

# Monthly Mobile Expenses & Economic Status Of The People In Bangladesh

## (A Case Study Of Rangamati Town)

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**Abstract :** Monthly mobile expenses and the economic status of the people in Bangladesh are the main study in my research. In this study, we will try to evaluate the actual mobile expenses per month and economic status of the people who are living at Rangamati town. In doing so, I will try to explore the matters such as the economic status of the mobile users, the factors offering the students mobile phone uses and some others factors which are related in my research. Here mobile expenses divided into two categories such as upto Tk300 and above Tk300 per month. From our study I see that most of the respondents are uses above Tk300 monthly and their economic status is middle. I use some chi square test and all the test shows significant results. Also logistic regression model is used where I take above Tk300 as a reference category.

**Keywords :** Mobile expenses , Economic status , Bangladesh, Chi Square , Logistic Regression.

### 1 INTRODUCTION

Bangladesh is a small country of 147,570 square kilometers. It is bordered by India on the east, west and north and by the Bay of Bangle on south. There is also a small strip of frontier with Myanmar on the south-eastern edge. It is an over populated country in the world according to the report of B.B.S.- 2007 (Bangladesh Bureau of Statistics) Bangladesh has about 164.4 million people. Because of over population, geographic and socio-economic situation, people have to struggle with flood, cyclone, poverty and hunger. Here, most of the people are deprived of their fundamental need and demand.

It has a per capita income of 641\$, which has ranked itself to join the third world countries with a low per capita income and GDP. This poor rate falls far short of fulfilling the needs of our needy people.

However, Bangladesh is making progress despite some difficulties. These signs of progress are being reflected in some fast growing industries in this country. One such industry is telecommunication industry.

In such a least developing country cellular (Mobile) phone started its journey in 1900-01. Now it has become the main media of communication system. Telegram, Telephone, Fax, E-mail is expensive and time-consuming media of communication. Communication with “mobile phone” is less expensive and very quick. Thus, now-a-days most of the people of the country like to talk or communicate via mobile phone with each other. People can maintain business, trade, and communication at home or abroad using Mobile phone.

As a part of my educational program we have given an assignment to conduct a first-hand fieldwork to collect data on mobile phone users at Rangamati town (Sadar). Our study area covered several villages named Rajbari, Newmarket and Banarupa at Rangamati town. Rangamati is located in the Chittagong Division. The total area of the district is 6116.13 sq km. It is bounded by the Tripura state of India on the north, Bandarban district on the south, Mizoram state of India and Chin state of Myanmar on the east, Khagrachari and Chittagong District on the west.

The total population of Rangamati is 5,08,182 of which according to 2005 census of which 52% of tribal and 48% of non tribal. The number of males are 2,87,060 and females are 2,38,043 (census 2001). The density of population is 83 per square kilometer (census 2001). The number of household is 1,03,974 having the house hold size 4.8 (census 2001). The total population is divided into Bangalees and eleven tribes (ethnic minorities): Chakma, Marma, Tanchangya, Tripura, Pankua, Lusai, Khiang, Murang, Rakhain, Chak, Bowm, Khumi.

At first, the Govt. did not allow the mobile phone operators to set up signal posts in Hill Tracts area showing a security reason. However, the government is forced to give the nod to the operators to start their activity in the “restricted area” in 2008 in the wake of massive public demands and a lot pressure created by media and civil society. Now, mobile phone has become an indispensable of every day activity. In business, trade or organizations, “Mobile phone” comes very handy today. This word is true beyond any question.

Mobile phone firstly used only for communication i.e. talking with other. But now a days, mobile phone has multipurpose uses. It is being used for recreational mood to entertain, for playing games, as a calculator for

calculation. Mobile phone companies made varnish it facilitating Internet service and FM radio added additional attraction to users. Audio video, camera, message etc. functions are available in a mobile phone.

Mobile phone service is a networking system job. All above six subscribers are covering the total network system; they are Robi, Banglalink, Citycell, Grameen Phone, Teletalk and Airtel. The 1<sup>st</sup> mobile phone operator of the country is Citycell, then came GP followed by Robi and Banglalink and Teletalk after quite a while and the last one to enter the networking system is Airtel.

The job opportunities are too meager for the overwhelming number of population. Thus, unemployment problem is mounting without showing a hint of slackening off.. In such a situation, the mobile phone companies are acting as a “saviour” engaging a remarkable number of people as employees in their offices. Thus, a great part of the unemployed people gets to find way to make a living from a jam-packed and fairly competitive job market.

## 2 OBJECTIVES OF THE STUDY

By our present study, we have tried to get an overall idea about respondent’s status of living condition and present condition of their different characters. Our aim of the project work is to perform a study on the following issues :

- i) To study the economic status of the mobile users;
- ii) To estimate expenditure per day as well as per month of the respondents;
- iii) To study the factors offering the students mobile phone uses

## 3 DATA COLLECTION AND METHODOLOGY

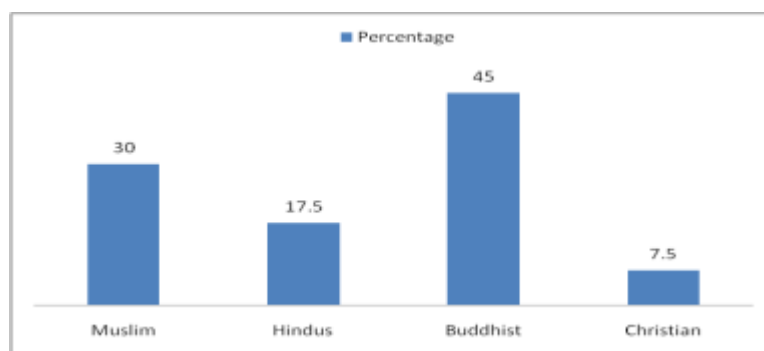
We collected our information from the selected area from the mobile users. It was taken information form 200 persons who use mobile. The persons were selected at random & were interviewed through a questionnaire, which contained open & structured question. The study was planned to cover most of the mobile users of the area (Rajbari, Newmarket and Banarupa). There are a lot of users at the area of Rangamati town. So, for better understanding of the phone users and for time –constraint and convenience, we went to places we deemed would provide me a representative data within the selected area.

Here, in this study, we used the technique of simple random sampling. The data was collected by interviewed method. The questionnaire distributed among the randomly selected mobile users. The population is the total numbers of mobile users of Rajbari, Banarupa and Newmarket in Rangamati town area.

The collected data was arranged analyzed using many statistical tools. Statistical analysis such as Chi-Square test and Logistic regression are used mainly in this study.

## 4 TABLES, GRAPHS AND COMMENTS

The data are tabulated and analyzed by me. In this chapter frequency tables and graphical representations are shown below. The table and graphical representations we would be able to know different questions answers of the questionnaire from where we can get a distinct picture of the economical status of respondents collected data 200 of the study area of the mobile users.



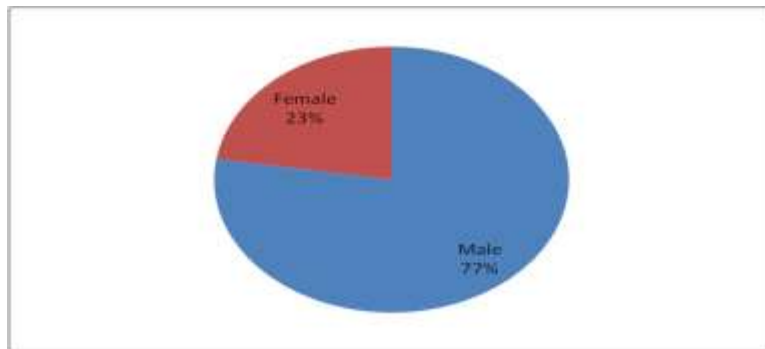
**Fig. 1: Percentage Distribution of Subscribers Religion**

**comment :** From the bar diagram we observe that, most of the respondents are Buddhist, which is 45%, Muslim 30%, Hindus 17.5% and Christians 7.5%.

**Table 1: Percentage Distribution of Subscribers Age**

<i>Age in years</i>	<i>Frequency</i>	<i>Percentage</i>
Below 20	10	5
21-30	85	42.5
31-40	50	25
41-50	15	7.5
Above50	40	20
Total	200	100.0

**Comment :** From the table we can see that, 42.5% respondents mobile users are aged 21-30 years, 25% respondents are aged 31-40 years, 20% are users aged above 50 years, 7.5% are used aged 41-50 and 5% are users below 20 years. Thus most of the respondents of mobile users are in age group 21-30 years.

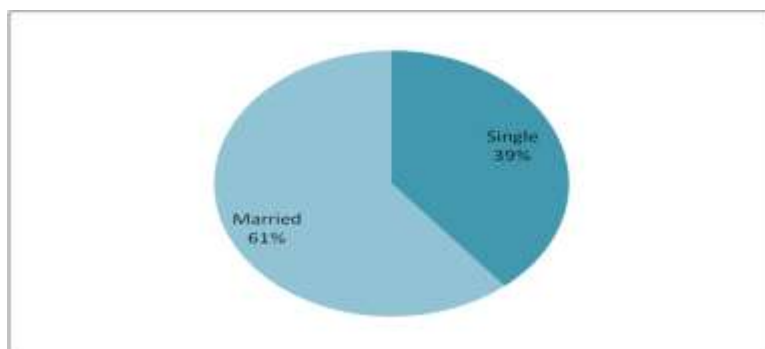
**Fig. 2 : Percentage Distribution of Respondents Sex**

**Comment :** From the Pie Chart, we see that most of the respondents are male with percentage 77% and the rest of 23% are female among the mobile users in the study area.

**Table 2: Percentage Distribution of Subscribers Educational Qualification**

<i>Educational Qualifications</i>	<i>Frequency</i>	<i>Percentage</i>
Illiterate	21	10.5
Primary	34	17
S.S.C	41	20.5
H.S.C	49	24.5
Honours and above	55	27.5
Total	200	100.0

**Comment :** From the table we see that, respondents are educated in S.S.C 20.5%, H.S.C 24.5%, primary category 17%, Illiterate category 10.5%, Honours & above category 27.5%.

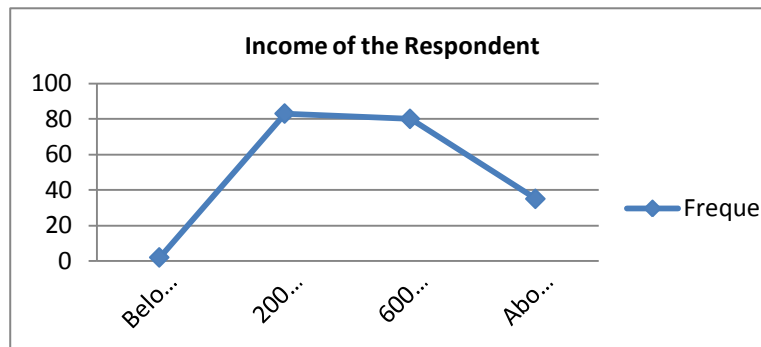
**Fig. 3 : Percentage Distribution of Respondents Marital Status**

**Comment :** From the Pie chart we observed that most of respondents are married with 61.0%, single respondents with 39.0% in study area.

**Table 3 : Percentage Distribution of subscribers Profession**

Profession	Frequency	Percentage
Service holder	59	29.5
Businessman	40	20.0
Student	101	50.5
Total	200	100.0

**Comment :** From the above table we observed that 29.5% mobile users are service holder, 20.0% users are businessman and 50.50% users are student about 200 collected data of the study area. It obviously shows that from the study data the numbers of student are more than those of any other profession.


**Fig. 3 : Percentage Distribution of Subscribers Monthly Income**

**Comment :** From the above figure we see that 2 respondent's monthly income are Below 2000. 83 respondent's monthly incomes are TK.2001-6000, 80 respondents' are TK.6001-10000, 35 respondent's are above TK.10000. So, we conclude that maximum respondent's monthly incomes are TK2001-6000.

**Table 4 : Percentage Distribution of Subscribers of Using Operators**

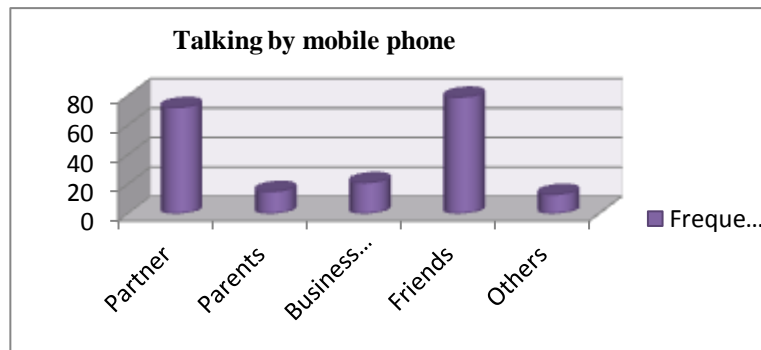
Mobile Operator	Frequency	Percentage
Robi	39	19.5
Banglalink	6	3.0
Citycell	10	5.0
Grameen Phone	65	32.5
Teletalk	75	37.5
Airtel	5	2.9
Total	200	100.0

**Comment :** From the above table we can see that 37.5.0% respondents use Teletalk. Citycell, Airtel, Grammeen Phone, Robi and Banglalink SIM are used by 5%, 2.9%, 32.5%, 19.5% and 3.0% respectively. Thus most of the respondents, choice Teletalk in the survey area.

**Table 5: Percentage Distribution of Subscriber Expense Per Month For Mobile Using**

Expenses (in Taka)	Frequency	Percentage
Up to 300	60	30.0
Above 300	140	70.0
Total	200	100.0

**Comment :** From the table we observe that, about 70% respondents use above Tk300 per month for using mobile and 30% users spend up to Tk.300 per month for using mobile.



**Fig. 4 : Percentage Distribution of Subscribers Daily Talking with others**

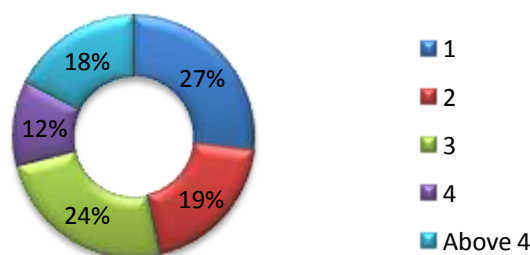
**Comment :** From the above figure we observed that 72 respondent's talk with partner, 15 respondent's talk with parents, 21 responden't talk with business partner and 79 respondent's talk with friends and 13 respondent's talk with others.

**Table 6 : Percentage Distribution of Subscribers Providing of Money**

Providing of Money	Frequency	Percentage
Self	87	43.5
Parents	81	40.5
Partner	5	2.5
Others	27	13.5
Total	200	100.0

**Comment:** From the table we observed that, 43.5% respondents manage money by themselves for using mobile, whereas 40.5% respondents manage money from their parents for using mobile. Thus we may say that most of the respondents are self- dependent for mobile using.

**Duration of mobile using**



**Fig. 5 : Percentage distribution of the respondents according to Duration of mobile using**

**Comment :** From the figure we observed that 27 percent mobile user uses their mobile since one year ago, 19.5 percent uses since two year ago and so on also seen that the respondents who have using mobile phone three and above year

## 5 ANALYSIS, TESTS AND COMMENTS

### 5.1 chi-square test

A chi-square test is a statistical test commonly used for testing independence and goodness of fit. Testing independence determines whether two or more observations across two populations are dependent on each other (that is, whether one variable helps to estimate the other). Testing for goodness of fit determines if an observed frequency distribution matches a theoretical frequency distribution. In both cases the equation to calculate the chi-square statistic is

$$\chi^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i}$$

Where,  $O_i$  = The observed frequency and

$E_i$  = The expected frequency and  $n$  = the number of cells in the table.

The effect of Yates' correction is to prevent overestimation of statistical significance when at least one cell of the table has an expected count smaller than 5. The following is Yates' corrected version of Pearson's chi-squared statistic:

$$\chi^2_{\text{Yates}} = \sum_{i=1}^N \frac{(|O_i - E_i| - 0.5)^2}{E_i}$$

### 5.1.1 : Cross tabulation for association between monthly mobile expenses and sex of the respondents:

Monthly mobile expenses * Sex of the respondents		Monthly expenditure using mobile phone (Taka)		Total
		Lower Category (up to 300)	Upper Category (above 300)	
Sex of the Respondents	Male	49(31.6%)	106(68.4%)	155
	Female	11(24.4%)	34(75.6%)	45
Total		60(30%)	140(70%)	200

Our hypotheses are

Ho: There is no association between monthly mobile expenses and sex of the respondents.

H1: There is an association between monthly mobile expenses and sex of the respondents.

Chi Square ( $\chi^2$ )	d.f	p-value	N
0.853	1	.004	200

**Comment:** Here, p value is less than 0.01 ( at 1% level of significance) with 1 d.f , So we may reject the null hypothesis and accept the alternative hypothesis. i.e., there is high association between Monthly mobile expenses and Sex of the respondents.

### 5.1.2 : Cross tabulation for association between monthly mobile expenses and Profession of the respondents:

Monthly mobile expenses * Profession of the respondents		Monthly expenditure using mobile phone (Taka)		Total
		Lower Category (up to 300)	Upper Category (above 300)	
Profession	Businesses	20(50%)	20(50%)	40
	Student	30(29.7%)	71(70.3%)	101
	Service	10(16.9%)	49(83.1%)	59
Total		60(30%)	140(70%)	200

Our hypotheses are

Ho: There is no association between monthly mobile expenses and profession of the respondents.

H1: There is an association between monthly mobile expenses and profession of the respondents.

Chi Square ( $\chi^2$ )	d.f	p-value	N
12.40	2	.019	200

**Comment:** Here, p value is less than 0.05 ( at 5% level of significance) with 2 d.f , So we may reject the null hypothesis and accept the alternative hypothesis. i.e., there is high association between Monthly mobile expenses and Profession of the respondents.

**Table : Cross tabulation for association between monthly mobile expenses and Age of the respondents:**

Monthly mobile expenses * Age of the respondents		Monthly expenditure using mobile phone (Taka)		Total
		Lower Category (up to 300)	Upper Category (above 300)	
Age of the Respondents	Below 20	5(50%)	5(50%)	10
	21-30	30(35.3%)	55(64.7%)	85
	31-40	14(28.0%)	36(72.0%)	50
	41-50	6(40%)	9(60.0%)	15
	Above50	5(12.5%)	35(87.5%)	40
Total		60(30%)	140(70.0%)	200

Our hypotheses are

Ho: There is no association between monthly mobile expenses and age of the respondents.

H1: There is an association between monthly mobile expenses and age of the respondents.

Chi Square ( $\chi^2$ )	d.f	p-value	N
50.42	4	.000	200

**Comment:** From the result we can say that Monthly mobile expenses is influenced by the age of the respondents

**5.1.3 : Cross tabulation for association between monthly mobile expenses and marital status of the respondent**

Monthly mobile expenses * Marital status of the respondents		Monthly expenditure using mobile phone (Taka)		Total
		Lower Category (up to 300)	Upper Category (above 300)	
Marital status	Single	30(38.5%)	48(61.5%)	78
	Married	30(24.6)	92(75.4%)	122
Total		60(30%)	140(70%)	200

Our hypotheses are

Ho: There is no association between monthly mobile expenses and marital status of the respondents.

H1: There is an association between monthly mobile expenses and marital status of the respondents.

Chi Square ( $\chi^2$ )	d.f	p-value	N
4.36	1	.027	200

**Comment:** From the result we can say that Monthly mobile expenses depend on marital status of the respondents.

**5.1.4 : Cross tabulation for association between monthly mobile expenses and duration of using mobile phone of the respondents:**

Monthly mobile expenses * Duration of using mobile phone		Monthly expenditure using mobile phone (Taka)		Total
		Lower Category (up to 300)	Upper Category (above 300)	
Durations of using mobile	1 year	24(44.4%)	30(55.6%)	54
	2 year	6(15.4%)	33 (84.6%)	39
	3 year	20(40.8%)	29(59.2%)	49
	4year	5(21.7%)	18(78.3%)	23
	Above 4year	8(22.8%)	27(77.2%)	35
Total		60(30.0%)	140(70.0%)	200

Our hypotheses are

Ho: There is no association between monthly mobile expenses and duration of using mobile phone of the respondents.

H1: There is an association between monthly mobile expenses and duration of using mobile phone of the respondents.

Chi Square ( $\chi^2$ )	d.f	p-value	N
21.67	4	.007	200

**Comment:** This result shows that, there is high association between Monthly mobile expenses and Duration of using mobile phone of the respondents.

### 5.1.5 : Cross tabulation for association between monthly mobile expenses and daily mobile use of the respondents:

Monthly mobile expenses * Daily mobile use		Monthly expenditure using mobile phone (Taka)		Total
		LowerCategory (up to 300)	Upper Category (above 300)	
Per day mobile Using (min)	Below 10 min	6(12.5%)	42(87.5%)	48
	10-30 min	22(25.6%)	64(74.4%)	86
	30-50 min	23(48.9%)	24(51.1%)	47
	Above 50 min	9(47.4%)	10(52.6%)	19
Total		60(30.0%)	140(70.0%)	200

Our hypotheses are

Ho: There is no association between monthly mobile expenses and daily mobile use of the respondents.

H1: There is an association between monthly mobile expenses and daily mobile use of the respondents.

Chi Square ( $\chi^2$ )	d.f	p-value	N
18.55	3	.011	200

**Comment:** Here, p value is less than 0.05 ( at 5% level of significance) with 3 d.f , So we may reject the null hypothesis . i.e., there is high association between monthly mobile expenses and daily mobile use of the respondents.

## 5.2 Logistic Regression analysis

The general logistic model expresses a qualitative dependent variable as a function of several independent variables, both qualitative and quantitative (Fox, 1984). If P is the probability of expenses above Tk300 in mobile using, then we have the following logistic model,

$$\ln \left( \frac{P_i}{1-P_i} \right) = \beta X = \sum_{j=0}^k \beta_j X_{ji}$$

Where,  $\beta$  is a vector of the unknown coefficient and X is a vector of covariates that affect on the expenses above Tk300 in mobile using. The general logistic regression model can thus be expressed as follows :

$$P = [1 + \exp(-\beta X)]^{-1}$$

Which express the log odds of current users as a linear function of the dependent variable.

In logistic model, the dichotomous response variable was assigned the value 1 for expenses above Tk 300 in mobile using and 0 up to Tk 300 in mobile using . The explanatory variables are: Age of the Respondent, Sex of respondent, Marital Status, Profession, Per day mobile using, Durations of using mobile, Providing of Money, Income (inTaka), Educational Qualifications.



**Regression co-efficient ( $\beta$ ) and odds ratios (Exp ( $\beta$ )) of expenses above Tk 300 in mobile using by independent variables.**

Background variables	$\beta$	Sig.	Exp( $\beta$ )
<b>Age of the Respondent</b>			
Below 20 (RC)	----	----	1.00
21-30	.002	.987	1.002
31-40	-.110	.195	.896
41-50	-.064	.450	.938
Above 50	-.332	.001	.718
<b>Sex of respondent</b>			
Female (RC)	----	----	1.00
Male	.109	.001	1.429
<b>Marital Status</b>			
Married (RC)	----	----	1.00
Unmarried	.110	.000	1.659
<b>Profession</b>			
Service (RC)	----	----	1.00
Businessman	.130	.182	4.484
Student	.049	.072	1.208
<b>Per day mobile using</b>			
Below 10 min (RC)	----	----	1.00
10-30 min	.020	.946	1.115
30-50 min	.112	.551	1.139
Above 50 min	-.004	.810	.908
<b>Durations of using mobile</b>			
1 year (RC)	----	----	1.00
2 year	.020	.195	1.021
3 year	.049	.450	1.150
4 year	.121	.001	1.320
Above 4 year	.055	.195	1.405
<b>Providing of Money</b>			
Self (RC)	----	----	1.00
Parents	.353	.020	1.836
Partner	.505	.329	1.925
Others	.414	.021	1.778
<b>Income(inTaka)</b>			
Below 2000 (RC)	----	----	1.00
2001-6000	.052	.002	1.046
6001-10000	.008	.010	1.062
Above 10000	.112	.000	2.183
<b>Educational Qualifications</b>			
Illiterate	----	----	1.00
Primary	.160	.680	1.250
S.S.C	.084	.535	1.455
H.S.C	.344	.069	1.545
Honours and above	.030	.040	2.183

**Comments:** From the table we see that the respondents whose age are 21-30, they are almost 1.429 times more likely for being a higher category (above Tk300 ) user than the respondents whose age are below 20. AlsoThe respondents whose age are 31-40, they are 0.104 times less likely for using mobile (above Tk300 ) than the respondents whose age are below 20 and so on. Male respondents are almost 1.429 times more likely for being a higher category (above Tk300 ) user than the Female respondent. Unmarried respondents are 1.659 times more likely for using mobile (above Tk300 ) than the married respondents.

Businessmen are almost 4.484 times more likely for using mobile (above Tk300) than the Service men. On the other hand, Students are almost 1.208 times more likely for being a higher category (above Tk300 ) user than the Service men.

The respondents who use mobile per day 10-30 minute, they are almost 1.115 times more likely for being a higher category (above Tk300 ) user than the respondents who use mobile per day below 10 minute and the respondents who use mobile per day 30-50 minute, they are almost 1.139 times more likely for being a higher category (above Tk300 ) user than the respondents who use mobile per day below 10 minute and so on.

The respondents who use mobile during 2 year, they are 1.021 times more likely for using mobile (above Tk300 ) than the respondents who use mobile during 1 year. Also The respondents who use mobile during 3 year, they are 1.150 times more likely for using mobile (above Tk300 ) than the respondents who use mobile during 1 year and so on.

The respondents whose income are Tk2001-Tk6000, they are almost 1.046 times more likely for being a higher category (above Tk300 ) user than the respondents whose income below Tk2000 and The respondents whose income are above Tk10000, they are almost 2.183 times more likely for being a higher category (above Tk300 ) user than the respondents whose income below Tk2000 and so on.

Primary respondents are 1.250 times more likely for being a higher category (above Tk300 ) user than the Illiterate respondents and SSC respondents are 1.455 times more likely for being a higher category (above Tk300 ) user than the Illiterate respondents and so on. The respondents whose get money from parents , they are 1.836 times more likely for using mobile (above Tk300 ) than the respondents whose are self dependent. Also The respondents whose get money from partners , they are 1.925 times more likely for using mobile (above Tk300 ) than the respondents whose are self dependent and so on.

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