



# IMPACT OF SOCIAL MEDIA ON CONSUMER BEHAVIOUR PATTERN

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## INTRODUCTION

Nowadays social media is used in understanding and changing the consumers behaviour pattern as it is a medium to reach maximum number of diverse category of people. The term "social media" is used to refer to online communication channels, while the term "traditional mass media" refer to conventional communication media like TV, radio, newspapers, etc. The consumer decision making process consists of 5 stages: Need/problem recognition, information search, alternative evaluation, purchase decision and post-purchase behaviour. According to studies, all of these stages are impacted by social media usage, not only in developed countries, but also in the developing ones.

As social media become more and more powerful, connecting people and facilitating the exchange of information, consumer behaviour is shifting. Through social media, consumers now can easily watch an interesting advertisement on YouTube, while posting their own opinions on Twitter and sharing it with friends on Facebook. People tend to remember more visual elements, that's why social media content is supposed to remain longer in consumers mind. Communication through social media, and its content, can cause changes of consumers attitudes toward different products or advertisements.

To understand how social media has influenced consumer buying behaviour and to know whether in future social media marketing will take over traditional marketing.

For this purpose, I will take data of consumers as per response which will be useful to draw valid conclusion.

## Objectives:

1. To examine how social media has affected the decision making of consumers based on gender.
2. To examine people's behaviour towards social media advertising has changed their initial shopping technique.
3. To examine the factors of social media that influence the buying behaviour of consumers.
4. To examine relationship between age/gender and monthly expenditure on online shopping.
5. To examine which social media platform has grabbed overall population's attention.
6. To see if anything bought unplanned is based on gender.

7. To see that people see the rating and order the stuff online.

8. To examine spending more time on social media attracts people to shop more online or not.

## Analysis –

Correlation between Monthly Income of your Family and Total monthly expenditure on online shopping =0.336288

### 1. Chi-Square test of independence: -

A chi-square statistic is one way to show a relationship between two categorical variables. In statistics, there are two types of variables: numerical (countable) variables and nonnumerical (categorical) variables. The chi-squared statistic is a single number that tells you how much difference exists between your observed counts and the counts you would expect if there were no relationship at all in the population.

A chi square test will give you a p-value. The p-value will tell you if your test results are significant or not.

1. Degrees of freedom. That's just the number of categories minus 1.
2. The alpha level ( $\alpha$ ). This is chosen by you, or the researcher. The usual alpha level is 0.05 (5%), but you could also have other levels like 0.01 or 0.10

The  $\chi^2$  test first calculates a  $\chi^2$  statistic using the formula:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where:

$\chi^2$	=	chi squared
$O_i$	=	observed value
$E_i$	=	expected value

- FORMULA USING EXCEL:

FORMULA: = CHISQ.TEST(actual\_range ,expected\_range) actual\_range is the range of data that contains observations to test against expected values.

expected\_range is the range of data that contains the ratio of the product of row totals and column totals to the grand total.

1.1 To find relationship between two categorical variables.

$H_{01}$ : There is no relationship between two categorical variables (i.e Gender and medium used to search for information)

$H_{11}$ : There is relationship between two categorical variables

Level of significance=5%

**Table 1**

Medium used to search for information

	Internet	Traditional Media	Total	
Gender				
	<b>Female</b>	147	5	152
	<b>Male</b>	160	4	164
	<b>Total</b>	307	9	316

For testing H<sub>0</sub>, cal Chi-Square=0.206201

$$d.f = 1$$

$$P\text{-value} = 0.649762$$

**Conclusion:** We accept H<sub>0</sub> at 5% level of significance since P-value >0.05 i.e there is no relationship between gender and medium used to search for information.

1.2 To find relationship between two categorical variables.

H<sub>02</sub>: There is no relationship between two categorical variables (i.e Gender and anything bought unplanned due to social media exposure)

H<sub>12</sub>: There is relationship between two categorical variables

Level of significance=5%

**Table 2**

Anything bought unplanned

	Maybe	Yes	No	Total	
Gender					
	<b>Female</b>	37	43	72	152
	<b>Male</b>	61	47	56	164
	<b>Total</b>	98	90	128	316

For testing H<sub>0</sub>, cal Chi-Square=7.610608

$$d.f = 2$$

$$P\text{-value} = 0.022252$$

**Conclusion:** We reject H<sub>02</sub> at 5% level of significance since P-value <0.05 i.e there is relationship between Gender and anything bought unplanned due to social media exposure.

1.3 To find relationship between two categorical variables.

H<sub>03</sub>: There is no relationship between two categorical variables (i.e Gender and frequency of online shopping)

H<sub>13</sub>: There is relationship between two categorical variables

Level of significance=5%

**Table 3**

	Never	Occasionally	1-2 times a month	3-4 times a month	More than 4 times a month	Total
Female	8	63	45	12	24	152
Male	5	64	54	26	15	164
Total	13	127	99	38	39	316

Frequency of online shopping

For testing H<sub>0</sub>, cal Chi-Square =8.309468

d.f =4

P-value =0.080878

**Conclusion:** We accept H<sub>03</sub> at 5% level of significance since P-value >0.05 i.e there is no relationship between gender and frequency of online shopping

1.4 To find relationship between two categorical variables.

H<sub>04</sub>: There is no relationship between two categorical variables (i.e Gender and percentage of online shopping influenced by social media)

H<sub>14</sub>: There is relationship between two categorical variables

Level of significance=5%

**Table 4**

Social Media influence

Gender	Less than 10%	10%-30%	30%-60%	60%-80%	More than 80%	Total
	Female	44	37	36	20	15
Male	58	38	29	26	13	164
Total	102	75	65	46	28	316

For testing H<sub>0</sub>, cal Chi-Square=3.163079

d.f =4

P-value =0.530915

**Conclusion:** We accept H<sub>04</sub> at 5% level of significance since P-value >0.05 i.e there is no relationship between Gender and percentage of online shopping influenced by social media.

1.5 To find relationship between two categorical variables.

H<sub>05</sub>: There is no relationship between two categorical variables (i.e Gender and social media enhanced knowledge about different products)

H<sub>15</sub>: There is relationship between two categorical variables

Level of significance=5%

**Table 5**

Social Media enhanced knowledge about different products

Gender	1	2	3	4	5	Total
	Female	41	42	40	12	17
Male	47	28	53	24	12	164
Total	88	70	93	36	29	316

For testing H<sub>0</sub>, cal Chi-Square= 9.44629

d.f =4

P-value =0.050863

**Conclusion:** We accept H<sub>05</sub> at 5% level of significance since P-value >0.05 i.e there is no relationship between Gender and social media enhanced knowledge about different products.

1.6 To find relationship between two categorical variables.

H<sub>06</sub>: There is no relationship between two categorical variables (i.e Gender and changing preference due to social media)

H<sub>16</sub>: There is relationship between two categorical variables

Level of significance=5%

**Table 6** changing preference due to social media

Gender	May be	Yes	No	Total
	Female	64	61	27
Male	76	55	33	164
Total	140	116	60	316

For testing H<sub>0</sub>, cal Chi-Square=1.485362

d.f =2

P-value =0.475836

**Conclusion:** We accept H<sub>0</sub> at 5% level of significance since P-value >0.05 i.e there is no relationship between Gender and changing preference due to social media.

### 3. Graphical Analysis: -

The graphical analysis creates pictures of the data, and this will help to understand the patterns. Often graphical analysis is the starting point for any problem-solving method.

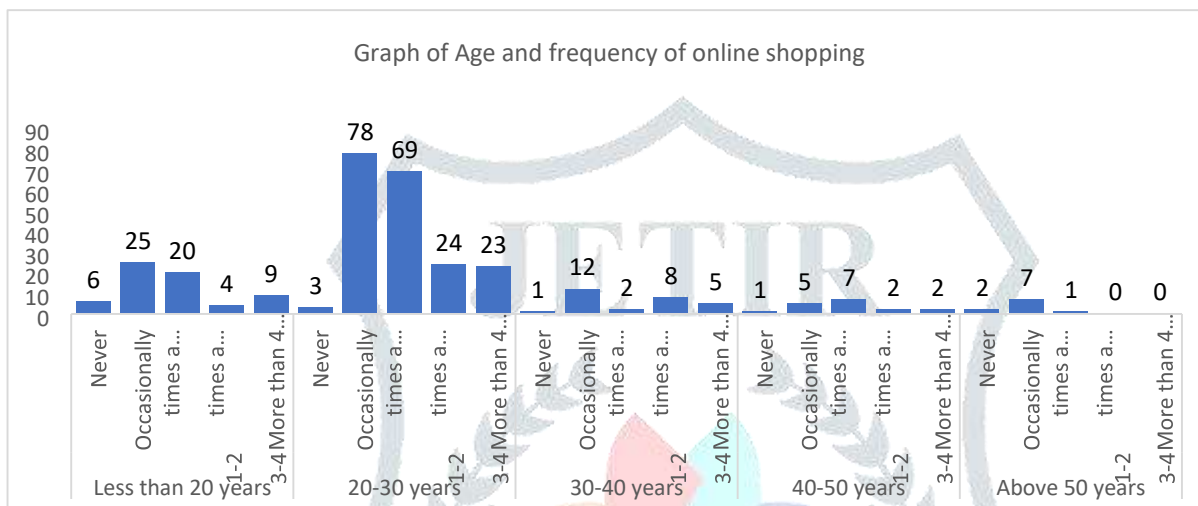
- Table 2.1: Age and frequency of online shopping

Less than 20 years	Never	6
	Occasionally	25
	1-2 times a month	20
	3-4 times a month	4
	More than 4 times a month	9
20-30 years	Never	3
	Occasionally	78
	1-2 times a month	69
	3-4 times a month	24
	More than 4 times a month	23
30-40 years	Never	1
	Occasionally	12
	1-2 times a month	2
	3-4 times a month	8
	More than 4 times a month	5
40-50 years	Never	1
	Occasionally	5
	1-2 times a month	7
	3-4 times a month	2

	More than 4 times a month	2
Above 50 years	Never	2
	Occasionally	7
	1-2 times a month	1
	3-4 times a month	0
	More than 4 times a month	0

o Age and frequency of online shopping

than any other age group. And they many of them choose to shop occasionally



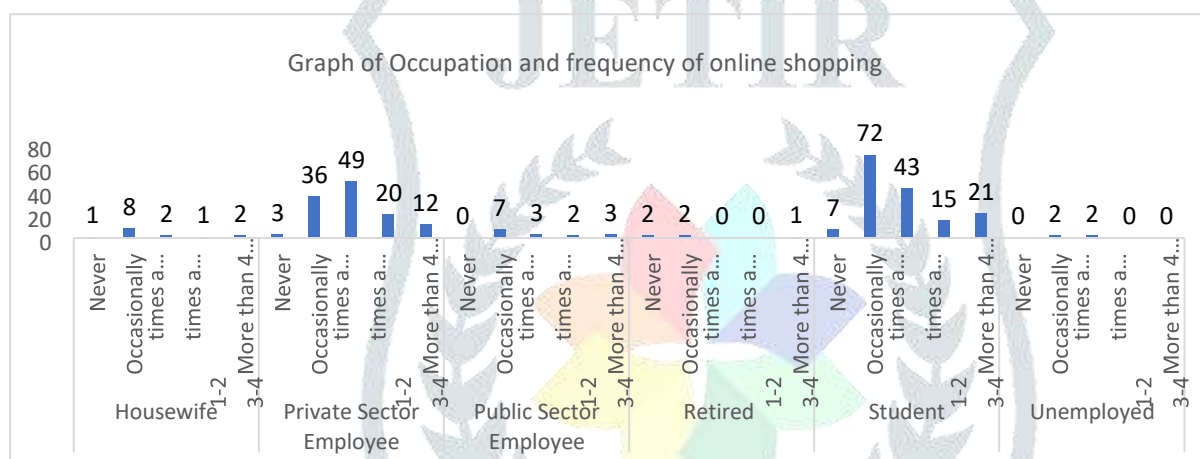
Comment: It can be seen that age group 20 -30 are one's who prefer online shopping more

• Table 2.2: Occupation and frequency of online shopping

Housewife	Never	1
	Occasionally	8
	1-2 times a month	2
	3-4 times a month	1
	More than 4 times a month	2
Private Sector Employee	Never	3
	Occasionally	36
	1-2 times a month	49
	3-4 times a month	20
	More than 4 times a month	12
Public Sector Employee	Never	0
	Occasionally	7
	1-2 times a month	3
	3-4 times a month	2
Retired	More than 4 times a month	3
	Never	2
	Occasionally	2

	1-2 times a month	0
	3-4 times a month	0
	More than 4 times a month	1
Student	Never	7
	Occasionally	72
	1-2 times a month	43
	3-4 times a month	15
	More than 4 times a month	21
Unemployed	Never	0
	Occasionally	2
	1-2 times a month	2
	3-4 times a month	0
	More than 4 times a month	0

o Occupation and frequency of online shopping



Comment: It can be seen that students are more into online shopping followed by private sector employees. While most of students shop online occasionally and most of private sector employees shop online 1-2 a month.

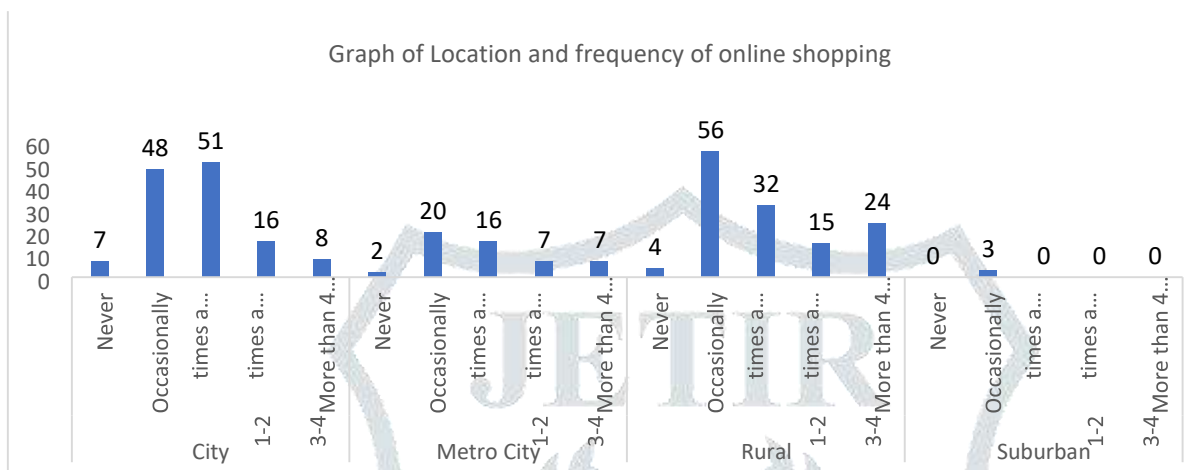
• Table 2.3: Location and frequency of online shopping

City	Never	7
	Occasionally	48
	1-2 times a month	51
	3-4 times a month	16
	More than 4 times a month	8
Metro City	Never	2
	Occasionally	20
	1-2 times a month	16
	3-4 times a month	7
	More than 4 times a month	7
Rural	Never	4
	Occasionally	56
	1-2 times a month	32



	3-4 times a month	15
	More than 4 times a month	24
Suburban	Never	0
	Occasionally	3
	1-2 times a month	0
	3-4 times a month	0
	More than 4 times a month	0

○ Location and frequency of online shopping

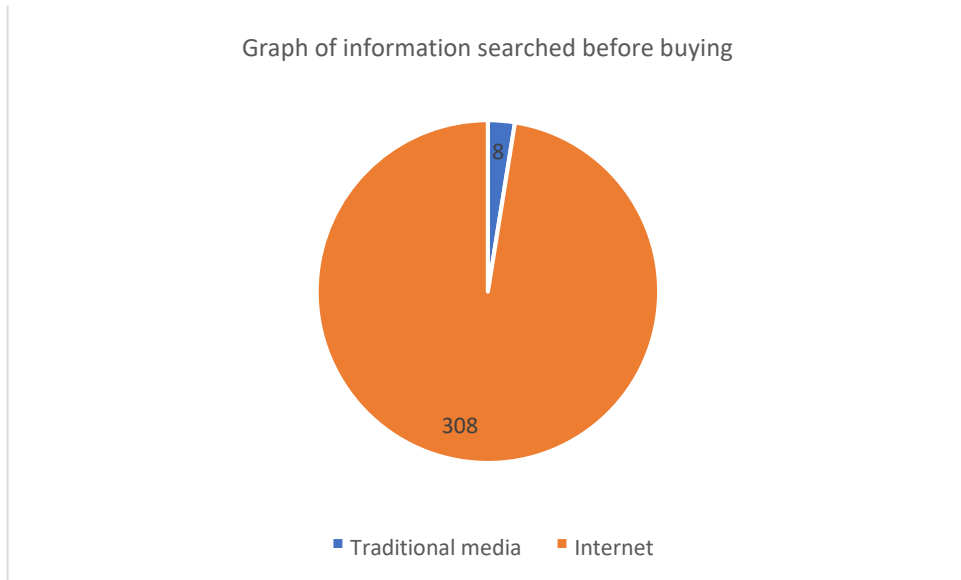


Comment: It can be seen that people residing in city and rural are the one's preferring online shopping. It also shows that most no. Of people from City choose to shop 1-2 times a month and people from Rural prefer to shop occasionally.

• Table 2.4: Before purchase where information is searched

Traditional media	8
Internet	308
<b>Total</b>	<b>316</b>

○ Before purchase where information is searched

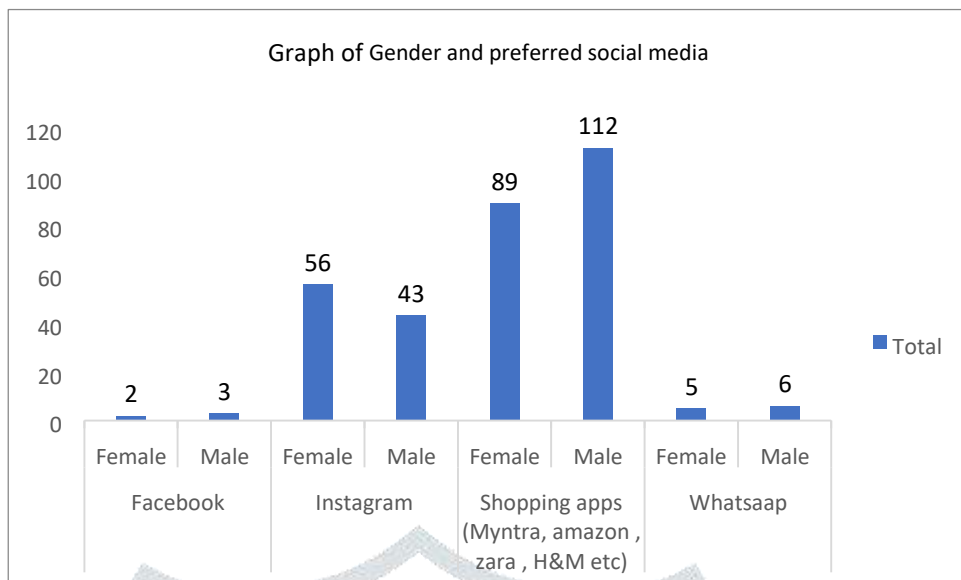


Comment: Internet is most used to search for information before buying.

• Table 2.5: Gender and preferred social media

What type of social media influence your purchase?	Gender	Total
Facebook	Female	2
	Male	3
Instagram	Female	56
	Male	43
Shopping apps (Myntra, Amazon, Zara, H&M etc)	Female	89
	Male	112
WhatsApp	Female	5
	Male	6
<b>Grand Total</b>		<b>316</b>

- Gender and preferred social media



Comment: As we can see both male and female prefer Shopping apps the most. Instagram is the 2<sup>nd</sup> most used app.

### Analysis of Variance: -

Analysis of variance (ANOVA) is a statistical technique that is used to check if the means of two or more groups are significantly different from each other. ANOVA checks the impact of one or more factors by comparing the means of different samples.

For single factor ANOVA:

The hypotheses of interest in an ANOVA are as follows:

- $H_0: \mu_1 = \mu_2 = \mu_3 \dots = \mu_k$
- $H_1: \text{Means are not all equal.}$

where k = the number of independent comparison groups.

$$F = \frac{\sum n_j (\bar{X}_j - \bar{X})^2 / (k-1)}{\sum \sum (X - \bar{X}_j)^2 / (N-k)}$$

Source of Variation	Sums of Squares (SS)	Degrees of Freedom (df)	Mean Squares (MS)	F
Between Treatments	$SSB = \sum n_j (\bar{X}_j - \bar{X})^2$	k-1	$MSB = \frac{SSB}{k-1}$	$F = \frac{MSB}{MSE}$
Error (or Residual)	$SSE = \sum \sum (X - \bar{X}_j)^2$	N-k	$MSE = \frac{SSE}{N-k}$	
Total	$SST = \sum \sum (X - \bar{X})^2$	N-1		

Where,

- X = individual observation,

- $\bar{X}_j$  = sample mean of the  $j^{\text{th}}$  treatment (or group),
- $\bar{X}$  = overall sample mean,
- $k$  = the number of treatments or independent comparison groups, and
- $N$  = total number of observations or total sample size.

### 3.1 Gender and Total monthly expenditure on online shopping.

$H_0$ : There is no relationship between two categorical variables (i.e Gender and Total monthly expenditure on online shopping)

$H_1$ : There is relationship between two categorical variables

Level of significance=5%

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	85047474	1	85047474	0.900792	0.343299	3.871244
Within Groups	2.96E+10	314	94414139			
Total	2.97E+10	315				

Conclusion: We accept  $H_0$  at 5% level of significance since P-value  $> 0.05$  i.e there is no relationship between gender and total monthly expenditure on online shopping.

### 3.2 Age and Total monthly expenditure on online shopping.

$H_0$ : There is no relationship between two categorical variables (i.e Age and Total monthly expenditure on online shopping)

$H_1$ : There is relationship between two categorical variables

Level of significance=5%

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	98292184	4	24573046	0.257897	0.904723	2.400678
Within Groups	2.96E+10	311	95282299			
Total	2.97E+10	315				

Conclusion: We accept H<sub>0</sub> at 5% level of significance since P-value >0.05 i.e there is no relationship between Age and total monthly expenditure on online shopping.

### 3.3 Location and Total monthly expenditure on online shopping.

H<sub>0</sub>: There is no relationship between two categorical variables (i.e Location and Total monthly expenditure on online shopping)

H<sub>1</sub>: There is relationship between two categorical variables

Level of significance=5%

#### ANOVA

Source	of					
Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.17E+09	3	3.91E+08	4.271756	0.005641	2.633547
Within Groups	2.86E+10	312	91532296			
Total	2.97E+10	315				

Conclusion: We reject H<sub>0</sub> at 5% level of significance since P-value <0.05 i.e there is relationship between Location and total monthly expenditure on online shopping.

### 3.4 Qualification and Total monthly expenditure on online shopping.

H<sub>0</sub>: There is no relationship between two categorical variables (i.e Qualification and Total monthly expenditure on online shopping)

H<sub>1</sub>: There is relationship between two categorical variables

Level of significance=5%

#### ANOVA

Source	of					
Variation	SS	df	MS	F	P-value	F crit
Between Groups	86656304	4	21664076	0.227278	0.923021	2.400678
Within Groups	2.96E+10	311	95319713			
Total	2.97E+10	315				

Conclusion: We accept H<sub>0</sub> at 5% level of significance since P-value >0.05 i.e there is no relationship between Qualification and total monthly expenditure on online shopping.

### 3.5 Occupation and Total monthly expenditure on online shopping.

$H_0$ : There is no relationship between two categorical variables (i.e Occupation and Total monthly expenditure on online shopping)

$H_1$ : There is relationship between two categorical variables

Level of significance=5%

#### ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.64E+08	5	32833712	0.344251	0.885763	2.243113
Within Groups	2.96E+10	310	95377157			
Total	2.97E+10	315				

Conclusion: We accept  $H_0$  at 5% level of significance since P-value  $>0.05$  i.e there is no relationship between Occupation and total monthly expenditure on online shopping.

### Methodology: -

Keeping the objective in mind and the techniques to be used, questionnaire has been designed accordingly. Survey was conducted using online mode only. Online it was conducted using google forms sent across various social media platforms like WhatsApp, Instagram etc. Questionnaire are multiple choice, checkbox, small answer type. Data of 316 respondent was collected from this survey.

#### 3.1 Packages used: -

The statistical software packages MS-EXCEL, MS-Word.

#### 3.2 Tooles used:-

For analysis purpose following statistical tools are used:-

- Charts (Bar diagram, Pie chart)
- Chi-Square test
- Analysis of Variance

Above mentioned tests are performed on MS-Excel only.

**Primary Work/ Survey: -****• Questionnaire:-**

I the student of T. Y. B. Sc. (Statistics) conducting a survey on social media impact on consumer behavior pattern. Please help me conduct a study by filling out this form! Thanks in advance!

1) Name:

2) Email Id:

3) Gender

- Male
- 4) Female

Age

- Less than 20 years
- 20-30 years
- 30-40 years
- 40-50 years
- Above 50 years

5) Location of Stay  City  Metro  Rural  Suburbs

6) What is your Highest Qualification?

- HSC
- Illiterate
- PhD  Post Graduate  Under Graduate

7) Occupation Housewife

- Private Sector Employee  Public Sector Employee
- Student  Retired  Unemployed

8) Monthly income of the family:

9) Total monthly expenditure on online shopping:

10) How much time do you spend on social media (per day)?

- Less than 3 hours  3-6 hours  More than 6 hours

11) How often do you shop online?

- 1-2 times a month
- 3-4 times a month  More than 4 times a month  Occasionally
- Never

12) How much percentage of your online shopping is influenced by social media?

- Less than 10%  10%-30%  30%-60%  60%-80%  More than 80%

13) Before a purchase where do you search for more information?

- Traditional media  Internet

14) What type of social media influence your purchase?

- WhatsApp  Instagram   
Shopping apps  Facebook

15) Do you think: social media increased and enhanced my knowledge regarding different product and services

1 2 3 4 5

Strongly agree

Strongly disagree

16) Do you change your initial purchase preference after searching relevant information on social media?

- Yes  No  Maybe

17) Do you think advertisement on social media makes your shopping easy?

- Yes  No  Maybe

18) Have you ever bought anything unplanned, due to social media exposure?  Yes  No  Maybe

### Overall Conclusion: -

✦ Form Chi-Square test we conclude that-

- 1) There is no relationship between gender and medium used to search for information.
- 2) There is relationship between Gender and anything bought unplanned due to social media exposure.
- 3) There is no relationship between gender and frequency of online shopping
- 4) There is no relationship between Gender and percentage of online shopping influenced by social media.
- 5) There is no relationship between Gender and social media enhanced knowledge about different products.
- 6) There is no relationship between Gender and changing preference due to social media.

### From Graphical Analysis we conclude that-

It can be seen that age group 20-30 are one's who prefer online shopping more than any other age group. And they many of them choose to shop occasionally.

It can be seen that students are more into online shopping followed by private sector employees. While most of students shop online occasionally and most of private sector employees shop online 1-2 a month.

It can be seen that people residing in city and rural are the one's preferring online shopping. It also shows that most no. Of people from City choose to shop 1-2 times a month and people from Rural prefer to shop occasionally.

Internet is most used to search for information before buying.

Both male and female prefer Shopping apps the most. Instagram is the 2<sup>nd</sup> most used app.



✦ From ANOVA-

- 1) There is no relationship between gender and total monthly expenditure on online shopping.
- 2) There is no relationship between Age and total monthly expenditure on online shopping.
- 3) There is relationship between Location and total monthly expenditure on online shopping.
- 4) There is no relationship between Qualification and total monthly expenditure on online shopping.
- 5) There is no relationship between Occupation and total monthly expenditure on online shopping.

### **Future scope: -**

Social media will be more integrated into personal, social, business lives. We won't be able to realise that social media have become a natural part of our daily life. In 2019, over 2.95 billion people were engaged in at least one form of social media. The role of social media is changing on daily basis. At earlier stage social media was only use for communication, but this is not the case now. Social media have become a major part of marketing (as we can see from the analysis).

The respondent data collected by the social media platforms are selectively being used to suggest consumers a focused choice. It has led to a revolution in the digital marketing space. The users are increasingly using social media platforms not just for networking but also for news, business, and shopping. The crossover of shopping sites and social media platforms through digital marketing tools is gaining wider traction for marketers. However, there is a growing pattern of social media platforms not just limited to being an advertising medium but also offering shopping choice.

Hopefully this development might lead to more focused online shopping experience for consumer.

### **Limitations: -**

Data collection is done primarily using Questionnaire. Data is collected through only in online according to everyone's convenience. In future this limitation should overcome in an effective way. We cannot say the information provided by the respondent is accurate as we were not present there physically.

Large sample can be taken to get more accurate result.

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