brownie	$1.71 \pm 0.31$	$2.47 \pm 0.09$	$1.14 \pm 0.00$	$2.53 \pm 0.02$	$3.19 \pm 0.11$	$1.31 \pm 0.04$
Dry Cakes	$1.99 \pm 0.13$	$3.82 \pm 0.21$	$1.93 \pm 0.05$	$3.91 \pm 0.06$	$4.73 \pm 0.01$	$2.14 \pm 0.14$

**Table 5:** Ranking of influential factors in the first place in the preference of bakery products by the total selected subjects (N = 200).

Values are mean  $\pm$  SD

**Consumption pattern of bakery products of the selected subjects**

The average consumption of white bread was  $36.60 \pm 0.71$  g on a weekly basis by the majority of the subjects (61%) among total subjects (Table 6). Brown bread was consumed weekly by 60 percent of the subjects, with an average consumption of  $34.26 \pm 0.37$ g. Maiboroda showed that the average annual consumption of bread goods in 2015 was 103 kg per person, while in 2020 it was 98 kg per person [16]. The majority of the respondents (50%) consumed  $21.51 \pm 0.23$  g of biscuits once a day. Cookies were consumed by 60 percent of the respondents on a weekly basis, with an average intake of  $27.71 \pm 1.22$ g. Almost half of the subjects consumed cakes, pastries and dry cakes on a monthly basis, with an average consumption of  $68.92 \pm 0.41$ ,  $68.89 \pm 3.26$  and  $21.11 \pm 0.56$ g, respectively. The average consumption of multigrain bread was  $10.48 \pm 0.16$ g, Italian bread was  $6.40 \pm 0.04$ g and garlic bread was  $22.25 \pm 0.79$ g. Most subjects rarely consume swiss roll, jam

roll and cream roll, with an average consumption of  $3.67 \pm 0.51$ ,  $4.06 \pm 0.01$  and  $15.52 \pm 0.40$ g, respectively. The data revealed that the average consumption of rarely consumed bakery products such as doughnuts was  $2.06 \pm 0.01$ g, brownies were  $34.98 \pm 0.13$ g, marble cakes were  $1.99 \pm 0.01$ g, waffle was  $10.14 \pm 0.53$ , wafer was  $5.45 \pm 0.07$  and muffins were  $11.94 \pm 0.99$ g. Sweet buns and puffs were consumed fortnightly by the majority of participants, with an average consumption of  $70.93 \pm 0.01$  and  $7.06 \pm 0.81$ g, respectively. Gul., *et al.* also studied the consumption and frequency pattern of bakery products [12]. He reported that the consumption of cookies, bread, wafer, and cakes by the subjects was 433.44, 188.79, 110.33, and 144.47 grams per month, respectively. The frequency of bread purchases was reported on daily basis, compared to 15 days for biscuit items, and monthly for wafer, and cake.



Product Name	Portion size	Amount*(Grams)	Once a day	Twice a day	Weekly	Monthly	Fortnightly	Rarely	Never
Bread (white)	2 slices	36.60 ± 0.71	3	0	61	17	6	12	3
Bread (brown)	2 slices	34.26 ± 0.37	5	1	60	16	8	10	1
Bread (multigrain)	2 slices	10.48 ± 0.16	1	0	4	12	13	25	47
Italian bread	1 pc	6.40 ± 0.04	0	0	0	5	3	39	53
Garlic bread	1-2 pcs	22.25 ± 0.79	0	0	0	12	9	36	43
Biscuit	2-4 pcs	21.51 ± 0.23	49	6	42	2	1	1	0
Cookies	2-4 pcs	27.71 ± 1.22	11	0	60	21	3	4	2
Cake	1 slice	68.92 ± 0.41	0	0	6	50	17	28	0
Dry cake	2 slices	21.11 ± 0.56	0	0	15	44	12	29	4
Pastries	1 pc	68.89 ± 3.26	0	0	5	53	14	28	1
Wafer	1-2 pcs	5.45 ± 0.07	0	0	3	28	7	26	37
Waffle	1 pc	10.14 ± 0.53	0	0	3	7	8	48	34
Donuts	1 pc	2.06 ± 0.01	0	0	1	2	4	50	44
Brownie	1 pc	34.98 ± 0.13	0	0	3	26	24	30	18
Marble cake	1 pc	1.99 ± 0.01	0	0	2	10	9	43	37
Sweet buns	1 pc	70.93 ± 0.01	0	0	6	32	44	13	6
Muffin	1 pc	11.94 ± 0.99	0	0	2	19	24	37	19
Puffs	1pc	7.06 ± 0.81	0	0	2	19	26	28	27
Swiss roll	1 pc	3.67 ± 0.51	0	0	1	12	11	41	37
Jam roll	1 pc	4.06 ± 0.01	0	0	2	12	6	45	37
Cream roll	1 pc	15.52 ± 0.40	0	0	2	18	18	34	29

**Table 6:** Consumption pattern of bakery products by the total selected subjects (N = 200).

\*Values mean ± SD.

**Conclusion**

The present study concluded that bread and biscuits were preferred by all the subjects. Cookies and cakes were chosen by 91 and 99 percent of the subjects, respectively. Bread and biscuits were bought once in a week whereas cookies cakes were bought twice in month by majority of the subjects. All the selected bakery products were mostly purchased from local market along with plastic paper packaging. Quality, price and family liking were the major factors that determine the purchasing decision of subjects for all the bakery products. Biscuits were consumed on daily basis by majority of the subjects with an average consumption of 21.51 ± 0.23 g. White and brown bread were consumed on weekly basis by 61 percent of the subjects with an average consumption of 36.60 ± 0.71 and 34.26 ± 0.37g, respectively.

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