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A Statistical Study on Phone Usage and Its' Impacts

Ambika.S¹, Sunrose Shalini.S²

Assistant Professor, Department of Mathematics, Sri Krishna Arts and Science College, Coimbatore, India

UG Student, Department of Mathematics, Sri Krishna Arts and Science College, Coimbatore, India

ABSTRACT: In past 20 years the development of mobile phones made a huge impact to our society. It helps to connect to people nook and corner of this world which includes paying bills, transaction of money and collecting information through internet. The primary objective of this survey is the mobile phone usage by students in a day and also we reviewed on how much the mobile is used for phone calls and internet usage in a day by students. Also, the addiction of phone usage and its' impacts faced by students are estimated with their awareness towards it using approximate statistical tools like percentage analysis, cross tabs, and chi- square test. The sampling is administered to nearly of 300 students through a questionnaire to collect data. This survey helps us to understand how students are dependent to phones and their uses with the knowledge of their physical impacts.

KEYWORDS: Phone Usage, Addiction and Impacts

I. INTRODUCTION

A mobile phone is a portable telephone. It is used to receive calls and make calls over a radio frequency link while the user is moving within a telephone service area. Although most of us feel like we couldn't live without our mobile phones, they've not really been in existence for very long. In fact, mobile phones that we use have only been around in the last 20 years. The early mobile phones are often referred to as 0G mobile phones, or Zero Generation mobile phones. In this modern world most of the phones are relying on 3G or 4G mobile technology. The market for mobile phones has grown tremendously throughout the decades due to technological advances and the introduction to innovative notion. In today's world nearly 80% people owns a mobile phone.

II. RELATED WORK

In Subramani Parasuraman, Aaseer Thamby Sam and Lee Yu Ren [3] have studied many people are aware about electro-magnetic radiation and the impacts they are experiencing like wrist or hand pain. They have concluded that nearly 1/4th of people experience wrist or hand pain due to the usage of smartphone. Alpana Vaidya [4] author of mobile phone usage among youth have said that how the young people from 12-25 years use smartphones. Also, the author mentioned that student's most preferable phone type is android and they tend to be attracted towards having updated technologies. Sanjeev Davey and Anuratha Davey [5] says how smartphone can damage interpersonal skills and how it can lead to significant health risks and harmful psychological effects on Indian adolescents.

Soyemi Jumoke, Olorunfoba S. A., Okafor Blessing [6] have done a research how student's academic activities are affected due to the usage of smartphones. This study discovered that the students are distracted by smartphones which leads to poor academic performance. The females are addicted to smartphones using multimedia and males are addicted to smartphones playing games says in Gender differences in factors associated with smartphone addiction: a cross-sectional study among medical college students. Sadaf Nawaz, Zahoor Ahmad's [8] paper helps to know more about the purpose which the students are using mobile phones apart from communication.

Chang-T, Chiua Ya-Hui Chang, Chu-Chieh Chen, Ming-Chung Ko [9] made a study on to investigate the mobile phone (MP) use for talking in relation to health symptoms among 2042 children aged 11-15 years in Taiwan. Deborah

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L McBride, RN, PhD, Sandra A LeVasseur, RN, PhD, and Dongmei Li, PhD [10] have did a study on nurses who use phones while working their shifts which will affect patients health tremendously. Coker [11] studied documents positive or negative effects of workplace Internet leisure browsing (WILB) on employee productivity. E. Cardis, I. Deltour, S. Mann, M. Moissonnier, M. Taki, N. Varsier [12] have studied Analyses of risk by location of tumour are important for the interpretation of results of studies that brain tumours in relation to mobile phone use.

III. STATEMENT OF THE PROBLEM

The addiction of mobile phones by college students is caused due to the excessive usage of it. This lead them to have mental and health disorders like eye pain, ear pain, sore neck muscles, insomnia, depression and anxiety. This leads to lack of concentration, impaired self-esteem and interpersonal conflicts.

IV. OBJECTIVE OF THE STUDY

1. The primary objective is the usage of mobile phones by students in a day.
2. The maximum time consumed by students on phone calls and internet are reviewed.
3. The most preferable feature in mobile phone by students are recorded.
4. Addiction of students towards mobile phones and the physical and psychological issues they face are observed.
5. The awareness of impacts due to phone usage among the students is estimated.

V. LIMITATION

The main constraint to collect sample in this study is non- responsive students. The male participant's sampling are taken face to face through questionnaire due to their lack of attention towards their mails. Some of the phone usage impacts are not listed like ear pain, head ache etc.

VI. RESEARCH DESIGN

- Through a well-structured questionnaire primary data is collected.
- The sample size of 300 respondents are taken by simple random sampling.
- It took about 3 weeks to collect data.
- The research design here taken as descriptive study which will help to analyse the characteristics of student's perspective and awareness over using a phone.
- Through this research how students use phones is known.

VII. SAMPLE SIZE AND TECHNIQUES

The sample size taken for the study is about 200 students in college. The techniques used to take sample is simple random sampling where the sampling technique where every item in the population has an even chance and likelihood of being selected in the sample.

VIII. DATA COLLECTION

The data collected for this study is through questionnaires that were distributed to students in colleges which were pre – tested. It is a primary data since it is collected directly from the participants. The data collected is helpful at analysing the objectives taken.

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IX. STATISTICAL CONCEPTS

- Percentage analysis
- Cross tabs
- Correlation
- Chi- square test

These tools are used in the software SPSS 16.0 version.

PERCENTAGE ANALYSIS:

(1) The percentage analysis is done for the average time spend on phone by college students.

Average time spend on phone

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2-4 hours	32	10.7	10.7	10.7
4-6 hours	113	37.7	37.7	48.3
6-8 hours	155	51.7	51.7	100.0
Total	300	100.0	100.0	

Inference:

From the above table we can say that students at college spend time on phone for about 2-4 hours is 10.7%, 4-6 hours is 37.7% and 6-8 hours is 51%. This the students mostly spend time on phone is 6-8 hours.

(2)The percentage analysis for college student’s preferable type of phone is done.

Phone type

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Android	266	88.7	88.7	88.7
i Phone	29	9.7	9.7	98.3
Microsoft	3	1.0	1.0	99.3
Others	2	.7	.7	100.0
Total	300	100.0	100.0	

Inference:

From the above table we could conclude that the most preferred mobile phone type by college students is Android which is of 88.7%. The second preference is i Phone which is of 9.7%. The other types like Microsoft are very rare to their preference which is about 1% Microsoft and 0.7% others.

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(3)The percentage analysis for the college students where they keep their mobile phone at night.

		phone at night			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Night Stand	50	16.7	16.7	16.7
	Near or Below Pillow	106	35.3	35.3	52.0
	With Parents	10	3.3	3.3	55.3
	Charging	78	26.0	26.0	81.3
	Others	56	18.7	18.7	100.0
	Total	300	100.0	100.0	

Inference:

From the above table, we could conclude that nearly 35.3% students keep their mobile phone near or below their pillow. Nearly 26% of students put their mobile phones for charging. 16.7% of students keeping their phone at night and another 18.7% of students have chosen others. Students who gave their phone to parents at night is the lowest percent which is 3.3%.

Crosstabs:

(4) The crosstabs is tabulated for the favorite feature in mobile phone and its constant use.

Favourite feature in phone * constant use of phone in a day Crosstabulation

Count		constant use of phone in a day					Total
		Very Frequently	Frequently	Occasionally	Sometimes	Never	
Favourite feature in phone	Camera	9	19	5	20	7	60
	Internet	22	51	19	45	3	140
	Games	9	25	9	23	3	69
	Text messaging	4	8	7	11	1	31
Total		44	103	40	99	14	300

Inference:

Among 300 responded students nearly 60 student's favourite feature in mobile phone is camera where 9 use it very frequently, 19 use it frequently, 5 use it occasionally, and 20 use it sometimes and 7 will never use it. Nearly 140 student's favourite feature in mobile phone is internet where 22 use it very frequently, 51 use it frequently, 19 use it occasionally, and 45 use it sometimes and 3 will never use it. Nearly 69 student's favourite feature in mobile phone is games where 9 use it very frequently, 25 use it frequently, 9 use it occasionally, and 23 use it sometimes and 3 will never use it. Nearly 31 student's favourite feature in mobile phone is text messaging where 4 use it very frequently, 8 use it frequently, 7 use it occasionally, and 11 use it sometimes and 1 will never use it.

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(5) A cross tabulation on health issues faced by students and their constant use.

HealthIssuesDuetoPhoneUsage * constant use of phone Crosstabulation

Count

		constant use of phone					Total
		Very Frequently	Frequently	Occasionally	Sometimes	Never	
Health Issues Duetto Phone Usage	Eye Strain	7	39	14	36	3	99
	Insomnia	15	26	10	16	1	68
	Depression	3	6	4	10	3	26
	Sore Neck Muscles	3	16	3	14	2	38
	Anxiety	1	5	2	4	0	12
	Others issues	9	6	5	16	5	41
	All the issues	6	5	2	3	0	16
Total		44	103	40	99	14	300

Inference:

From the cross tabulation we can see that nearly 99 students have eye strain due to constant use of phone where 7 use very frequently, 39 use frequently, 14 use occasionally, 36 use sometimes and 3 never use constantly. Also, 68 students have insomnia (sleeplessness) due to constant use of phone where 15 use very frequently, 26 use frequently, 10 use occasionally, 16 use sometimes and 1 never use constantly. 26 students have depression due to constant use of phone where 3 use very frequently, 6 use frequently, 4 use occasionally, 10 use sometimes and 3 never use constantly. 38 students have sore neck muscles due to constant use of phone where 3 use very frequently, 16 use frequently, 3 use occasionally, 14 use sometimes and 2 never use constantly. 99 students have eye strain due to constant use of phone where 7 use very frequently, 39 use frequently, 14 use occasionally, 36 use sometimes and 3 never use constantly. 12 students have anxiety due to constant use of phone where 1 use very frequently, 5 use frequently, 2 use occasionally, 4 use phone sometimes. 41 students have other issues due to constant use of phone where 9 use very frequently, 6 use frequently, 5 use occasionally, 16 use sometimes and 5 never use constantly. 16 students have eye strain due to constant use of phone where 6 use very frequently, 5 use frequently, 2 use occasionally, 3 use phone sometimes.

CORRELATION:

(6) The correlation between the average time using phone in a day by college students and age they started to use phone.

Correlations

		Average time of using phone in a day	Age started to use mobile phone
Average time of using phone in a day	Pearson Correlation	1	.022
	Sig. (2-tailed)		.701
	N	300	300
Age started to use mobile phone	Pearson Correlation	.022	1
	Sig. (2-tailed)	.701	
	N	300	300

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Inference:

The correlation between the average time using phone in a day by college students and age they started to use phone is very low positive correlation. It correlates each other with 0.022 which is toolow.

- (7) The correlation between the time spend on using internet in a day by college students and mobile data consumed monthly.

Correlations

		Time spend on Internet in a day	Mobile data consumed monthly
Time spend on Internet in a day	Pearson Correlation	1	.345**
	Sig. (2-tailed)		.000
	N	300	300
Mobile data consumed monthly	Pearson Correlation	.345**	1
	Sig. (2-tailed)	.000	
	N	300	300

Inference:

The correlation between the time spend on using internet in a day by college students and mobile data consumed monthly by them is a positive correlation. It correlates about 0.345 but still it is a low positive correlation.

- (8) The correlation between age of the students and their time spend on calls.

Correlations

		Age	Time spend on Calls
Age	Pearson Correlation	1	.088
	Sig. (2-tailed)		.129
	N	300	300
Time spend on Calls	Pearson Correlation	.088	1
	Sig. (2-tailed)	.129	
	N	300	300

Inference:

The correlation between age of the students and their time spend on calls is a low positive correlation. It correlates about 0.088 which is too low but it is in positive way.

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CHI-SQUARE TEST:

(9) Chi-square test for spending time on phone calls and using mobile phone at midnight
Frequencies

Time spend on Calls in a Day

	Observed N	Expected N	Residual
Less than 1 hour	200	75.0	125.0
1-2 hours	61	75.0	-14.0
2-4 hours	31	75.0	-44.0
4-6 hours	8	75.0	-67.0
Total	300		

Use phone at Midnight

	Observed N	Expected N	Residual
Very Frequently	12	60.0	-48.0
Frequently	42	60.0	-18.0
Occasionally	47	60.0	-13.0
Sometimes	105	60.0	45.0
Never	94	60.0	34.0
Total	300		

Test Statistics

		Calls	midnight
Chi-Square		296.613 ^a	99.633 ^c
Df		3	4
Asymp. Sig.		.000	.000
Monte Carlo Sig.	Sig.	.000 ^b	.000 ^b
	95% Confidence Interval	Lower Bound	.000
		Upper Bound	.010

Inference:

The chi-square value for spending time on phone calls in a day and using mobile phone at midnight is 0.000 and 0.000 respectively. At 5% level of significance it fails null hypothesis and goes to alternative hypothesis. That is there is a significant difference between time spend on phone calls and using phone at midnight.

(10) Chi-square test for the average time spend on using phone and the awareness towards long time usage of phone.

Average time spend on phone in a Day

	Observed N	Expected N	Residual
2-4 hours	32	100.0	-68.0
4-6 hours	113	100.0	13.0
6-8 hours	155	100.0	55.0
Total	300		

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Awareness

	Observed N	Expected N	Residual
Yes	249	150.0	99.0
No	51	150.0	-99.0
Total	300		

Test Statistics

		Average time	Awareness
Chi-Square		78.180 ^a	130.680 ^c
Df		2	1
Asymp. Sig.		.000	.000
Monte Carlo Sig. Sig.		.000 ^b	.000 ^b
99% Confidence Interval			
Lower Bound		.000	.000
Upper Bound		.015	.015

Inference:

The chi-square value for the average time spend on using phone and the awareness towards long time usage of phone at 5% level of significance is 0.000. That is null hypothesis fails and it goes to alternative hypothesis. Therefore there is a significant difference between the average time spend on using phone and the awareness towards long time usage of phone.

X. CONCLUSION

The research carried out was informative and very useful to analyse. According to the survey we could conclude that the students at college prefer androids about 88.7%. Also, the students at college mostly spend time on phone about 6-8 hours. From this survey students suffer from eye strain 99 out of 300. That is nearly 1/3rd of students suffer from eye strain. Also students suffered due to depression are 26 out of 300. That is nearest to 1/10th of students suffer from depression. Although it looks smaller in number it can get increased in the near years. Thus students get affected physically and mentally due to using mobile phone for a longer time.

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