Users' Behavior on Diverse Toothpaste Brands in Bangladesh: An Experimental Survey on Dhaka City

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ABSTRACT

Purpose: In the modern marketing age, consumers are seen as the king or monarch of the market because the company's offerings are designed, created, delivered, and communicated according to the target market's likes, preferences, tastes, and choices. Therefore, marketers must realize and know about the consumers' purchasing behavior, attitudes, and roles in the marketplace. It necessitates an understanding of the factors influencing users' behavior when purchasing and using a product or service and their choice of a brand.

Methodology: Using 5 points Likert Scale, the sample number is 250 for five brands, with 50 comprising ten features comprising order to preserve uniformity. Furthermore, 30 responders offered their thoughts on the pretesting questions. SPSS 24.0 version has been adopted to analyze the variables. ANOVA assesses means differences in various variables for distinct toothpaste brands to test for relevance. Duncan's Multiple Range Test was employed to evaluate, contrast, and determine the range between several average scores. The assessment of a user's behaviors is taken into consideration by Mertin Fishbein's Multi-attribute Attitude Model.

Findings: Toothpaste is a fast-moving consumer good as toiletries items that people buy and use regularly. In the study, the researcher emphasizes the user's behavior towards different toothpaste brands with their lifestyle. Here ten of the nineteen attributes are identified as contributing variables that encourage customers to choose a specific brand of toothpaste from the five available toothpastes. According to the study, Mediplus has the best brand image from customers among the five preferred toothpaste brands, while Colgate has the lowest.

Practical Implications: The toothpaste businesses and organizations can utilize the investigation's results as a benchmark for improving their goods and developing market strategies.

Originality: We conducted this study on our own, without using any materials from other sources. This would bring fresh insights to Bangladesh's toothpaste industry, which focuses on different brands, brand associations, product features, and user behavior.

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Limitations: To promote more reliable research in the future, the study's many constraints in the field of research should be addressed. Just 250 customers from various parts of Dhaka City were used as participants in the research; there may have been more. More studies may be carried out to evaluate executives' opinions of the advantages and dangers associated with various brands for each attribute of toothpaste compared to other categories.

1. Introduction

Consumer behavior refers to the thought procedures and actions people engage in while shopping for and using items (Naeem and Ozuem, 2021). Moreover, Dwivedi et al. (2021) stated that it is the actions taken by those who use goods, services, retail settings, or ideas on the market in their actual or future applications. The investigation into customer behavior includes information on what customers purchase and when, how, and how frequently they do it (Hoyer et al., 2012). When purchasing things, brands are an inevitable part of customer desire, but it is crucial to comprehend why this is the case (Chae et al., 2020). According to Chan and Mansori (2016), Companies must identify and comprehend the aspects that influence a brand's significance and the variables that provide their brands with a competitive edge in the marketplace. Hence, we all agree that customers are king, and the industry's success rests heavily on meeting customer demands by offering high-quality goods and services (So et al., 2017; Hoe and Mansori, 2018). This assessment will thus assist marketers in identifying their issues and opportunities for creating higher brand value and delivering their products and offerings correspondingly (Parida et al., 2014). On the other side, Ota et al. (2014) claimed that today different attributes of toothpaste attract consumers very intensively from the ancient form of toothpaste. Different variables might influence a user's decision to buy toothpaste, leading them to choose one brand over another (Dani, 2013).

1.1 Research Objectives:

1.1.1 General Objective -

The fundamental goal of this investigation is to gauge user behavior towards different toothpaste brands in Bangladesh based on various characteristics or qualities of the product in question.

1.1.2 Specific Objectives -

When evaluating a user's actions, the Multi-attribute Attitude Model developed by Mertin Fishbein takes into account a wide variety of sub-objectives:

(i) Determining the well-known toothpaste brands and the characteristics of those brands that give customers advantages.

(ii) To investigate consumers' general perceptions of popular toothpaste brands in Bangladesh and their essential beliefs in that category.

(iii) To determine the relative usage of various brands in Bangladesh using Mertin Fishbein's Multi-attribute Attitude Model.

2. Literature Review, Theoretical Framework, and Hypotheses Development

2.1 User Behavior:

Consumers' activities to search, acquire, use, evaluate, and reject products, services, and ideas that satisfy their wants and expectations are called 'user behavior' (Khadka et al., 2017). Kumar and Ghodeswar (2015) claimed that consumer behavior was initially thought of as a purchase decision that reflected the connection between customers and production companies at the purchase. However, today's marketing companies understand consumer behavior is an ongoing cycle, not just when a buyer spends money and receives goods or services (Solomon et al., 2013). Most big businesses find the consumer's choice steps fascinating (Bell et al., 2022). Yadav and Pathak (2017) asserted that the consumer's purchasing process is learning what people purchase, where and how they purchase, and when and why. Researchers can quickly determine what, how, where, when, and how much people purchase, but it is more difficult to determine why they do so (Barber et al., 2012).

2.2 Brand:

A brand distinguishes the marketer or vendor (Kotler, 2012). In the consumer's mind, such a feeling or relationship exists with a good or service (Ahuvia et al., 2022). Sudhakar (2016) defines a brand as any name, word, sign, symbol, design, or combination of these that is used to identify a particular good or service and set it apart from its rivals. A brand serves as a safeguarding barrier to set items apart from similar-looking rivals and provides differentiation on the origins of products to buyers (Low et al., 2000). That's why a brand is considered an idealized product, but it may also evolve according to outside pressures, including market requirements, consumer demand, technological advancement, and other things (Peattie, 2016).

2.3 Brand Association:

Brand associations investigate the relationships between brand-related feelings, thoughts, approaches, recollections, experiences, opinions, and other factors (Lee et al., 2011). Moreover, Lee and Hsieh (2022) claimed that a collection of distinct brand connections is essential to growing a solid and distinctive brand. The best strategy to create a strong brand connection is to thoroughly understand the brand and compare it to its rivals' brand associations through comprehensive consumer research (Albert and Merunka, 2013). It is advised that the marketer first determine which brand association symptoms the customer believes to be of considerable value for their product category or range (Liu et al., 2020). This is so that the product or service may develop the relative competitiveness necessary to set itself apart from what the competition is providing (Puth et al., 1999).

2.4 Product Features:

Features of a product are its distinguishing qualities or traits that give it an edge over rival products and are ultimately what buyers appreciate most (Bilgili and Ozkul, 2015). For example, the length of time that a battery lasts in a gadget might be considered a feature (Nasiri and Shokouhyar, 2021). So, the material from which a suitcase is made fabric or other components - is a product feature (Cimatti et al., 2017). According to Megha (2011), a product's attributes, such as smell, hygiene, anti-germ qualities, color, flavors, tastes, etc., are some of the most significant variables that affect brand loyalty. Also, it was shown that there was a substantial connection between the accessibility of the product features and the level of brand loyalty (Mahmud et al., 2012).

2.5 Toothpaste in Bangladesh:

In Bangladesh, toothpaste is regarded as a daily essential that is becoming more handy and well-liked by people of all ages. Many aspects of toothpaste today are intensely luring customers away from traditional use (Nuruzzaman, 1996). You may find various toothpaste brands in Bangladesh; some of them are made in-house in the nation of origin, while others are imported (Mueller et al., 2011). We considered the following brands: Close Up, Pepsodent, White Plus, Colgate, am pm, Meril, Mediplus, Fresh Gel, Sensodyne, Dabur Meshwak, etc.

According to a Church & Dwight news release from 2003, Pepsodent is an American brand of toothpaste with a minty flavor derived from sassafras. Outside of the United States and Canada, Unilever still owns the brand that it acquired in 1942 (Church & Dwight, press release, 2007, retrieved 2015). Church & Dwight purchased the rights to the trademark in those nations from Unilever in 2003 (Church & Dwight, Business Wire, 2003).

On the other hand, Wafler and Badir (2017) claimed that Unilever markets the toothpaste line known as Close-up. It was introduced in 1967 and is the original gel toothpaste in the world. Church & Dwight purchased the exclusive license rights to Close-Up from Unilever in 2003 for the US and Canadian markets (Church & Dwight news release, 2003). In other nations, like India, where Unilever and its subsidiaries carry out marketing close-ups, this selling did not infiltrate the brand (Lieu et al., 2021).

According to Ahmed et al. (2013), a brand of toothpaste produced by Anfords Bangladesh Ltd. called Mediplus is among the best available in Bangladesh. In 1992, Anfords Bangladesh was formed as a maker of toothpaste that has expanded relatively quickly (Islam, 2016). A factory, warehouse, corporate office, and sales office are all part of it; conversely, dealers and merchants drive sales (Hilderbrand, 2006).

Furthermore, Sensodyne is a dental care brand that attracts customers with impressionable teeth (Mahin, 2018). When the nerves inside the teeth are exposed to the environment, it can induce pain or oppression, known as dentine hypersensitivity (Goulding, 2013). To address this disease, the patient administers Sensodyne products at home (Exarchou et al., 2019). Glaxo Smith Kline (GSK) owns Sensodyne, which is sold in Japan as Shumitect (Sibun,

2010). On 30 June 2020, GSK announced the sale of an 82% stake in Unilever, as well as the divestment of some nutrition brands in Bangladesh, including Sensodyne, Horlicks, Boost, and Glaxose D (Ahmed, 2021).

A line of oral hygiene products from Colgate (a sub-brand of Colgate-Palmolive) includes tubes of toothpaste, toothbrushes, mouthwashes, and dental floss (Froehlich et al., 2014). Colgate toothpaste was first sold in 1873, sixteen years after the death of the company's founder, William Colgate (Patta, 2022). Colgate toothpaste is ideal for high-risk individuals with coronal or root caries that are widespread, early, present, or recurrent (Papas et al., 2008).

2.6 Research Designs for the Study:

To evaluate user behavior or attitudes regarding various toothpaste brands in the city of Dhaka, the model $Ao = \sum_{i=1}^{n} biei$ has been applied. Selected five brands and ten attributes are briefly indicated as X_P = Pepsodent, X_{CU} = Close Up, X_M = Mediplus, X_S = Sensodyne, X_C = Colgate and 1 = Whitening Teeth, 2 = Fresh Breath, 3 = Oral Hygienic, 4 = Smell & Flavor, 5 = Mouthwash, 6 = Removes germs, plaques & Cavities, 7 = Strengthen Teeth, 8 = Cleansing, 9 = Reasonable Price, 10 = Contains Fluoride.

2.7 Designing Hypothesis:

The following may be drawn as the research question of characteristics of various brands for testing hypotheses to meet the criteria of ANOVA:

Possibly, there are no appreciable variations between the mean values of several toothpaste brands for a given property i.e. $X_P = X_C = X_M = X_S = X_C$. It is likely true that there are notable variances in the average values of all brands for many qualities i.e. $X_P \neq X_{CU} \neq X_M \neq X_S \neq X_C$.

The following table displays the H_o = Null Hypothesis and H_A = Alternative Hypothesis symbols for all parameters of all brands:

Table 1: Hypothesis of different variables; *j* = all brands

Attributes	Null Hypothesis (H_0)	Alternative Hypothesis (H_A)
Whitening Teeth	$\bar{X}_{1j} = 0$	$\bar{X}_{1j} \neq 0$ (minimum one equality is false)
Fresh Breath	$\bar{X}_{2j} = 0$	$\bar{X}_{2j} \neq 0$ (minimum one equality is false)
Oral Hygienic	$\bar{X}_{3j} = 0$	$\bar{X}_{3j} \neq 0$ (minimum one equality is false)
Smell and Flavor	$\bar{X}_{4j} = 0$	$\bar{X}_{4j} \neq 0$ (minimum one equality is false)
Mouthwash	$\bar{X}_{5j} = 0$	$\bar{X}_{5j} \neq 0$ (minimum one equality is false)
Removes germs, plaques & Cavities	$\bar{X}_{6j} = 0$	$\bar{X}_{6j} \neq 0$ (minimum one equality is false)
Strengthen Teeth	$\bar{X}_{7j} = 0$	$\bar{X}_{7j} \neq 0$ (minimum one equality is false)
Cleansing	$\bar{X}_{8j} = 0$	$\bar{X}_{8j} \neq 0$ (minimum one equality is false)

Reasonable Price	$\bar{X}_{9j} = 0$	$\bar{X}_{9j} \neq 0$ (minimum one equality is false)
Contains Fluoride	$\bar{X}_{10j} = 0$	$\bar{X}_{10j} \neq 0$ (minimum one equality is false)

Hypothesis – 1:

H_O = No toothpaste differs from one another in terms of whitening teeth.

H_1 = The effectiveness of whitening teeth varies significantly across various toothpaste tubes.

Hypothesis – 2:

H_O = No toothpaste differs from one another in terms of fresh breath.

H_2 = Each toothpaste type's ability to maintain fresh breath varies significantly.

Hypothesis – 3:

H_O = No toothpaste differs from one another in terms of oral hygiene.

H_3 = The impact of oral hygiene varies significantly across different toothpaste tubes.

Hypothesis – 4:

H_O = No toothpaste differs from one another in terms of smell and flavor.

H_4 = The impact of smell and flavor varies significantly across different toothpaste tubes.

Hypothesis – 5:

H_O = No toothpaste differs from one another in terms of mouthwash.

H_5 = The strength of mouthwash varies significantly across various toothpaste tubes.

Hypothesis – 6:

H_O = No toothpaste differs in the ability to remove germs, plaques, and cavities.

H_6 = The effectiveness of various toothpaste types at removing germs, plaque, and cavities varies significantly.

Hypothesis – 7:

H_O = No toothpaste differs from one another in terms of strengthening teeth.

H_7 = The efficacy of strengthening teeth with various toothpaste types varies significantly.

Hypothesis – 8:

H_O = No toothpaste differs from one another in terms of cleansing.

H_8 = The power of cleansing varies greatly across various toothpaste varieties.

Hypothesis – 9:

H_O = No toothpaste differs from one another in terms of reasonable price.

H_9 = The efficacy of reasonable prices with various toothpaste types varies significantly.

Hypothesis – 10:

H_O = No toothpaste differs from one another in the presence of fluoride-containing.

H_{10} = The amount of fluoride included in various toothpaste brands varies significantly.

3. Methodology of this Study

While the fundamental objective of the investigation is to uncover buyer behavior and the characteristics of product brands that influence brand choice behavior, the researcher looks into why consumers place a specific emphasis on a particular brand based on various product qualities of the brand in question. Population, sample size, sample selection techniques, data collecting and analysis, developing hypotheses, data analysis, interpretation, etc., are all included in the approach.

3.1 Selection of Toothpaste Brands and Their Attributes:

There are several brands of toothpaste offered in Bangladesh. The respondents named fourteen brands that sprang to mind right away. Pepsodent, Close Up, Mediplus, Sensodyne, and Colgate are often the top five brands mentioned by participants out of those brands. Also, the respondents listed nineteen characteristics of the respective brands. Nonetheless, the study takes into account the ten characteristics are as follows - Whitening Teeth, Fresh Breath, Oral Hygiene, Smell and Flavor, Mouthwash, Removing Germs, Plaques, and Cavities, Strengthen Teeth, Cleaning, Affordable Pricing, and Containing Fluoride.

3.2 Population and Sample Size:

As the population is sizable enough, 384 people should have made up the sample for adequate representation (Kothari, 2001). Nevertheless, for the final analysis, the sample number is decreased to 250 for five brands, with 50 comprising ten features comprising order to preserve uniformity. Furthermore, 30 responders offered their thoughts on the pretesting questions.

3.3 Data Collection Method and Procedures:

When conducting an empirical investigation, both primary and secondary data are used. Expert recommendations, executive judgment, in-person interviews, and survey questionnaires are all examples of preliminary data. Surveys were gathered based on customer behavior concerning the utilization of several toothpaste brands in the city of Dhaka. The customer assessments that have taken place with a six-point standard scale from extremely good to extremely bad (+3 to -3) were employed to assess the overall evaluation (ei) of the chosen features for the particular brand and participants were asked to mark the point to express their view. The study participants were also questioned on how strongly they think (bi) that each unique brand had the stated traits using a five-point Likert Scale scoring from Very Strongly Belief to Very Strongly Disbelief (5 to 1). Furthermore, other secondary

information sources include transcripts from focus groups, observation logs, research-related publications, books, journals, periodicals, and published and unpublished investigations from other universities.

3.4 Data Analysis Procedures and Interpretation:

The acquired data has been examined, studied, and evaluated using Excel and SPSS 24.0 version (Statistical Package for Social Sciences) software. The research was conducted in the light of Fishsbein's Multi-attribute Attitude Model, which tracks how people interact with items. Using SPSS 24.0 version software, Duncan's Multiple Range Test and ANOVA were carried out.

4. Results and Discussion

This portion of the investigation was performed to gain a strong insight and viewpoint of the overall assessment of user behavior about certain features offered by various toothpaste brands:

4.1 Demographic Analysis:

Age (Year)	Gender
Less 20: 8.40% 21 – 30: 31.20% 31 – 40: 43.50% 41 – 50: 11.60% 51 Above: 5.30%	Male: 63.25% Female: 36.75%
Profession	Monthly Expenditure (Taka)
Students: 32.25% Service Holders: 38.60% Businessmen: 18.75% Housewife: 10.40%	Less 10,000: 31.75% 10,001 – 20,000: 27.30% 20,001 – 30,000: 21.30% 30,001 – 40,000: 14.25% 40,000 Above: 5.40%
Number of Respondents: 250	

4.2 Overall User's Behavior Towards Different Tooth Paste Brands:

The Multi-attribute Attitude Model by Martin Fishbein was used to analyze users' purchase behavior regarding various toothpaste brands.

$$Ao = \sum_{i=1}^{n} b_i e_i$$

Here:

A_o = *Attitudes regarding the objects or brands feature i*

b_i = *Strength of the belief that has attribute i*

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e_i = *Evaluation of attributes i*

n = *Number of salient beliefs*

The model has become recognized as the most successful and potent instrument for examining the attitudes and behaviors of brand users. It focuses on customers' perception of various product or service features, which are valuable tools for examining how attitudes or behaviors are formed and for making predictions about them. The central tenet of Fishbein's theory is that assessments of salient beliefs influence general attitudes or behaviors. Simply put, individuals favor products they perceive to have "excellent" brand qualities and detest those they perceive to have "poor" brand characteristics. The overall attitude toward a service or good is dependent on two factors, according to Fishbein's Multi-attribute Attitude Model: the strength of the salient beliefs associated with the product and the evaluation of those beliefs' bearing on the brand's attributes.

The following table (Table – 2) represents the overall users' behavior toward different toothpaste brands in Dhaka City, Bangladesh:

Table 2: Source - Data Compiled from Field Survey

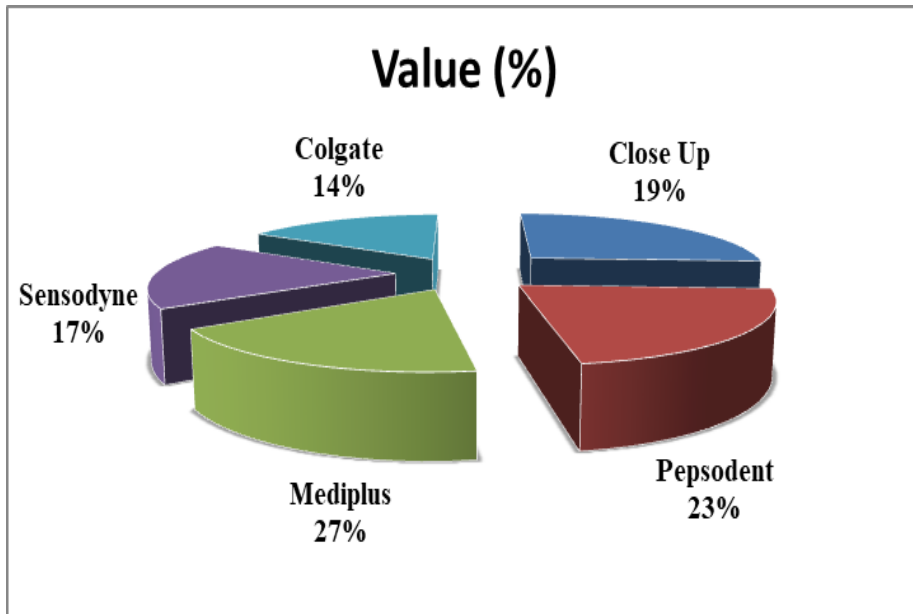| Brands	Value (*biei*)
Mediplus	*575.44*
Pepsodent	*482.16*
Close Up	*409.70*
Sensodyne	*397.12*
Colgate	*362.04*

Figure-1: Graphical Representation of Overall User's Behavior complying from Table 2

From the table mentioned above and the graphical representation, we can see that the users' behavior towards Mediplus toothpaste is most significant, valuing 575.44 (27%) among the top five toothpaste brands. Pepsodent is the second highest with a value of 482.16 (23%). The third one is Close Up with 409.70 (19%). Sensodyne places number in the fourth position with a value of 397.12 (17%) and the fifth position is placed by Colgate with 362.04 (14%).

4.3 Comparative Discussion on User's Behavior Towards Different Attributes of the Selected Toothpaste Brands:

Table 3: Source - Data Compiled from Field Survey

Brand Attributes	Ao of Pepsodent	Ao of Close Up	Ao of Mediplus	Ao of Sensodyne	Ao of Colgate
Whitening Teeth	6.48	5.8056	7.32	6.8056	5.0976
Fresh Breath	5.8432	6.7704	6.8056	4.8972	4.872
Oral Hygienic	4.3296	4.648	6.956	3.9	3.6424
Smell And Flavor	3.718	4.5144	5.4984	3.5532	4.1216
Mouthwash	5.3136	2.6852	6.1944	4.368	3.388
Removes germs, plaques, Cavities	6.2656	3.8232	6.516	6.192	4.4756
Strengthen Teeth	4.1076	3.8688	5.95	7.3304	3.912
Cleansing	5.2416	4.2768	5.1984	3.8796	4.0672
Reasonable Price	2.48	1.56	3.596	1.1	2.368

Contains Fluoride	4.3032	2.9536	4.1888	0.352	2.448

4.3.1 Comparative Assessment of Whitening Teeth:

After analyzing the result, it reveals different service features interpreted below. The maximum attitude towards whitening teeth as a feature of Mediplus is (Ao = 7.32) whereas the lowest attitude of Colgate is (Ao = 5.09). It is also found that Sensodyne, Pepsodent, and Close Up are much closer to each other valuing 6.8056, 6.48, and 5.80 respectively.

4.3.2 Comparative Assessment of Fresh Breath:

Table - 3 displays the greatest attitude toward having fresh breath from several toothpaste brands. Mediplus has the highest attitude (Ao = 6.8056), while Colgate has the lowest (Ao = 4.872). The views toward fresh breath are very similar amongst the Close Up, Pepsodent, and Sensodyne.

4.3.3 Comparative Assessment of Oral Hygienic:

It is visualized that oral hygienic attitudes are maximum in the case of Mediplus brand (Ao = 6.956) and the lowest is Colgate (Ao = 3.6424). It is also found that the other three brands are close to each other regarding their attitudes toward oral hygiene.

4.3.4 Comparative Assessment of Smell and Flavor:

The attitudes demonstrate that Sensodyne toothpaste has the lowest attitude (Ao = 3.5532) and Mediplus toothpaste has the highest value for flavor and scent (Ao = 5.4984). The other three brands are then discovered to be quite closely tied to one another.

4.3.5 Comparative Assessment of Mouthwash:

Table 3 analysis reveals that the Mediplus mouthwash brand has the highest attitude (Ao = 6.1944) and Close Up has the lowest attitude (Ao = 2.6852). The other three brands are likewise established to be closely related.

4.3.6 Comparative Assessment of Removing germs, plaques, and Cavities:

The comparative attitudes of Mediplus are (Ao = 6.516) which has put the maximum value and Close Up stands at the lowest value (Ao = 3.8232) in the case of eradicating germs, plaques, and cavities. Close Up's producers try to raise the comparison attitudes to compete with other brands. The competing brands are located relatively close to one another.

4.3.7 Comparative Assessment of Strengthen Teeth:

When it comes to strengthening teeth, comparing attitudes reflects that Sensodyne toothpaste has the greatest maximum value (Ao = 7.33) and Close Up toothpaste has the lowest maximum value (Ao = 3.86), even if the other brands are all in some way interrelated.

4.3.8 Comparative Assessment on Cleansing:

It is noticed from Table 3 that the oral capability of cleansing attitudes is maximum for the Pepsodent brand (Ao = 5.2416) and the lowest is Sensodyne (Ao = 3.88). It is also clear that the other three brands are very compact with each other.

4.3.9 Comparative Assessment on Reasonable Price:

The analysis of the results discloses various service aspects, with Sensodyne having the lowest attitude (Ao = 1.1) and Mediplus having the highest attitude (Ao = 3.59) toward fair pricing. Also, it was discovered how closely Mediplus, Pepsodent, and Close Up are related to one another.

4.3.10 Comparative Assessment of Containing Fluoride:

According to Table 3, people had the highest attitudes toward Pepsodent's fluoride-containing qualities (Ao = 4.30) and the lowest attitudes for Sensodyne (Ao = 0.352). Moreover, Pepsodent, Colgate, and Mediplus are all near one another.

4.4 Strength of the Belief about Attributes or Features (bi):

Table 4: Source - Data Compiled from Field Survey

Brand Attributes	bi of Pepsodent	bi of Close-Up	bi of Mediplus	bi of Sensodyne	bi of Colgate
Whitening Teeth	3.6	3.54	3.66	3.62	3.54
Fresh Breath	3.52	3.64	3.62	3.18	3.48
Oral Hygienic	3.28	3.32	3.7	3	3.14
Smell And Flavor	3.38	3.42	3.48	2.82	3.22
Mouthwash	3.28	3.36	3.56	2.74	3.08
Removes germs, plaques, Cavities	3.52	3.24	3.62	3.6	3.34
Strengthen Teeth	3.26	3.12	3.5	3.74	3.26
Cleansing	3.36	3.24	3.42	3.18	3.28
Reasonable Price	3.1	3	3.1	2.5	2.96
Contains Fluoride	3.26	2.84	3.08	2.2	2.72

4.5 Evaluation of Attributes or Features (ei):

Table 5: Source - Data Compiled from Field Survey

Brand Attributes	ei of Pepsodent	ei of Close-Up	ei of Mediplus	ei of Sensodyne	ei of Colgate
Whitening Teeth	1.8	1.64	2	1.88	1.44
Fresh Breath	1.66	1.86	1.88	1.54	1.4
Oral Hygienic	1.32	1.4	1.88	1.3	1.16
Smell And Flavor	1.1	1.32	1.58	1.26	1.28
Mouthwash	1.62	1.3	1.74	0.98	1.1
Removes germs, plaques, Cavities	1.78	1.18	1.8	1.72	1.34
Strengthen Teeth	1.26	1.24	1.7	1.96	1.2
Cleansing	1.56	1.32	1.52	1.22	1.24
Reasonable Price	0.8	0.52	1.16	0.44	0.8
Contains Fluoride	1.32	1.04	1.36	0.16	0.9

4.6 Reliability Statistics:

For a sample of standardized tests, the coefficient of consistency reliability is frequently used to determine how reliable a psychometric test is. The assessment may be thought of as a development of the Kuder-Richardson Formula 20 (KR-20), which serves as a substitute evaluation for dichotomous items. Alpha lacks resistance to missing data. The following is a well-recognized rule of thumb for characterizing internal consistency employing Cronbach's alpha, however, it should be used with caution because a large number of test items can artificially inflate the value of alpha and a sample with a narrow range can deflate it:

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent (High-Stakes testing)
$0.8 \leq \alpha < 0.9$	Good (Low-Stakes testing)
$0.7 \leq \alpha < 0.8$	Acceptable (Surveys)
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

As a result, our investigation into enduring forms is made possible by Cronbach's Alpha's internal consistency. With a Cronbach's Alpha rating of 0.734, the research's reliability and internal consistency are satisfactory.

Reliability Statistics	
Cronbach's Alpha	Number of Items
0.734	10

4.7 Correlation Analysis:

Table 6: Correlations among Different Attributes of Toothpaste Brands

Correlation Analysis										
Correlations	Whitening Teeth	Fresh Breath	Oral Hygienic	Smell And Flavor	Mouthwash	Removes germs, plaques, Cavities	Strengthen Teeth	Cleansing	Reasonable Price	Contains Fluoride
Whitening Teeth	1	.358**	.300**	.148*	.167*	.320**	.298**	.284**	.149*	.235**
Fresh Breath	.358**	1	.339**	.399**	.345**	.175*	.170*	.232**	.172*	.338**
Oral Hygienic	.300**	.339**	1	.332**	.419**	.184*	.124*	.183**	.141*	.248**
Smell And Flavor	.148*	.399**	.332**	1	.394**	- .014	.071	.129*	.236**	.271**
Mouthwash	.167*	.345**	.419**	.394**	1	.210**	.133*	.233**	.212**	.315**
Removes germs, plaques, Cavities	.320**	.175*	.184*	- .014	.210**	1	.352**	.183*	-.039	.215**
Strengthen Teeth	.298**	.170**	.124	.071	.133*	.352**	1	.247**	.021	.046
Cleansing	.284**	.232**	.183**	.129*	.233**	.183**	.247**	1	.149*	.238**
Reasonable Price	.149*	.172**	.141*	.236**	.212**	- .039	.021	.149**	1	.221
Contains Fluoride	.235**	.338**	.248**	.271**	.315**	.215**	.046	.238**	.221**	1

**Correlation is appropriate or suggestive at the level 0.01 (2-tailed)

*Correlation is appropriate or suggestive at the level 0.05 (2-tailed)

4.8 ANOVA Test:

According to Fishbein's Multi-attribute Attitude Model, different attributes contribute to users' overall behavior about a particular brand. It cannot, however, specify whether each property is statistical for all operators. ANOVA was utilized to account for the many attributes in the figure to overcome this limitation:

Table 7: The Result of User's Behavior (One Way ANOVA)

ANOVA Test	Status

Attributes	Sum of Squares	df	Mean Square	F	Significance	
Whitening Teeth	0.544	4	0.136	0.228	0.922	Rejected
Fresh Breath	6.824	4	1.706	2.276	0.062	Somehow Accepted
Oral Hygienic	13.784	4	3.446	5.648	0.000	Accepted
Smell And Flavor	14.28	4	3.57	4.657	0.001	Accepted
Mouthwash	19.64	4	4.91	7.319	0.000	Accepted
Removes germs, plaques, Cavities	5.84	4	1.46	1.769	0.136	Rejected
Strengthen Teeth	12.016	4	3.004	3.705	0.006	Accepted
Cleansing	1.816	4	0.454	0.573	0.683	Rejected
Reasonable Price	12.424	4	3.106	3.894	0.004	Accepted
Contains Fluoride	32.504	4	8.126	11.464	0.000	Accepted

5. Discussion on Findings

According to Fishbein's Multi-attribute Attitude Model results, Colgate has the minimum values among the toothpaste brands that people often use in Dhaka City. In contrast, Mediplus has the overall highest user behavior. The brand Mediplus is therefore perceived more favorably by consumers, and it has carried out its function in a more realistic manner. Consumers consider at least one important aspect of the product when making a purchase choice. Consumers' perceptions of Pepsodent are similar to Fishbein's model. Customers towards various brands differ based on their perceptions of their features. Based on the qualities of mouthwash, fresh breath, oral hygiene, taste, and removing germs, plaque, and cavities, people tend to have higher mean beliefs about Mediplus than others. Again Sensodyne scores the highest mean beliefs to the attributes of Strengthen Teeth. Consumers perceive the highest value for the brand Close Up in cleansing attributes. Afterward, Mediplus placed the highest attitudes in the reasonable price attribute. At last, the presence of fluoride attributes consumers likely to the brand of Pepsodent.

From the findings, maximum hypothesis test results permit the acceptability of the alternative hypothesis (HA) except in three cases results permit the acceptability of the null hypothesis (HO), especially concerning Whitening Teeth, Removing germs, plaques, and cavities, and Cleansing. Here is one finding that is somehow acceptable in the alternative hypothesis in the case of Fresh Breath. To assess the general views about toothpaste, we can say that customers

in Dhaka City do not consider the value of cleaning, removing plaque and germs, and teeth whitening. In Dhaka City, toothpaste is readily available, but few people consider its low-involvement benefits of cleaning, removing plaque and germs, and teeth whitening. Hence seven attributes Fresh Breath, Oral Hygienic, Smell and Flavor, Mouthwash, Strengthen Teeth, Reasonable Price, and Contains Fluoride are effective dimensions to measure the attitudes towards the toothpaste brands of Bangladesh.

6. Recommendations

As demonstrated by the stability of consumer actions about their brand, marketing professionals stand to gain from positive customer attitudes, such as brand loyalty and good word-of-mouth (Kim, 2002). Data for this study were gathered from homogeneous respondents who acted as consumers. Academicians might learn from this investigation how theory is applied in marketing research. Any scholar can readily choose between various items based on certain important characteristics or drawbacks, and students may learn about the systematic process of doing behavioral research in marketing. The two-group variation of the means test is extended by the ANOVA test (T-test). The T-test compares the means of two groups, while an ANOVA allows for comparisons of three or more group means, making it simpler than doing several T-tests. The first step in doing a One-Way Analysis of Variance (ANOVA) test in SPSS is to choose the two variables.

According to the analysis's findings, Close Up, Sensodyne, and Colgate all share certain important characteristics with mouthwashes that have a similar significance to consumers. In these situations, the maker of those brands should take the initiative to enhance their competitive advantages. Brands by adding new ingredients increase the position of concerned brands. In the case of whitening teeth attitude, it is clear that Mediplus is significant for attributes, the other brands should take the initiative to enhance the capability as per as possible. The mean value for the attribute Fresh Breath is different for all significant brands except Sensodyne and Colgate. So these brands must improve high concentration on the concerned attribute as early as possible. Similar to the characteristic Oral Hygiene, it is discovered that all brands, except Mediplus, have considerable mean variances. Given the circumstances, there are several opportunities for marketers to promote this feature as part of their product strategy based on customer assumptions. In the case of the Smell and Flavor attribute, all brands should have a similar focus on their mean values, but Pepsodent and Sensodyne need to add some flavor and fragrance benefits to run with other brands.

On the other hand, the attribute of Removing germs, plaques, and cavities, the brand Close Up and Colgate need to have a very necessary focus on that attribute. In the case of the attribute Strengthen Teeth, there is a high difference between Sensodyne and Colgate. Sensodyne can hold and others can elevate by taking development policy. Colgate should take the proper initiative to improve in case of the power of cleansing attribute. But it is also focused that the position of that attribute is very poor in this case the manufacturers need to take strategic orientation about other brands. In the case of the attribute Reasonable Price, all

brands are very insignificant positions except Mediplus has a little bit of advantage towards this attribute, where the marketers have scope to add features but keeping a minimal cost that could attract the consumers more. In the case of the last attribute of fluoride, Sensodyne toothpaste has a very unfavorable situation where only Mediplus made a different cause to other brands. As a result, managers can employ tactics like preserving and improving these qualities and engaging in promotional activities to gain a competitive edge based on product distinctiveness. Also, items from various brands can adopt one of three positive attitudes that alter methods and introduce fresh salient thoughts about the idealized quality of the object. They can, first and foremost, strengthen an already strong optimistic belief. Second, they aim to improve the assessment of deeply held ideas by making an already salient belief. Furthermore, because markets are dynamic and always changing, marketers should use a variety of marketing methods based on customization to eventually achieve a competitive edge in the market.

7. Limitations and Future Research

The following restrictions can exist for researchers when they prepare this report:

i)   The entire research was finished in three to four months.

ii) Even though it is confidential and cannot be obtained from the respondents, some brand and attribute information is essential.

iii) It was rather difficult for the researcher to get enough assistance from respondents.

iv) The study focuses on just five toothpaste brands - Mediplus, Colgate, Pepsodent, Close Up, and Sensodyne - each with just 10 characteristics.

v)   The study uses a sample size minimum of 250 participants, albeit the results could change.

Thus, these areas can receive particular emphasis in future research.

8. Conclusion

Based on Fishbein's Multi-attribute Attitude Model, the investigation sought to determine how Dhaka City consumers behaved toward various toothpaste brands. Based on 10 criteria for each brand, this model has been applied to five that are highly well-known in Bangladesh. The study has painted a complete image of the advantages of a brand to consumers and their relative relevance. Consumer perceptions of Mediplus are considered the best of the five brands. According to the respondents' rankings, Colgate is the least preferred brand while Pepsodent is the second most popular. ANOVA has determined whether or not mean differences between the brands as mentioned earlier' various qualities are statistically significant. Seven of the 10 traits, which are crucial for the concerned producers, are found to differ on average from the other four. The items that have discriminated between the various levels of consumers' perceived values confirmed their convergent validity. The survey indicates the characteristics that have an impact on the toothpaste brand. The relevant

producers need to take it into mind. The study's results may be used in marketing plans to help companies enhance the quality of their products and gain widespread acceptance.

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