

BUS - 503 (Statistics for Managers)

“Survey on Mobile Phone Expenditures and VoIP Service Usage in Bangladesh”

“Survey-Based Analysis of Consumer Spending and VoIP Calling Practices in Bangladesh”.

Presented To:

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MBA (Weekend)

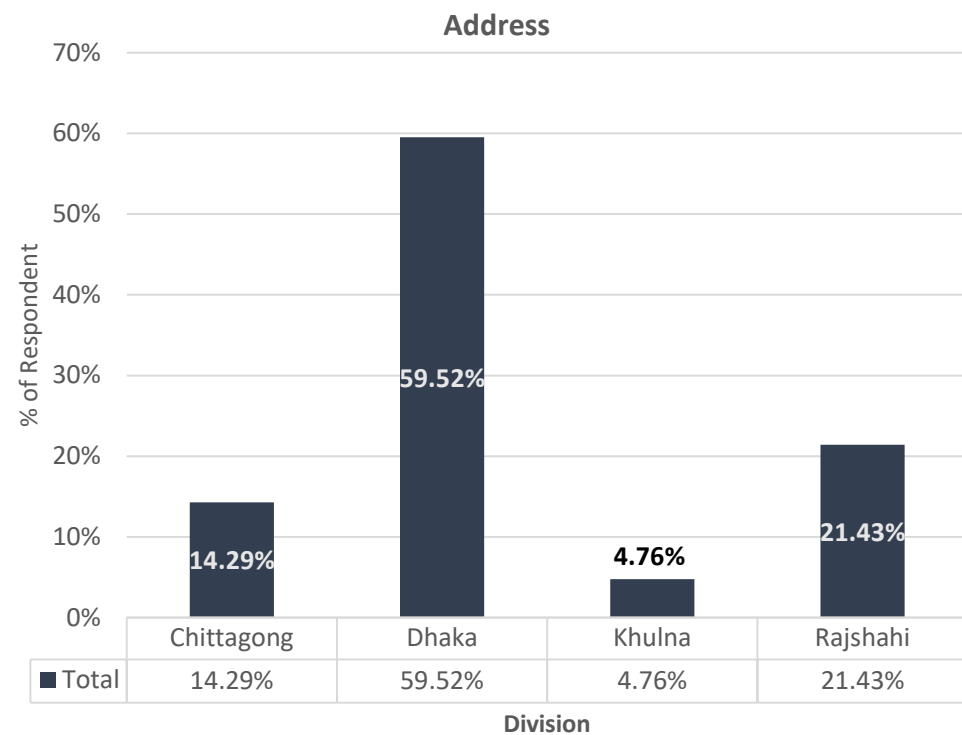
Institute of Business Administration (IBA), Jahangirnagar University



▪ Respondent/ Divisions across the Bangladesh.

Analysis:

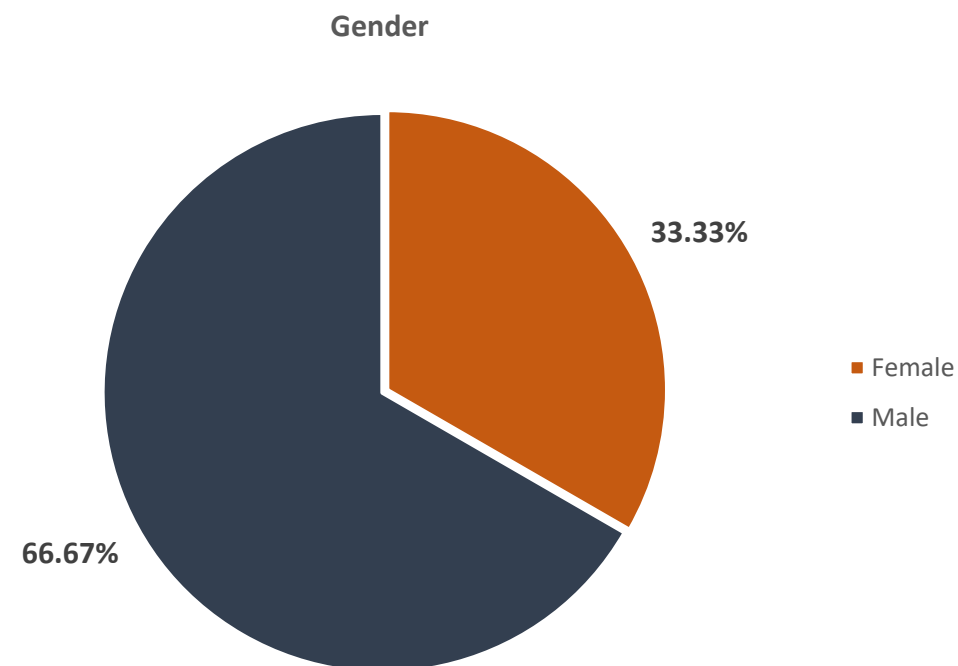
The majority of respondents are from Dhaka, followed by Rajshahi, Chittagong and Khulna.



▪ Respondent/ Gender

Analysis:

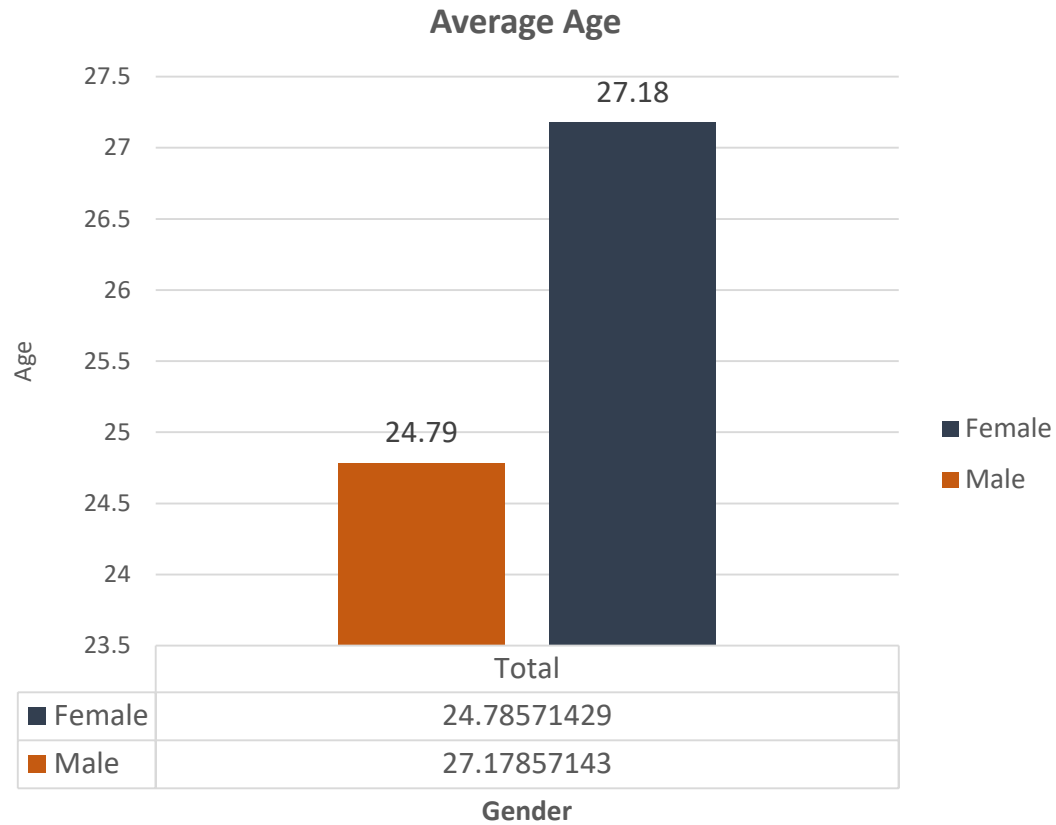
The survey data is heavily skewed towards Male respondents compared to Female respondents.



▪ Average Ages of Total Respondent:

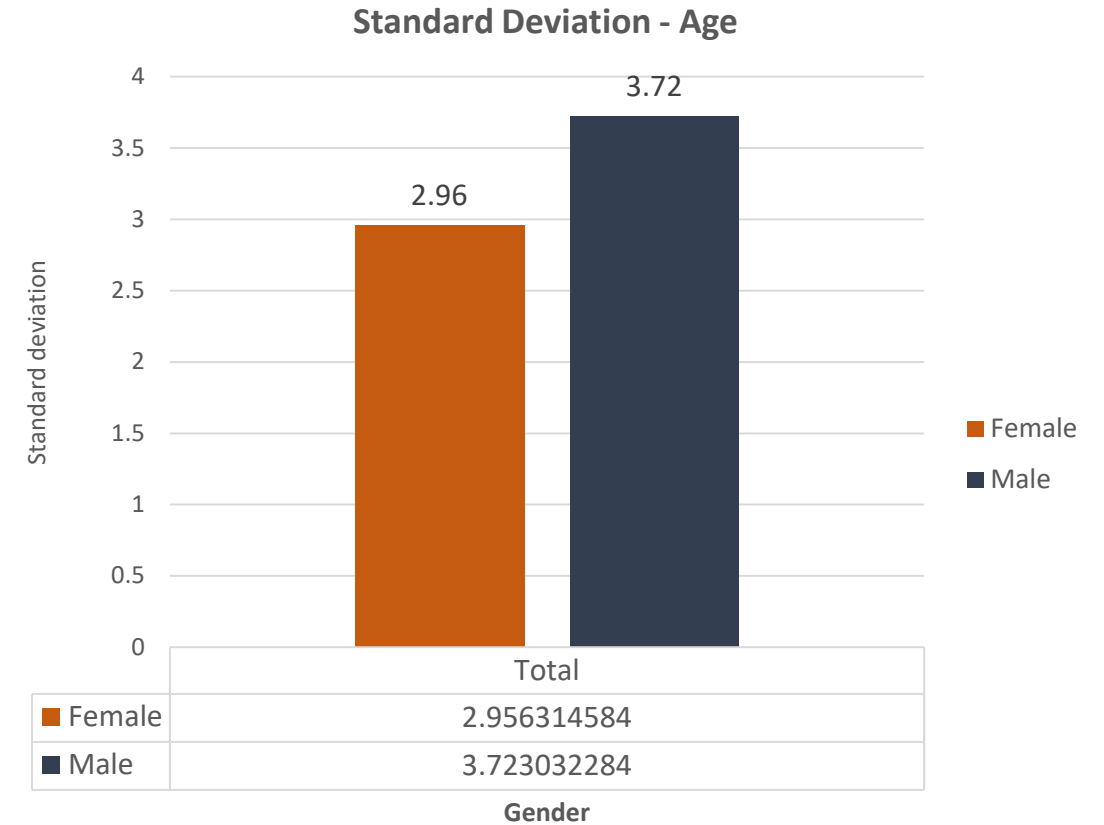
Analysis:

The average age of Female respondents are 24.79 and Male 27.18 years.



Analysis:

The standard deviation of age of the respondent 2.956 years for Female and 3.923 for Male.



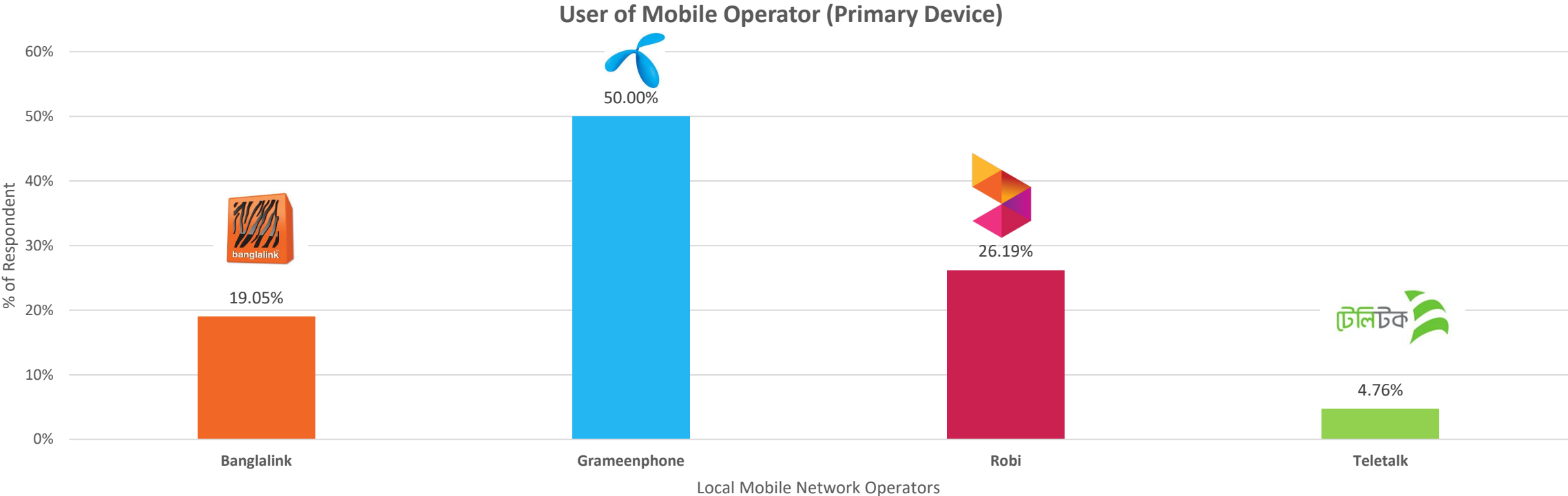
▪ Respondent/ Local Mobile Network Operator usability & Multi SIM users:

Analysis:

User of Mobile Operator (Primary Device):

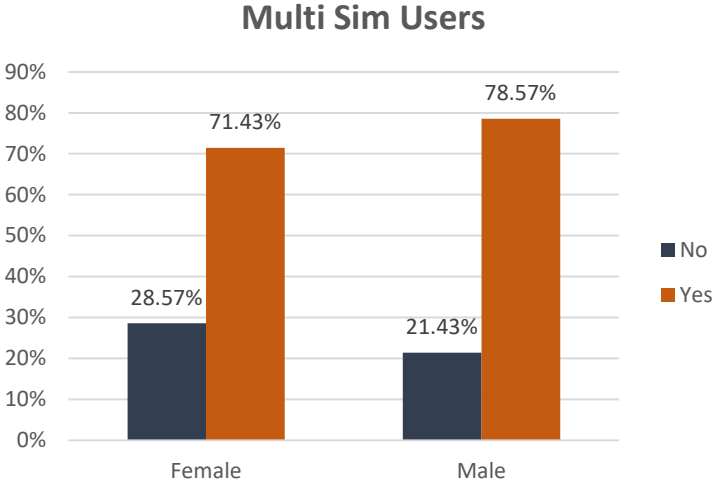
- Grameenphone (50%),
- Robi (26.19%),
- Banglalink (19.05%), and
- Teletalk (4.76%).

Grameenphone is the most used primary mobile operator among the respondents, followed by Robi and Banglalink.



Analysis:

- Multi SIM Users (76.19%)
- Single SIM Users (23.81%)

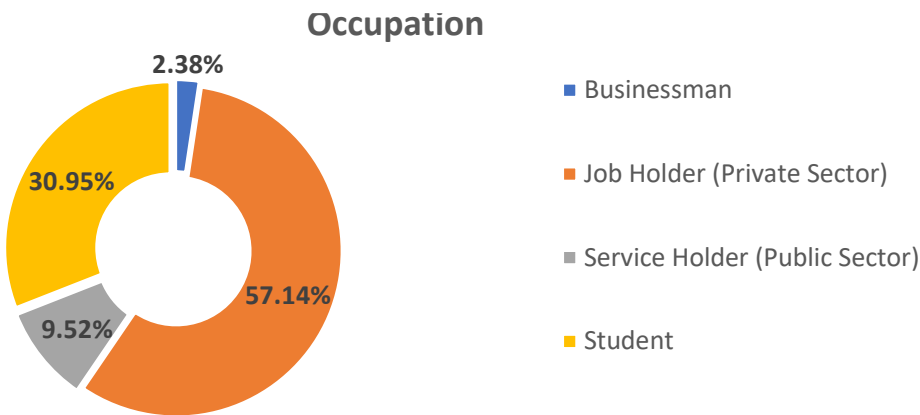


▪ Respondent/ Occupation/ Mobile Network operators/ Gender:

Analysis:





For the 'Occupation', the percentage distribution is:

- Job Holder (Private Sector) (57.14%),
- Student (30.95%),
- Service Holder (Public Sector) (9.52%), and
- Businessman (2.38%).



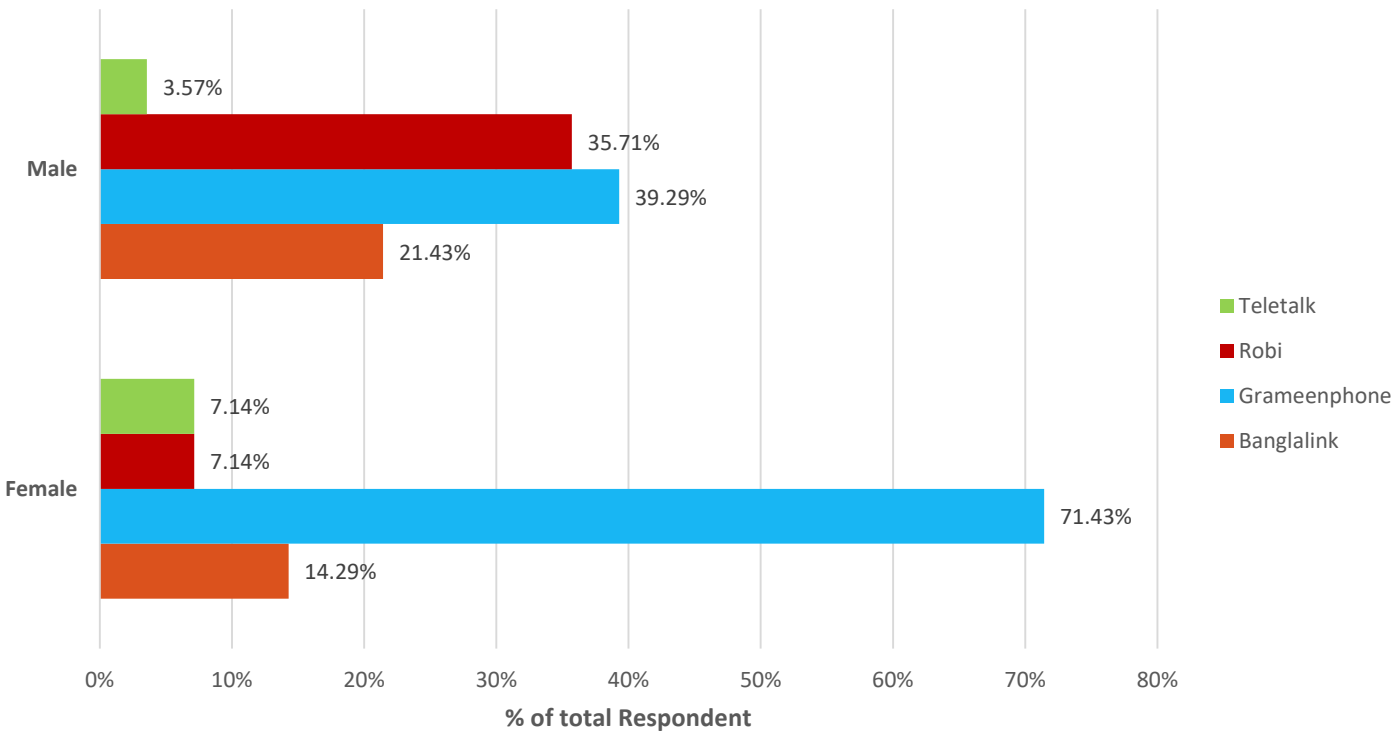
▪ Mobile Operator Users/ Gender:



71.43%	14.29%	7.14%	7.14%
			
39.29%	21.43%	35.71%	3.57%



Mobile Operator Users / Gender Demography



▪ Monthly Mobile Phone Expenditure/ Gender and Mobile Phone Operator:

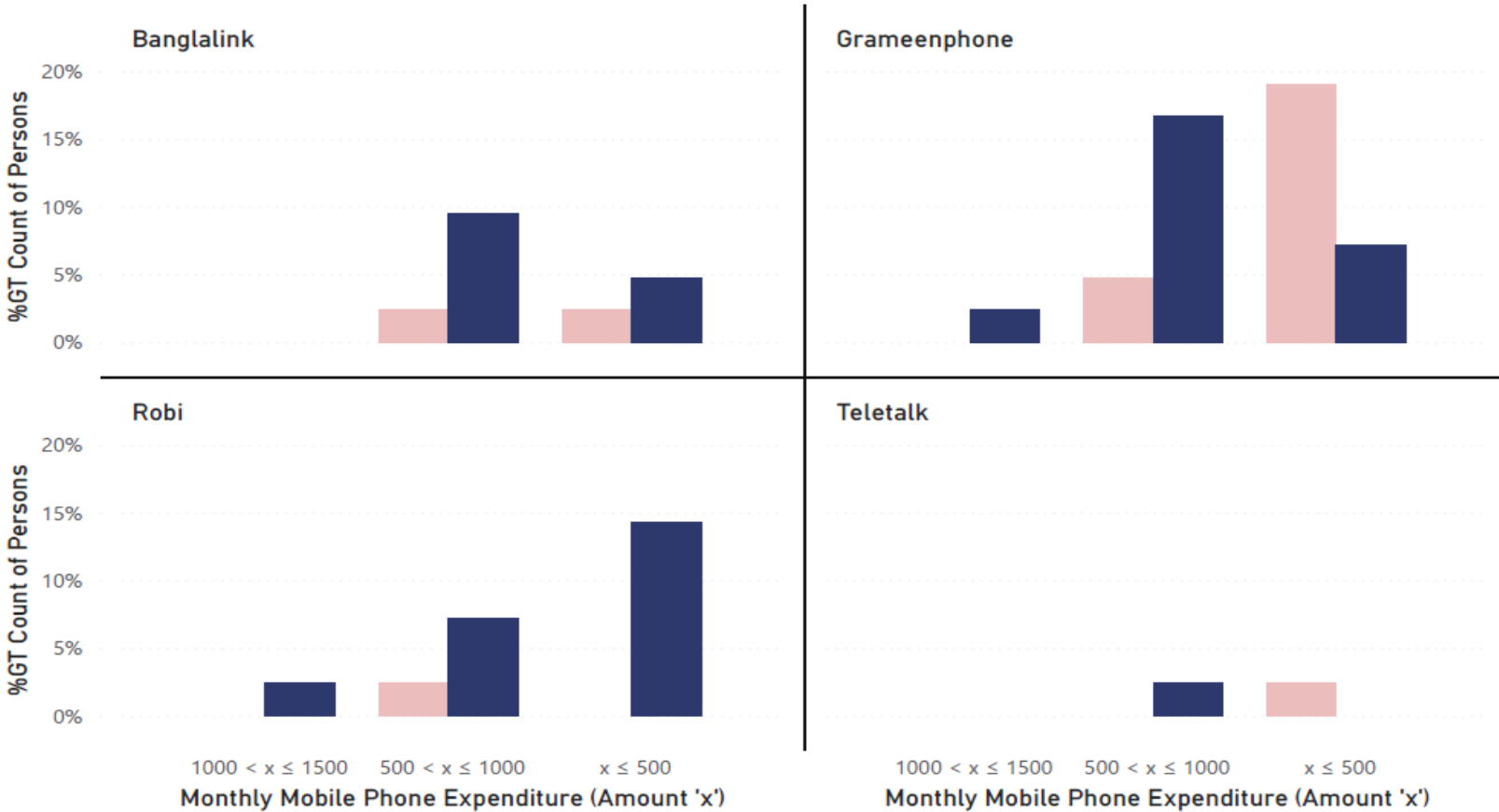
Analysis:

Monthly Mobile Phone Expenditure (Amount 'x') of total Respondent:

- $x \leq 500$ (48.80%)
- $500 < x \leq 1000$ (46.30%)
- $1000 < x \leq 1500$ (4.90%)

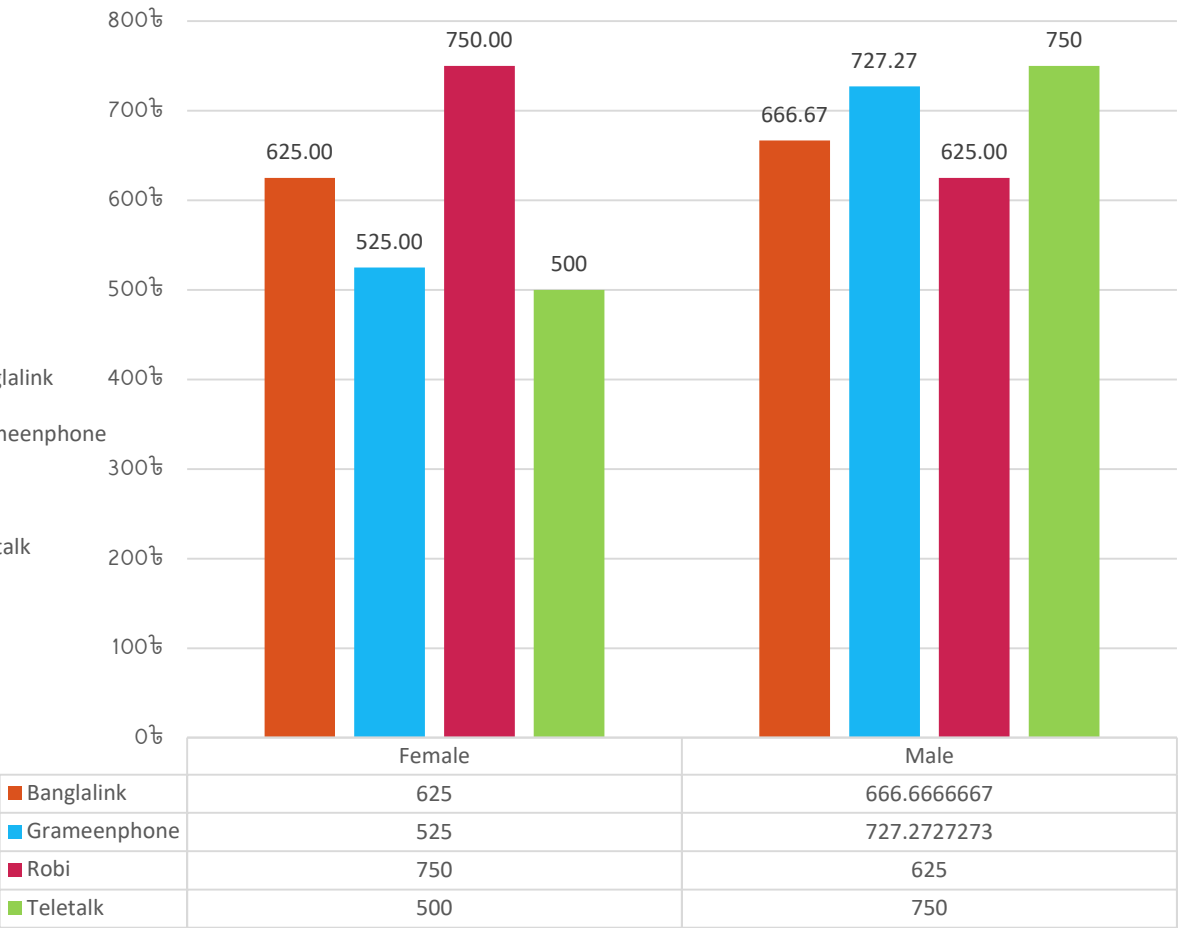
%GT Count of Persons by Monthly Mobile Phone Expenditure (Amount 'x'), Gender and User of Mobile Operator (Primary Device)

Gender Female Male

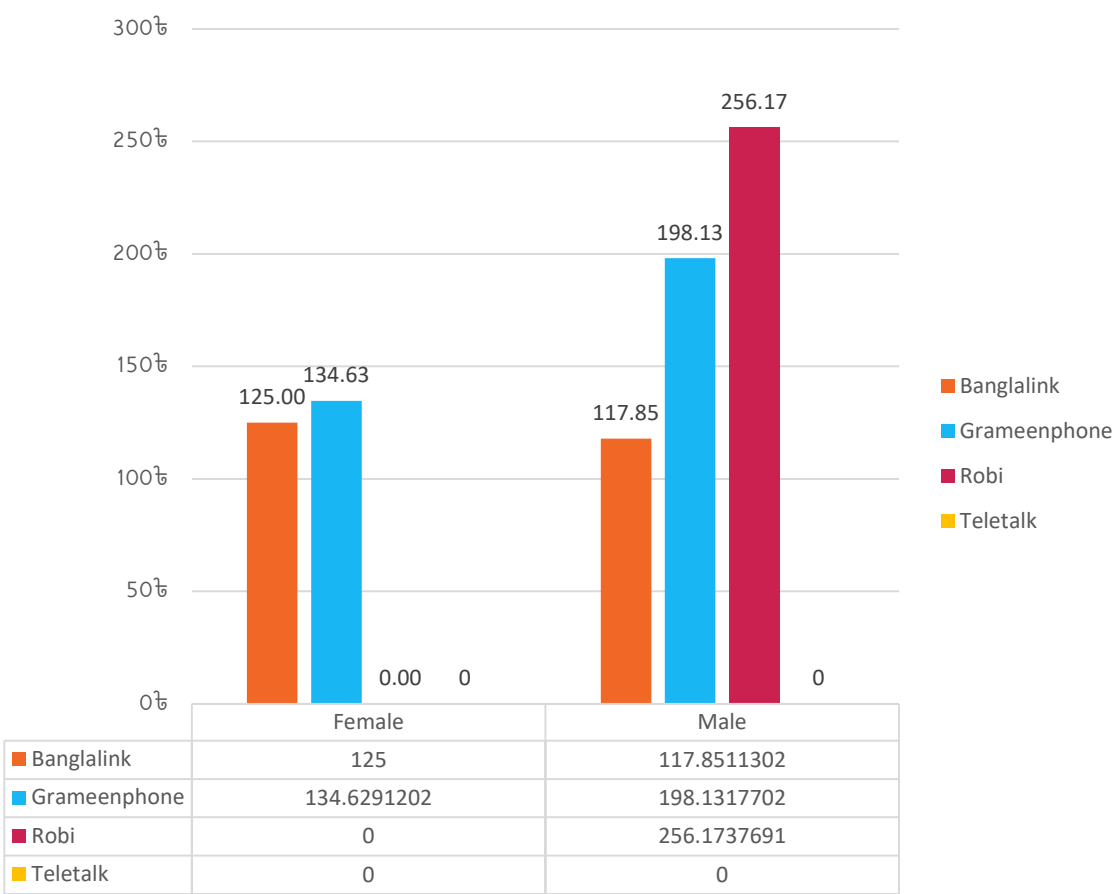


▪ Average Monthly Mobile Phone Expenditures & Standard Deviation

Average Monthly Mobile Phone Expenditures

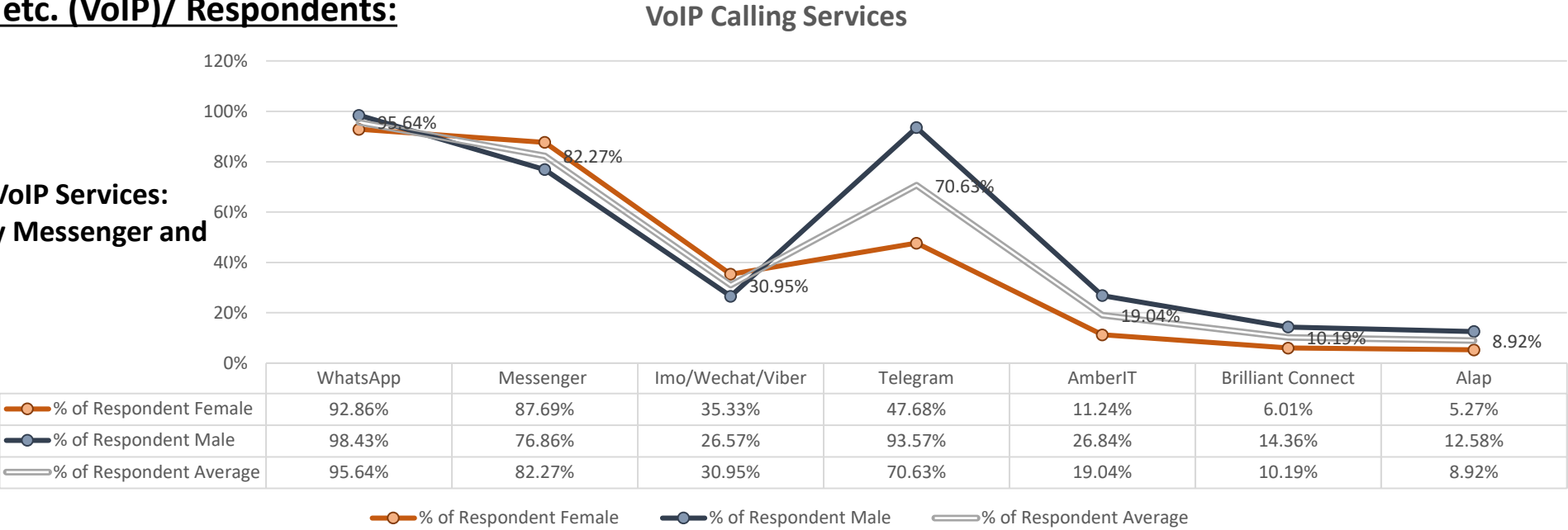


Standard Deviation of Monthly Mobile Phone Expenditures



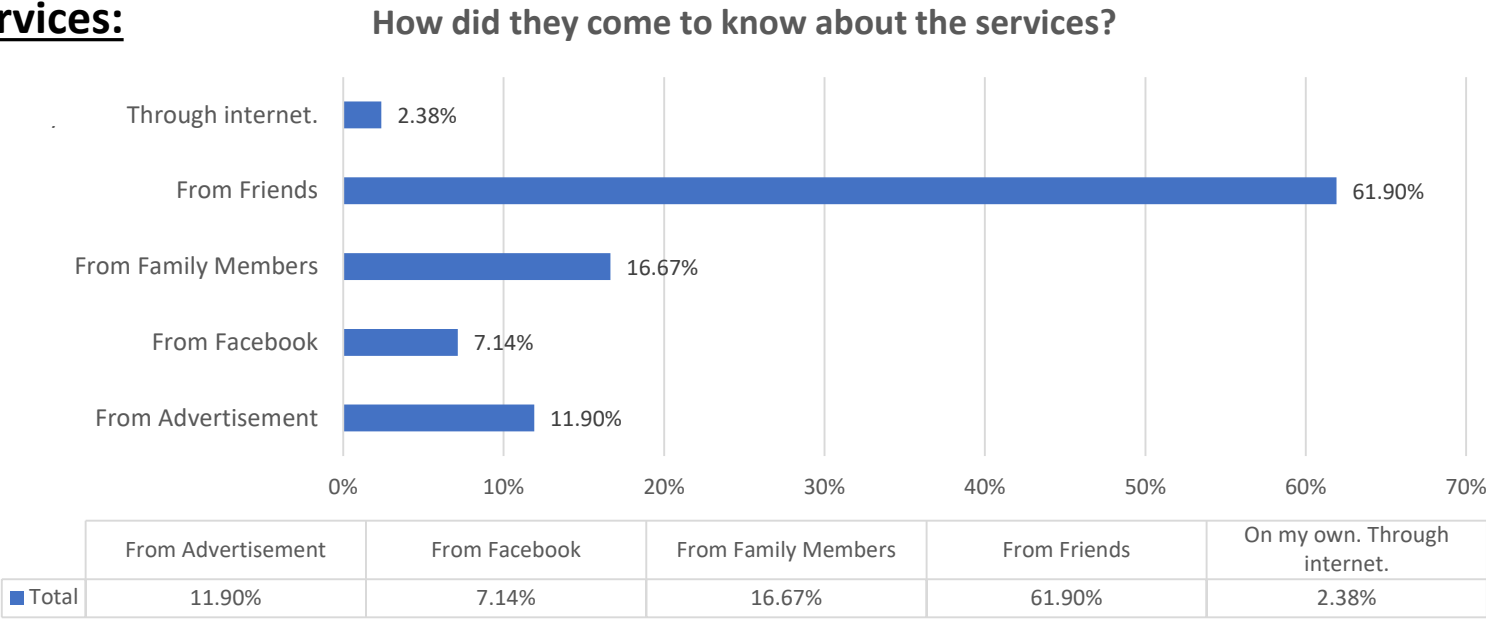
WhatsApp, Messenger etc. (VoIP)/ Respondents:

Analysis:
Most Common Apps/ Tools for VoIP Services:
WhatsApp (95.64%) followed by Messenger and other tools.



The way respondents came to know about services:

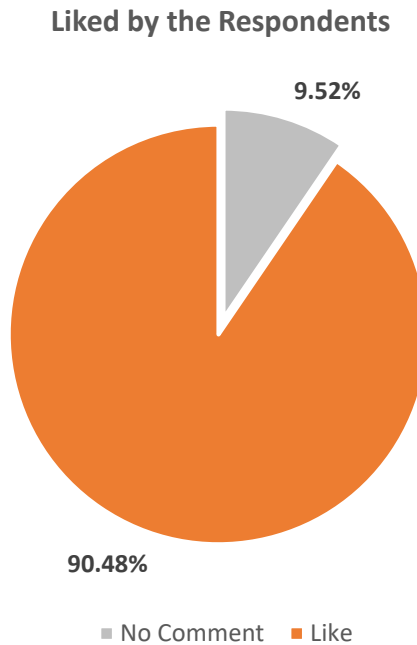
Analysis:
The majority of respondents came to know from their Friends followed by Family Members.



▪ Respondents Like and Recommendation:

Analysis:

(90.48%) Cited their opinion to recommend and liked (VoIP - apps/tools).

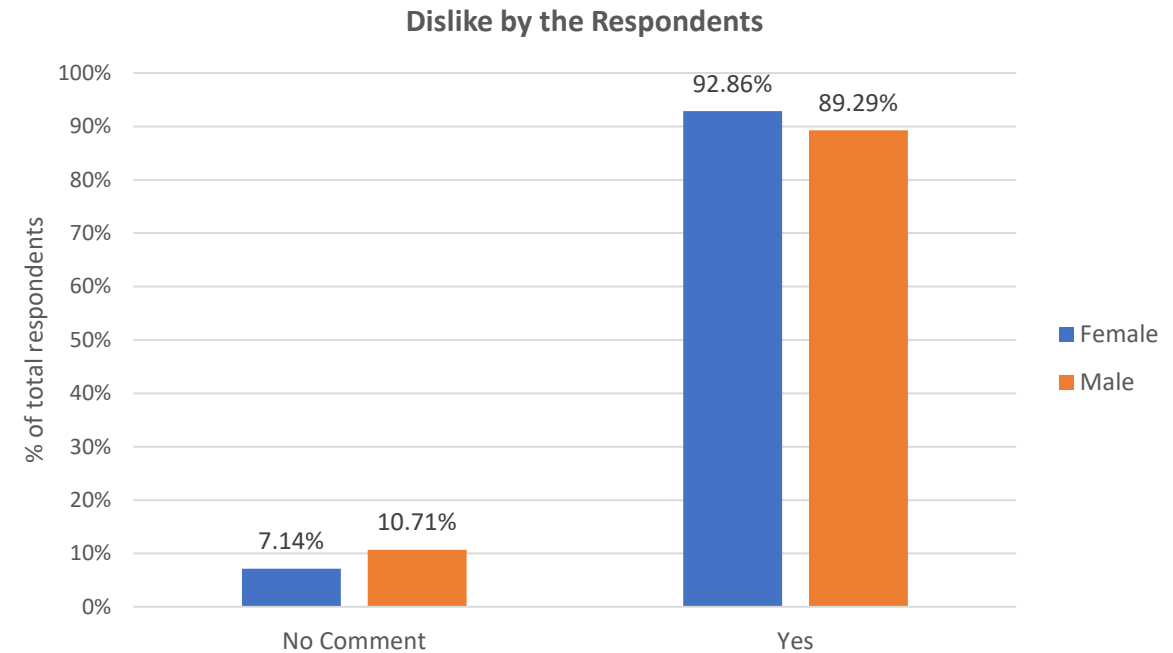


▪ Respondents Dislike and Key reasons behind it:

Analysis:

92.86% Female & 89.29% Male of the total Participants disliked the functionalities of VoIP calling services due to the following reasons:

- Poor or inconsistent call quality
- Dropped calls or frequent disconnections
- other network issues



■ Chi-Square Test on recommendation by the Respondents of using VoIP services/ Mobile Operators

Gender	Banglalink	Grameenphone	Robi	Teletalk	Grand Total
Female	2	10	1	1	14
Male	6	11	10	1	28
Grand Total	8	21	11	2	42

1. To find the Expected (O) Values for each:

Formula = (Row Total × Column Total) ÷ Grand Total.

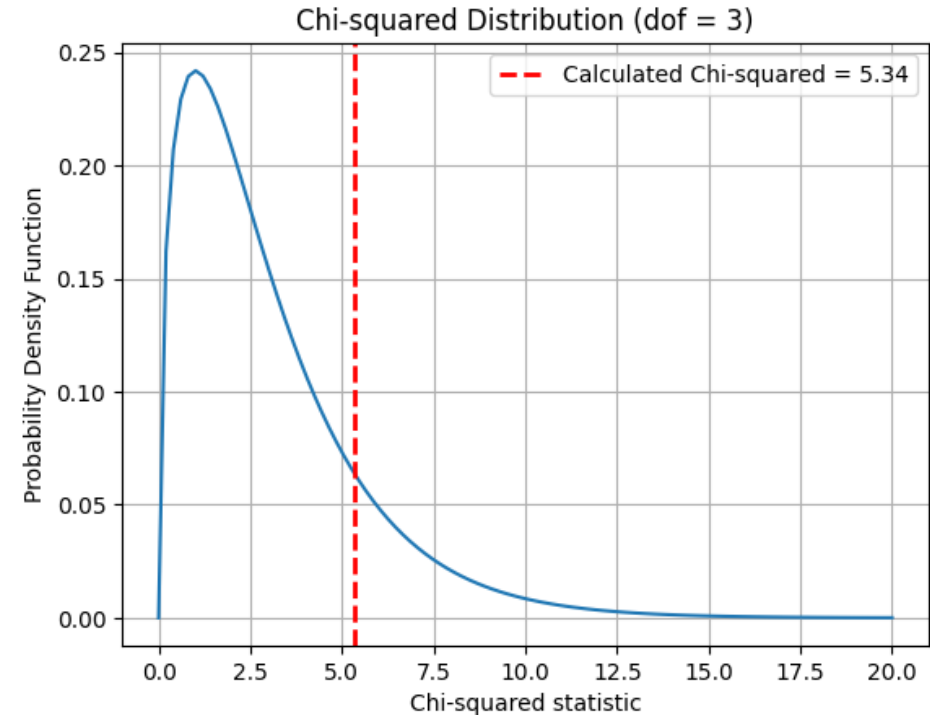
Expected frequencies:

2.66666667	7	3.66666667	0.66666667
5.33333333	14	7.33333333	1.33333333

2. Summing the last column gives us the chi-square value:

$\chi^2 = 0.17 + 1.29 + 1.94 + 0.16 + 0.08 + 0.64 + 0.97 + 0.08 = 5.33$

Gender/Mobile Operator User	Observed (O)	Expected (E)	(O-E) ²	(O-E) ² /E
Female, Banglalink	2	2.67	0.45	0.17
Female, Grameenphone	10	7	9	1.29
Female, Robi	1	3.67	7.13	1.94
Female, Teletalk	1	0.67	0.11	0.16
Male, Banglalink	6	5.33	0.45	0.08
Male, Grameenphone	11	14	9	0.64
Male, Robi	10	7.33	7.13	0.97
Male, Teletalk	1	1.33	0.11	0.08



- Chi-squared statistic: 5.337662337662337
- P-value: 0.1486771232753071
- Degrees of freedom: 3

3. Degrees of Freedom and Conclusion

$df = (\text{number of rows} - 1) \times (\text{number of columns} - 1)$

For this data, $df = (2 - 1) \times (4 - 1) = 1 \times 3 = 3$.

The calculated chi-square value is 5.33.

To interpret the chi-square value, we would compare it to a critical value from a chi-square distribution table for a given significance level (e.g., $\alpha = 0.05$) and degrees of freedom ($df = 3$). If the calculated value (5.33) is greater than the critical value, we would reject the null hypothesis, suggesting a statistically significant relationship exists between gender and the choice of mobile network operator.