A Study to Determine the Usage Patterns of Oral Care Products

Sadhana Parmar

Abstract: This study seeks to identify the patterns between consumers brand preferences, the quantity of product, the flavor of product that affects their purchasing patterns in the oral care. A survey was conducted in Mumbai to measure the usage pattern of oral care products and their preferences in flavors of the same. i.e. to see if consumers prefer products on the basis of flavor and the flavor chosen is gender biased or not, the usage pattern of toothpaste i.e.: the quantity of product used over a period of time, and whether consumers favor any particular brand. A statistical test was conducted by using ‘P’ test, ‘T’ test and ‘Chi-square’ test methods.

INTRODUCTION

Since, our first teeth have appeared our parents have started taking care of our teeth. As we reached the toddler age they taught us to brush our teeth regularly twice a day and keep it clean. Brushing our teeth daily and keeping our pearly whites clean, white and shiny is almost part of our daily life.

Tooth paste is one such product which is used by everyone daily. This study attempts to study the usage patterns of the customer/buyer of oral care product and to know on what basis they select the product e.g.: flavor, package size etc. It also studies the gender preferences of flavor in toothpaste for better segmentation of the product. A research was conducted to know the consumer usage pattern of tooth paste. To satisfy the growing demands of the consumers the firm should know about the behavior of the consumer.

Indian companies should learn and understand from the foreign companies their business strategies and the various methods used by them to make their business profitable.

On what basis does the consumer purchase a tooth paste? How can we improve the profit?

It is difficult to divide consumers in different segments as the consumer’s behavior may not be uniform due to changing technology, innovation, lifestyle etc. It is therefore very important to understand why a consumer decides on buying a particular product and what influences his buying decisions. Customer behavioral study is done on the basis of consumer buying behavior, with the customer playing the three different roles as user, payer and buyer. Research has shown that consumers behavior is not predictable, even for experts in the field.

LITERATURE:

“Prediction of Individual preference is a difficult and elusive task; it is an important task however, since it represents a fundamental step in understanding consumer choice. Asking whether or not preference can be predicted on the basis of knowledge of the consumer and his
characteristics is a prelude to identifying the causes of preference and the means by which it can be influenced.

Previous studies: Much research in the area of market segmentation has used measures of consumer behavior which are not product or brand specific. The results have been less than encouraging in understanding or predicting brand preference. Studies of segmentation only on the basis of personality characteristics have had negative or inconclusive results. Virtually no association between personality, socio economic variables and the household brand loyalty was found in a study of toilet tissue purchases; a similar conclusion resulted from research on household purchases of beer, coffee, and tea.” Frankm.Bass and W.Waynetalrzyk.

A study by Archana Sharda, Jagat Sharda on “Factors influencing choice of oral hygiene products used among the population of Udaipur, India. The most commonly used brand of tooth paste was Colgate (26.60% and 36.2% respectively)”

In today’s circumstances it is a very difficult task to maintain a peak position in the market due to intense completion nationally and internationally. So a constant research is needed to understand the behavior of consumer to make the business profitable.

**RESEARCH OBJECTIVES**

- To study the general preference of a particular tooth paste. This test is conducted to know which brand is more preferred and is Colgate the most preferred brand.
- To study the consumers buying pattern of oral care and the preference of different flavor in tooth paste is gender biased or not. This test is conducted to know the gender preferences and buying behavior pattern and the relation between the preferences of flavor.
- To understand the average number of days a tooth paste last. This test will help the company predict the demand and future production and sales of a product.

**RESEARCH METHODOLOGY:**

The initial part of the study was exploratory in nature comprising of 21 respondents who were asked about the preferences of tooth paste flavor that they preferred. The respondents were also asked about the toothpaste brand they preferred and did they prefer it on the basis of the packaging size as bigger the package more would it last.

**Data sources:**

The primary source of data collection was through Email in which a set of 23 questions was sent to the respondents. The questionnaire was emailed to the respondent through Google Form.

**Sample size:** Our Research was based on 21 respondents which represents the sample population.
**Selection of sample:** Selection of the sample unit is based on easy availability and accessibility so it is a Non Probabilistic - Convenience sampling. The research contains responses from different age group and gender.

**Analysis Tools:** The different analysis Methods used for this research is P-Proportion test, T-Sample Population Test & Chi Test. We used various programs like excel to make Pivot tables for the analysis of relevant data.

**DATA ANALYSIS:** Various statistical testing methods were used according to the data available.

**Hypothesis-1**

**Ho:** Preference of Colgate toothpaste is not more than any other toothpaste

**Ha:** Preference of Colgate toothpaste is more than any other tooth paste

**Hypothesis-2**

**Ho:** The average number of day’s toothpaste last is equal to 40

**Ha:** The average number of day’s toothpaste last is not equal to 40

**Hypothesis 3**

**Ho:** preference for Flavor of product is independent of gender.

**Ha:** preference for Flavor of product is dependent on gender.

**Hypothesis-1**

**Ho:** Preference of Colgate toothpaste is not more than any other toothpaste

**Ha:** Preference of Colgate toothpaste is more than any other tooth paste

This process of the collection, Organization and interpretation of numerical data especially the analysis of population characteristics by inference from sampling is known as Data Analysis and Interpretation.

Following is the graphical representation and interpretation of the survey conducted with the help of questionnaire.
Hypothesis-2

**H₀**: The average number of day’s toothpaste last is equal to 40

**H₁**: The average number of day’s toothpaste last is not equal to 40

Hypothesis 3

**H₀**: preference for Flavor of product is independent of gender.

**H₁**: preference for Flavor of product is dependent on gender.
Hypothesis 1- P test: we made an assumption that more than 47% people prefer to use Colgate. Accordingly the following hypothesis test was conducted to prove our assumption.

N Ho: P < 47%
A Ha: P > 47%
T Right tail test
T P test as proportion is used
C confidence 99%
A alpha is 1%
P 99%
C 2.326348

O Z observed (0.36)
   x   9
   p’ 45% x/n
   p 47%
   q 53%
N 20
-2% p’-p
24.9100% p*q
4.472136 sqrt(N)
-0.36

P 0.35977
A 0.01
failed to reject the null
Colgate tooth paste is not used by more than 47%

Here P value is more than Alpha so the conclusion is Colgate toothpaste is not preferred by more than 47%. So the preference for other brands is 53% over Colgate brand.

**Hypothesis 2 – T test:** We made an assumption the average number of days toothpaste last is not equal to 40 days. So to test the hypothesis the following test was conducted.

<table>
<thead>
<tr>
<th>N</th>
<th>Ho:μ = 40</th>
<th>Variable 1</th>
<th>Variable 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ha:μ ≠ 40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>T test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>Two tail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>2.86</td>
<td>Pearson Correlation</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>O</td>
<td>-0.45</td>
<td>Hypothesized Mean Difference</td>
<td>0</td>
</tr>
<tr>
<td>x'</td>
<td>38.05</td>
<td>df</td>
<td>19</td>
</tr>
<tr>
<td>μ</td>
<td>40</td>
<td>t Stat</td>
<td>-0.45141</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>P(T&lt;=t) one-tail</td>
<td>0.3284</td>
</tr>
<tr>
<td>s</td>
<td>19.31859</td>
<td>t Critical one-tail</td>
<td>2.53948</td>
</tr>
<tr>
<td>-1.95</td>
<td>x'–μ</td>
<td>P(T&lt;=t) two-tail</td>
<td>0.6568</td>
</tr>
<tr>
<td>4.3198</td>
<td>s/sqrt(N)</td>
<td>t Critical two-tail</td>
<td>2.86093</td>
</tr>
</tbody>
</table>

| P value | 0.6568 |
| A alpha | 0.010  |
| A alpha P>a | Failed to reject the Null |

The average number of days toothpaste last is equal to 40
Here P value is Greater than A so the null hypothesis is correct and the conclusion is average number of days toothpaste last is equal to 40.

**Hypothesis 3 Chi Square test** To test the assumption that Preference of flavor is not independent of gender the following test was conducted.

<table>
<thead>
<tr>
<th></th>
<th>Cinnamon</th>
<th>Clove</th>
<th>Fennel seed</th>
<th>Mint</th>
<th>Tulsi</th>
<th>Grand Total</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>12</td>
<td>0</td>
<td>16</td>
<td>76%</td>
</tr>
<tr>
<td>Male</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>24%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>15</td>
<td>1</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Cinnamon</th>
<th>Clove</th>
<th>Fennel seed</th>
<th>Mint</th>
<th>Tulsi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0.76</td>
<td>1.52</td>
<td>0.76</td>
<td>9.14</td>
<td>0.24</td>
</tr>
<tr>
<td>Male</td>
<td>0.24</td>
<td>0.48</td>
<td>0.24</td>
<td>3.57</td>
<td>0.24</td>
</tr>
</tbody>
</table>

\[
\text{(Fo-fe)^2/ fe}
\]

<table>
<thead>
<tr>
<th></th>
<th>Cinnamon</th>
<th>Clove</th>
<th>Fennel seed</th>
<th>Mint</th>
<th>Tulsi</th>
<th>Total observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0.074</td>
<td>0.149</td>
<td>0.074</td>
<td>0.893</td>
<td>0.000</td>
<td>7</td>
</tr>
<tr>
<td>Male</td>
<td>2.44</td>
<td>0.48</td>
<td>0.24</td>
<td>0.09</td>
<td>2.44</td>
<td></td>
</tr>
</tbody>
</table>

N  Ho: Preference of Flavor is independent of gender.
A  Ha: Preference of flavor is not independent of gender.
T  Right tail test
T  Chi test
We can say from our findings that the survey conducted with a sample size of 21 people our conclusion is that more than 47% people prefer to use other brands of toothpaste in comparison to Colgate. The average number of days a toothpaste last is equal to 40. The flavor of product chosen is independent of gender. So from the above conclusions we think that the oral care company can estimate and predict how many toothpaste an individual will buy throughout the year and that will help the company in predicting the manufacturing of the toothpaste accordingly. Also as far as segmentation of toothpaste flavor according to the gender was to be done there won’t be any specific preference of flavor of toothpaste. So manufacturing of new flavored toothpaste won’t be gender biased. Choosing of toothpaste flavor depends on what an individual prefers and it can’t be predicted on gender basis.

LIMITATIONS:

- Most of the study was conducted through online Google forms “E Forms” so any person who isn’t using internet was not part of the research.
- Geographical location was also limited to India, Mumbai city only so statistics results can change significantly if a wider span of geographical area was covered.
- The findings of the study are not applicable to the general population due to the Non probabilistic type of sample.

References


**Literature references**

An attitude model for the study of brand preference

http://www.academia.edu/2966514/An_attitude_model_for_the_study_of_brand_preference

Factors influencing choice of oral hygiene products used among the population of Udaipur, India.


Consumer behavior

https://en.wikipedia.org/wiki/Consumer_behaviour