

**AN ANALYSIS OF THE ATTITUDE OF CONSUMERS TOWARDS TOOTH PASTES  
AT KALAYARKOVIL TOWN IN SIVAGANGAI DISTRICT.**

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**Abstract**

This paper is main focus of the study analyze the leading toothpaste, identify and analyze the consumer preference towards a toothpaste, general attitude of the consumers regarding toothpaste , various brands of toothpaste popularly used in the study area ,Toothpaste - we use it every single day. In fact, Americans brush their teeth nearly 200 billion times a year and spend more than 1.6 billion dollars on it. But, It have you ever wondered exactly how it helps our teeth? And how do we go about choosing with one's right for us?

Toothpaste is not a relatively modern phenomenon. In fact as long ago as 3000-5000 BC Egyptians made a dental cream by mixing powdered ashes of oxen hooves with myrrh, burned egg shells, pumice, and water. Unfortunately, these early Egyptians didn't have tooth brushes but used chew sticks to apply their dental cream.

**Key words;** leading toothpaste, consumer preference, recommendations, mass-produced.

**Introduction**

In 1000 AD Persians added burnt shells of snails and oysters along with gypsum. Unfortunately, at this point, toothpaste was still reserved for the rich. In 18th century England a tooth cleaning "powder" containing borax was sold in ceramic pots. One of the problems, which lasted well into the twentieth century, was that they were often very abrasive, causing damage to teeth.

Prior to WWII, toothpaste was packaged in small lead in alloy tubes. The inside of the tube was coated with wax, however, it was discovered that lead from the tubes leached into the product. It was the shortage of lead and tin during WWII that led to the use of laminated (aluminum, paper, and plastic combination) tubes. At the end of the twentieth century pure plastic tubes were used.

The breakthrough that transformed toothpaste into the crucial weapon against tooth decay was the finding that fluoride could dramatically reduce cavities. Dr. William Engler tested 400 preschool children and discovered a dramatic reduction in dental cavities among children treated with fluoride. This study, along with many others done around the world, led to the widespread introduction of fluoride in the 1950s.

### **Scope of the study**

This study has been undertaken to find out the leading toothpaste among the consumers at Kalayarkovil town.

### **Objectives of the study**

- \* The main objectives of this study are to analyze the leading toothpaste.
- \* To identify and analyze the consumer preference towards a toothpaste.
- \* To find out the general attitude of the consumers regarding toothpaste.
- \* To study the various brands of toothpaste popularly used in the study area.
- \* To offer suggestions and recommendations.

### **Area of the study**

The study has confined the area of study as to Kalayarkovil town limit only. The researcher has limited his study area so as to have a deep and thorough analysis of the problem statement.

### **Methodology**

The present study is based on both the primary and secondary data. The questionnaire has been used for collecting the primary data. Primary data have been collected from the consumer.

The secondary data have been collected from various books, websites, journals, newspaper, and magazines.

### **Research design**

Descriptive research design is applied in this study. Descriptive research design is called exploratory design. This is that simply describes something such a demographic characteristics of consumers.

### **Data collection method**

#### **Primary Data**

Primary data does not exist already in records and publications. So the researcher has collected primary data a fresh for the specific study undertaken by him. This is a Direct Interview Method of survey. So a well-structured questionnaire was instructed.

#### **Secondary Data**

Secondary data were collected from the websites, books, journals and magazines.

#### **Sampling design**

Since the study aims to examine the consumers attitude towards toothpaste in Kalayarkovil town, 100 respondents have been selected. This number 100 does not have any specialty. For the sake of convenience and easy calculation only, 100 respondents have been selected for this study. The technique adopted for choosing these respondents is convenient sampling method.

### **Profile of the product**

The development of toothpaste began as long ago as 300/500BC in China and India according to Chinese history, a learned man, Huang-Ti, studied the care of teeth and claimed different types of pain felt in the mouth could be sticking gold and Silver needles into different parts of the jaw and gum. It was theories such as that led to the development of dental cream.

First attempts at tooth cleaning included using abrasives such as crushed bone, crushed egg and oyster shells, which were used to clean debris from teeth. Toothpowders were the

first noticeable advance and were made up of elements like powder bark and some flavoring agents. This would be applied to teeth using a simple stick.

Toothpowder or dentifrice was first available in Britain in the late eighteenth century. It came in a ceramic pot and was available either as a powder or paste. The rich applied it with brushes and the poor with their fingers.

### **Modern toothpastes**

Modern toothpastes were developed in the 1800s. A dentist called Peabody was the first to add soap to toothpaste in 1824. Chalk was first added to toothpaste by John Harris in the 1850s. In 1873, toothpaste was first mass-produced into nice smelling toothpaste in a jar. In 1892, Dr. Washington Sheffield of Connecticut was the first to put toothpaste into a collapsible tube. Sheffield's toothpaste was called Dr. Sheffield's Crème Dentifrice. Advancements in synthetic detergents (after World War II) replaced the soap used in toothpaste with emulsifying agents such as Sodium lauryl Sulphate and Sodium Ricinoleate.

The 1960's saw the introduction of fluoride into toothpaste. This development was followed in the 1980's with the addition of soluble calcium fluoride to fluoride Toothpastes. It is therefore within the last thirty years that toothpastes contain the two ingredients -calcium and fluoride. Nowadays, there are controversial views on the effectiveness and safety of fluoride toothpaste. For those who are safety conscious, the use of natural toothpaste might be a better choice.

### **Working of toothpaste**

Our mouth contains one or more of 500 types of micro organisms. Some of the mainly streptococcus mutants create sticky plaque from food residue in your mouth. Micro organisms in our mouth feed on leftover food to create acid and particles called volatile sulfur molecules. The acid eats into tooth enamel to produce cavities while volatile sulfur molecules give breath its foul odor.

Toothpaste works with toothbrush to clean teeth and fight plaque bacteria. Toothpaste contains abrasives which physically scrub away plaque. In addition, toothpaste abrasives help

remove food stains from teeth and polish tooth surfaces. Some toothpaste contains ingredients which chemically hinder the growth of plaque bacteria.

### **History of toothpastes**

Egyptians are believed to have started using a paste to clean their teeth around 5000BC, before toothbrushes were invented. Ancient Greeks and Romans are known to have used toothpastes, and people in China and India first used toothpaste around 500BC.

Ancient toothpastes were used to treat some of the same concerns that we have today - keeping teeth and gums clean, whitening teeth and freshening breath. The ingredients of ancient toothpastes were however very different and varied. Ingredients used included a powder of ox hooves' ashes and burnt eggshells, which was combined with pumice. The Greeks and Romans favored more abrasiveness and their toothpaste ingredients included crushed bones and oyster shells. The Romans added more flavoring to help with bad breath, as well as powdered charcoal and bark. The Chinese used a wide variety of substances in toothpastes over time that has included ginseng, herbal mints and salt.

The development of toothpastes in more modern times started in the 1800s. Early versions contained soap and in the 1850s chalk was included. Betel nut was including in toothpaste in England in the 1800s, and in the 1860s a home encyclopedia described home-made toothpaste that used ground charcoal.

Prior to the 1850s 'toothpastes' were usually powders. During the 1850s, a new tooth paste in a jar called a Crème Dentifrice was developed and in 1873 Colgate the mass production of toothpaste in jars. Colgate introduced its toothpaste in a tube to modern-day toothpaste tubes in the 1890s. Until after 1945, toothpastes contained soap. After that time, soap was replaced by other ingredients to make the paste into a smooth paste or emulsion as sodium lauryl sulphate, common ingredients in present-day toothpaste.

In the second half of the twentieth century modern toothpastes were developed to help prevent or treat specific diseases and conditions such as tooth sensitivity. Fluoride toothpastes to help prevent decay were introduced in 1914. Toothpastes with very low abrasiveness were also developed and helped prevent the problems caused overzealous brushing. The most recent

advances in toothpastes have included the development of whitening toothpastes, and toothpaste containing Triclosan which provides extra protection against caries, gum disease, plaque, calculus and bad breath.

Toothpastes today typically contain fluoride, coloring, flavoring, sweetener, as well as ingredients that make the toothpaste a smooth paste, foam and stay moist. Individual toothpastes also may contain special ingredients, such as triclosan in Colgate Total. Toothpaste in tubes is used throughout the world and has been a very successful invention.

### Data analysis and interpretations

**Tble-1 Gender wise classification**

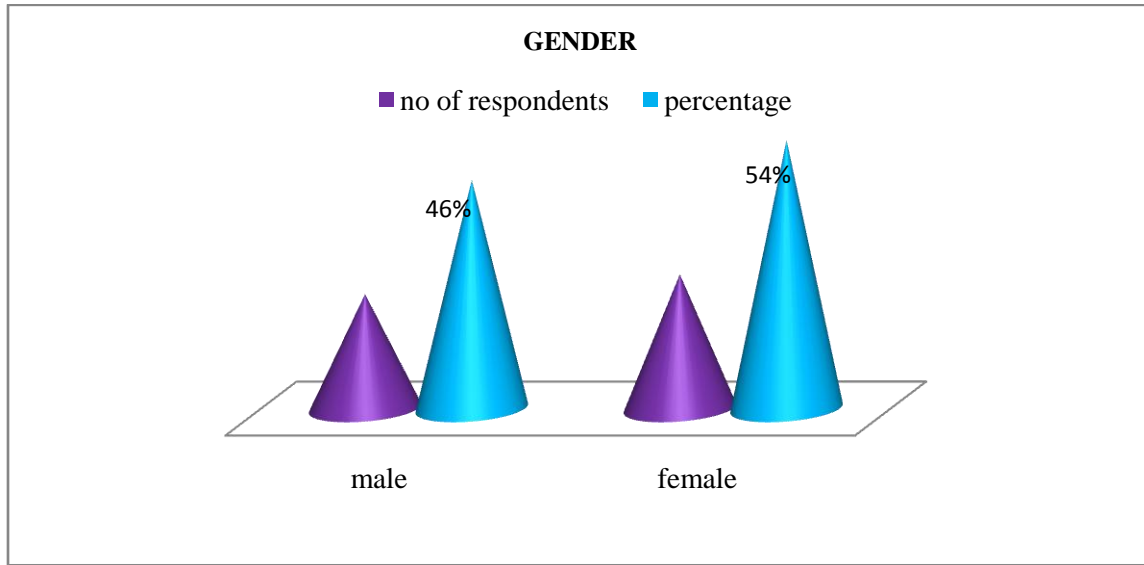
S.NO	GENDER	NO OF RESPONDENTS	PERCENTAGE
1	MALE	46	46
2	FEMALE	54	54
	TOTAL	100	100

#### **Inference**

This table reveals that 46% of the respondents are male and 54% of the respondents are female.

Hence the table can be concluded that the female respondents are higher than the male respondents.

**Chat-1 Gender wise classification**



**Tble-2 Educational qualification wise classification**

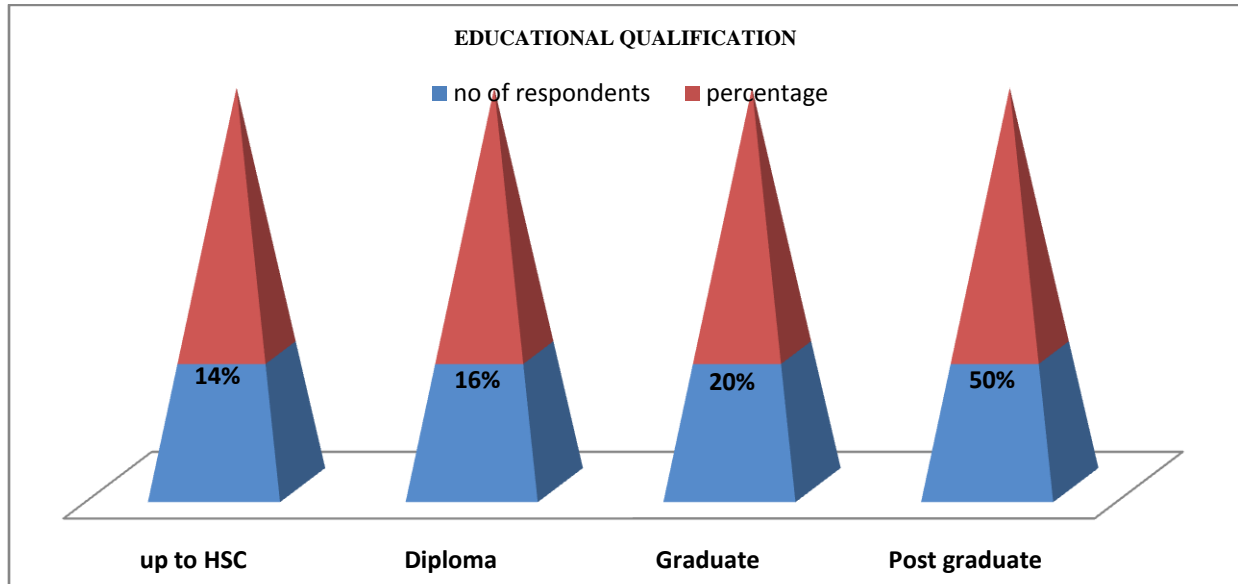
S.NO	QUALIFICATION	NO OF RESPONDENTS	PERCENTAGE
1	Up to HSC	14	14
2	Diploma	16	16
3	Graduate	20	20
4	Post graduate	50	50
	Total	100	100

**Inference:**

The above table shows that 14% of the respondents are up to HSC, 16% of the respondents are Diploma, 20% of the respondents are graduates and 50% of the respondents are post graduate.

The maximum 50% of the respondents are post graduate.

**Educational qualification**



**Tble-3 Income wise classification**

S.NO	MONTHLY INCOME	NO OF RESPONDENTS	PERCENTAGE
1	Below 5000	4	4
2	5001 – 10000	20	20
3	10001 – 15000	42	42
4	15001 – 20000	24	24
5	Above 20000	10	10
	Total	100	100

**Inference:**

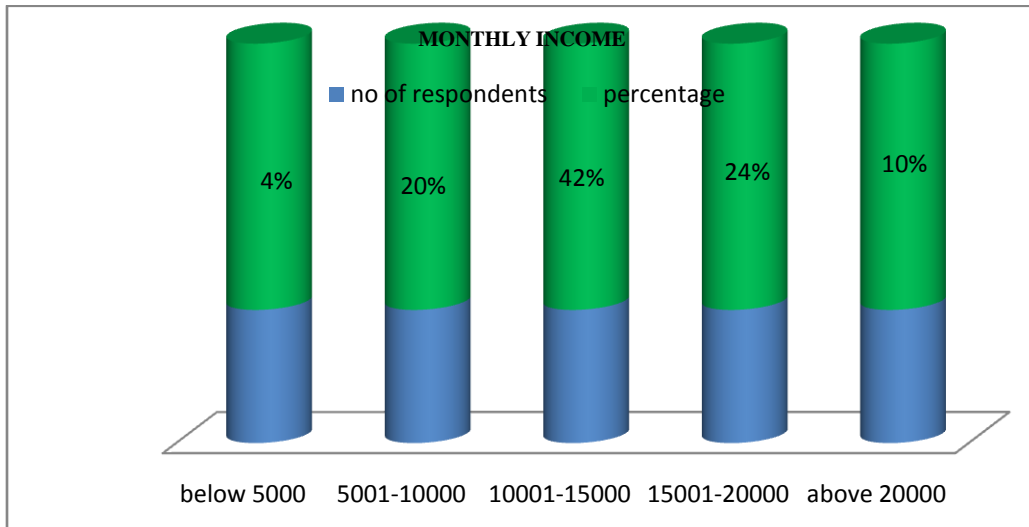
It is noted that, 4% of the respondent are below the monthly income of 5000, 20% of the respondents monthly income between 5001-10000, 42% of the respondent’s monthly income



range between 10001- 15000, 24% of the respondent monthly income range between 15001-20000 and 10% of the respondents income range above 20000.

Majority that 42% of the respondents monthly income range between 10001-15000.

**Monthly income wise classification**



**Application of chi-square test:**

Chi-square test was applied to find out whether various influencing factors are dependent upon variable like age, education, occupation, sex and income.

$$\text{Chi square} = \sum \{ O-E \}^2 / E$$

Where,

O – Observed value.

E – Expected value.

On the assumption of independence of attributes,

$$E = \frac{RT \times CT}{N}$$

**Where,**

RT – row total

CT – column total

N – Total number of observations.

**Test – 1,**

The test is conducted to know whether the gender of respondents has any influences on level of satisfaction.

**Tble-4 Elements observed value**

<b>Gender and level</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b>Highly satisfied</b>	8	2	10
<b>Satisfied</b>	5	3	8
<b>No opinion</b>	10	1	11
<b>Dissatisfied</b>	6	4	10
<b>Highly dissatisfied</b>	9	2	11
<b>Total</b>	38	12	50

**Null hypothesis:**

There is no significant relationship between gender and level of satisfaction.

**Alternative hypothesis:**

There is a significant relationship between gender and level of satisfaction.

**Chi-square test**

LEVEL AND GENDER	O	E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
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**Highly satisfied:**

Male	8	7.6	0.16	0.02
Female	2	2.4	0.16	0.067

**Satisfied:**

Male	5	6.08	1.17	0.19
Female	3	1.92	1.17	0.61

**No opinion:**

Male	10	8.36	2.69	0.32
Female	1	2.64	2.69	1.02

**Dissatisfied:**

Male	6	7.6	2.56	0.34
Female	4	2.4	2.56	1.07

**Highly dissatisfied:**

Male	9	8.36	0.5	0.05
Female	2	2.64	0.5	0.16
Total	50	4.207		

**Degrees of freedom:**

$$(R-1) \times (C-1)$$

$$(5-1) \times (2-1)$$

$$4 \times 1 = 4$$

Table value = 9.490, Calculated value = 4.207.

**Inference:**

Calculated value of chi-square is less than the table value. The null hypothesis is accepted at 5% level. Therefore there is no significant relationship between the gender and the level of satisfaction.

**Test 2,**

The test is conducted to know whether the educational qualification of respondents has influences on level of satisfaction.

**Tble-5 Elements observed value**

<b>Education and level</b>	<b>Up to HSC</b>	<b>diploma</b>	<b>Graduate</b>	<b>Post graduate</b>	<b>Total</b>
<b>Highly satisfied</b>	2	4	6	3	15
<b>Satisfied</b>	1	2	3	1	7
<b>No opinion</b>	3	3	2	2	10
<b>Dissatisfied</b>	2	1	5	2	10
<b>Highly dissatisfied</b>	1	2	4	1	8
<b>Total</b>	9	12	20	9	50

**Null hypothesis:**

There is no significant relationship between qualification and level of satisfaction.

**Alternative hypothesis:**

There is a significant relationship between qualification and level of satisfaction.

**Chi-square test**

LEVEL AND EDUCATION	O	E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
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**Highly satisfied:**

Up to HSC	2	2.7	0.49	0.18
Diploma	4	3.6	0.16	0.04
Graduate	6	6	0	0
Post graduate	3	2.7	0.09	0.03

**Satisfied:**

Up to HSC	1	1.26	0.068	0.054
Diploma	2	1.68	0.102	0.08
Graduate	3	2.8	0.04	0.014
Post graduate	1	1.26	0.068	0.054

**No opinion:**

Up to HSC	3	1.8	1.44	0.8
Diploma	3	2.4	0.36	0.15
Graduate	2	4	4	1
Post graduate	2	1.8	0.04	0.02

**Dissatisfied:**

Up to HSC	2	1.8	0.04	0.02
Diploma	1	2.4	1.96	0.82
Graduate	5	4	1	0.25
Post graduate	2	1.8	0.04	0.02

**Highly dissatisfied:**

Up to HSC	1	1.44	0.194	0.134
Diploma	2	1.92	0.006	0.003
Graduate	4	3.2	0.64	0.2
Post graduate	1	1.44	0.194	0.134
Total	50			3.983

**Degrees of freedom:**

$$(R-1) \times (C-1)$$

$$(5-1) \times (4-1)$$

$$4 \times 3 = 12$$

TABLE VALUE = 21.026

CALCULATED VALUE = 3.983

**Inference:**

Calculated value of chi-square is less than the table value. The null hypothesis is accepted at 5% level. Therefore there is no significant relationship between the qualification and the level of satisfaction.

**Test 3,**

The test is conducted to know whether the size of the family has any influence on level of satisfaction.

**Tble-6 Element observed value**

Size of family and level	Up to 3 members	4-5 members	6-7 members	Above 7 members	TOTAL
Highly satisfied	5	4	1	3	13
Satisfied	3	3	2	1	9
No opinion	4	2	1	3	10
Dissatisfied	5	5	2	1	13
Highly dissatisfied	1	1	1	2	5
<b>Total</b>	18	15	7	10	50

**Null hypothesis:**

There is no significant relationship between size of the family and level of satisfaction.

**Alternative hypothesis:**

There is a significant relationship between size of the family and level of satisfaction.

**Chi – square test**

Level and size of the family	O	E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
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**Highly satisfied:**

Up to 3 members	5	4.68	0.102	0.022
4-5 members	4	3.9	0.001	0.003
6-7 members	1	1.82	0.672	0.369
Above 7 members	3	2.6	0.16	0.062

**Satisfied:**

Up to 3 members	3	3.24	0.058	0.018
4-5 members	3	2.7	0.09	0.033
6-7 members	2	1.26	0.548	0.435
Above 7 members	1	1.8	0.64	0.355

**No opinion:**

Up to 3 members	4	3.6	0.16	0.044
4-5 members	2	3	1	0.333
6-7 members	1	1.4	0.16	0.114
Above 7 members	3	2	1	0.5

**Dissatisfied:**

Up to 3 members	5	4.68	0.102	0.022
4-5 members	5	3.9	1.21	0.31
6-7 members	2	1.82	0.032	0.018
Above 7 members	1	2.6	2.56	0.985

**Highly dissatisfied:**

Up to 3 members	1	1.8	0.64	0.355
4-5 members	1	1.5	0.25	0.167
6-7 members	1	0.7	0.09	0.128
Above 7 members	2	1	1	1
Total	50			5.273

**Degrees of freedom:**

$$(R-1) \times (C-1)$$

$$(7-1) \times (5-1)$$

$$6 \times 4 = 24$$

Table value = 21.026, calculated value = 5.273



**Inference:**

Calculated value of chi-square is less than the table value. The null hypothesis is accepted at 5% level. Therefore there is no significant relationship between the size of the family and the level of satisfaction.

**Test 4,**

The test is conducted to know whether the income level of respondents has influences on level of satisfaction.

**Tble-7 Elements observed value**

<b>income And level</b>	<b>Below 5000</b>	<b>5001 to 10000</b>	<b>10001 to 15000</b>	<b>15001 to 20000</b>	<b>Above 20000</b>	<b>Total</b>
<b>Highly satisfied</b>	3	2	4	3	3	15
<b>Satisfied</b>	2	3	3	2	2	12
<b>No opinion</b>	2	1	3	2	3	11
<b>Dissatisfied</b>	1	1	1	2	2	7
<b>Highly dissatisfied</b>	0	1	1	1	2	5
<b>Total</b>	8	8	12	10	12	50

**Null hypothesis:**

There is no significant relationship between income and level of satisfaction.

**Alternative hypothesis:**

There is a significant relationship between income and level of satisfaction.

**Chi-square test**

LEVEL AND INCOME	O	E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
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**Highly satisfied;**

Below 5000	3	2.4	0.36	0.15
5001 to 10000	2	2.4	0.16	0.067
10001 to 15000	4	3.6	0.16	0.044
15001 to 20000	3	3	0	0
Above 20000	3	3.6	0.36	0.1

**Satisfied;**

Below 5000	2	1.92	0.006	0.003
5001 to 10000	3	1.92	1.166	0.608
10001 to 15000	3	2.88	0.014	0.005
15001 to 20000	2	2.4	0.16	0.067
Above 20000	2	2.88	0.774	0.269

**No opinion;**

Below 5000	2	1.76	0.058	0.033
5001 to 10000	1	1.76	0.578	0.328
10001 to 15000	3	2.64	0.13	0.049
15001 to 20000	2	2.2	0.04	0.018
Above 20000	3	2.64	0.13	0.049

**Dissatisfied;**

Below 5000	1	1.12	0.014	0.013
5001 to 10000	1	1.12	0.014	0.013

10001 to 15000	1	1.68	0.462	0.275
15001 to 20000	2	1.4	0.36	0.257
Above 20000	2	1.68	0.102	0.061

**Highly dissatisfied;**

Below 5000	0	0	0	0
5001 to 10000	1	0.8	0.04	0.05
10001 to 15000	1	1.2	0.04	0.033
15001 to 20000	1	1	0	0
Above 20000	2	1.2	0.64	0.533
Total	50	3.025		

**Degrees of freedom:**

$$(R-1) \times (C-1)$$

$$(5-1) \times (5-1)$$

$$4 \times 4 = 16$$

Table value = 26.3, calculated value = 3.025

**Inference:**

Calculated value of chi-square is less than the table value. The null hypothesis is accepted at 5% level. Therefore there is no significant relationship between the income and the level of satisfaction.

**Test 5,**

The test is conducted to know whether the occupation has any influence on level of satisfaction.

**Conclusion**

The study reveals the fact that the sales of any toothpaste depend upon the two important factors as quality and reasonable price. The colour, smell, attractive

advertisements are all secondary factors only. Colgate is the market leader and it is liked by most of the respondents in this study. Next to Colgate people like Close Up toothpaste. But it is mostly purchased by women. Even in rural area, Close Up is preferred by women. Thirdly Pepsodent dominates the market. But Pepsodent are mostly purchased by educated people. However Colgate toothpaste is getting a special image in the minds of the respondents. Hence Colgate will have the potential customers in the near future and no doubt all the toothpaste manufacturers in future will face cut throat competition by Colgate Company.

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