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Identified Factors of the Effects of Excessive Usages of Smartphone on Health of the University Students: A Study on Islamic University, Kushtia, Bangladesh

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ABSTRACT

The objective of the study is to find out the effects of excessive use of smartphone on the health of the university students in Bangladesh. A closed ended questionnaire with five point Likert scale is used to collect data as the scores of agreed level for different selected issues. A total number of 289 respondents out of 350 students provide information willingly that covers 83% of total respondents. The data collection period was June, 2022. The non-parametric statistical techniques like Mann-Whitney U test and Kruskal Wallis test are mainly used to analyze the data. Excessive uses of smartphone are impacted badly on the sound health of the university students. These students having complications with different types of uncomfortable health conditions are not performing well not only in the academic activities but also in accomplishments of their everyday life. It is necessity to find out the ways of effective uses of smartphone for the university students to overcome the antagonistic situations.

Key Words: Smartphone, Health, Physical Exercise, Frustration and Family Bonding

INTRODUCTION

Smartphone is the easiest device of communication throughout the globe replacing telephone. The usages of smartphone are increasing rapidly. In Bangladesh perspective, up to June, 2022, the total mobile users were 184.45 million of which internet users 126.21 million; whereas those numbers of mobile users were 93.79 million and internet users were 25.01 million in June, 2012 (BTRC, 2022). At the beginning, it was used only for the conversation between caller and receiver and confine to text messages. But with the modification of customers demand and

rapid change of mobile technology, smartphone is invented which covered different types of services those are performed by just clicking only or touching the phone screen. Now smartphone is widely used as a significant communicative tools (Khatun et al., 2017) and desirable products for the young generation ((Mubassira & Das, 2019). Now a day, smartphones meet the user's needs regarding to serve the purpose of a communications tool, a microphone, an audio recorder, a digital camera, a web browser, a compass, weather forecaster, a satellite navigation system, a note maker, etc. Smartphones can also assist to understand different things through web browser or using other apps with the help of internet. Primary items like books, lesson notes, in the last decade were the basic research items for the students. However, learners are gaining knowledge by collecting data via electronic systems after the evolution of internet and computing technology. The invention of modern technology created a change in learners' study style where smartphones are used to obtain available sources of fresh contexts that are enriched interactive and passionate in media (Mubassira & Das, 2019).

The Internet is very helpful for a variety of reasons, including easy electronic commerce, quick data sharing, touch with other societies, emotional support and recreation (Cha & Seo, 2018). During the COVID-19 period, online shopping, educational institutions are provided distance learning via online classes using zoom, Google meet or YouTube video on the desire of government (Islam et al., 2021). So, all levels of students (primary, secondary, college and university) are supposed to purchase smartphone and take internet facilities for conducting classes, examinations or other communications. As a result, smartphone with internet are available for all students in Bangladesh. Despite of advantages it brings to use, however, it may sometimes have an adverse impact on our regular lives for the unnecessary usages of smartphones and impacts negatively on academic learning among students (Sunday et al., 2021; Gerosa et al.,2021; Mubassira & Das, 2019). It effects on health conditions like sleeping problems, reducing physical fitness, habit of eating unhealthy foods, pain and migraines, depression, anxiety etc.(*Wacks and Weinstein, 2021)* and influences in addictive behavior (Billieux et al., 2015). The problematic smartphone users have higher level of depression and anxiety compare with non-problematic smartphone users (Eichenberg, 2021). Different types of drug addiction, unwillingness to attain classes and unsound health conditions are increasing among the students of Islamic University, Kushtia, where more than 16000 students are enrolling through 36 departments under eight faculties (Islamic University, n.d.).

The smartphones are growing as very essential tools for the modern human everyday life to serve the essential purposes. At the same time, teaching learning activities are becoming dependent on smartphone. In this circumstance, not only the citizen of modern civilization but also the students are using the smartphones frequently. Moreover, the availability of continuously developed attractive apps in the smartphones pulls attention of the users of different segments of ages. Excessive use of smartphone impacts badly on the sound health of the students. The students having uncomfortable health are not performing well in the academic activities. The undertaken study is an attempt to find out the causes and effects of excessive uses of smartphone on health of the university students and provide suggestions to minimize the adverse impacts on health of the students. To develop ideas, clarify the different issues and find out the hiatus of the undertaken study, the following literatures have been reviewed:

LITERATURE REVIEWS

Cha & Seo (2018) conducted a study on 'Smartphone use and smartphone addiction in middle school students in Korea: Prevalence, social networking service, and game use' with a view to examining smartphone use patterns, addiction characteristics and find out factors of addiction. The researchers found that three predictive factors viz. smartphone, social networking and gaming were liable for excessive use of smartphone. Wacks & Weinstein (2021) conducted a study to review the effects of excessive smartphone on health condition including both physical and mental health of adolescents and young adults. The research study was conducted from 84 research studies which were related with smartphone use and smartphone addictions until February 2021 through the web of science search engine. Finally researchers concluded that excessive use of smartphone is associated with psychiatric, cognitive, emotional, medical and brain changes. Islam et al. (2021) reported about the problematic smartphone use (PSPU) and problematic social media use (PSMU) of the students of Bangladesh in college and university level during the COVID-19 period. 5511 students of the college and university were involved this study. The result was indicated that lower age, poor sleep, social media use, TV watching, depression and anxiety were positively associated with about PSPU and PSMU. Genders, living with family, urban residence, irregular physical exercise, poor engagement with studies, earning activities, marital status, lower income family, drug addiction are positively linked with PSPM. Eichenberg et al. (2021) conducted a study to investigate the predictors of problematic smartphone use. Data were collected from all the current students (1836) of Sigmund Freud University in Vienna with a questionnaire. Only 497 students (27.07%) were responded to provide information in which 75 students showed problematic smartphone use and were found neuroticism and extraversion were related positively to that users. Sunday et al. (2021) conducted a study to show the effects of smartphone addiction on learning among the college students. Sample was taken 147943 students of different 16 countries across the world and the result indicated that smartphone addictions have impact on leanings and overall performances. According to the go through literatures, it is found that many researchers have made from different angles but none a single work has done research on related topic. So researchers have chosen the topic. It is hope that the study will fulfill the research gap and provide some new knowledge to the existing body of knowledge.

OBJECTIVE OF THE STUDY

The main objective of the study is to find out the effects of excessive use of smartphone on the health position of the students of Islamic University in Bangladesh. The specific objectives are as follows:

i) To identify the important variables those effect on the health of the University students in Bangladesh during the study period;
ii) To measure the impacts of excessive use of smartphone on health for different aspects of the students;
iii) To find out the problems regarding excessive use of smartphone on the health of the university students; and finally
iv) To provide some suggestions to overcome identified problems.

METHODOLOGY OF THE STUDY

A closed ended questionnaire with five point Likert scale (1=strongly disagreed, 2= disagreed, 3=no comment, 4=agreed and 5= strongly agreed) is used to collect data as the scores of agreed level for different selected issues from the students in the Department of Accounting and

Information Systems (AIS), Islamic University, Kushtia, Bangladesh. There are 36(thirty six departments) in Islamic University, AIS is selected on the basis of purposive sampling. Both qualitative and quantitative data were collected under survey method and analyzed following the quantitative research design. The total number of the students of the department is 350 of which 289 respondents provide information willingly that covers 83% of the total respondents. The data collection period was June, 2022. The non-parametric statistical tools and techniques like Mann-Whitney U test and Kruskal Wallis are mainly used for to analyze the collected data. Some categorical and selected continuous variables are also selected to analysis data (Gupta, 2000). The selected categorical variables and selected continuous variables are stated in table No.1

Table No. 1: Selected Variables for the Undertaken Study

Sl. No.	**Categorical Variables**		**Continuous Variables**	
	Variables	**Categories**	**Variables**	**Variables in details**
i)	Gender	Male and Female	X1	Causes the feelings of physical uncomfortable
ii)	Location	Village and Town	X2	It causes the headache
iii)	Marital Status	Married and Unmarried	X3	It effects to the eye problem
iv)	Feelings	Comfortable and Uncomfortable	X4	It leads to increase frustration
v)	Age	Age of 19, 20, 21, 22, 23, 24, 25 and 26 Years	X5	Academic performance is hampered
vi)	Students	BBA(1^{st} , 2^{nd}, 3^{rd} and 4^{th}) Year and MBA	X6	It woes the family bonding
vii)	Earners	Earning persons (1, 2, 3, 4 and 5)	X7	It troubles to take part in physical exercises
viii)	Accommodation	Residential, Non-residential and others	X8	It abstains from engage in outdoor/ indoor games.
ix)	Place of freeness	Home, hall and others	X9	It effects badly on overall health soundness
x)	Contact persons	Friend, family, teachers and others	-	-

Sources: Compiled from finalized survey questionnaire.

The table No.1 is indicated the demographic information of the respondents and the selected continuous variables for the undertaken study. To find out the impacts of the selected continuous variables on categorical variables following analyses have been done throughout different aspects:

Analysis and findings

Table No. 2: Measurement of the Impacts of the Selected Continuous Variables on the Selected Categorical Variables Related Excessive use of Mobile Phone

Continuous Variable	Categories	N	Mann-Whitney U	Mean Rank	Z-Stat
X2	Male	201	7565.50	138.64	-2.13*
	Female	88		159.53	
X3	Male	201	7580.50	138.71	-2.20*
	Female	88		159.36	
X5	Male	201	7875.50	140.18	-1.61**
	Female	88		156.01	
X7	Village	157	9004.00	136.35	-2.03*
	Town	132		155.29	
X8	Married	34	3491.00	120.18	-1.95*
	Unmarried	255		148.31	
X1	Pleasure	60	4496.00	105.43	-4.513*
	Uncomfortable	229		155.37	
X2	Pleasure	60	5397.00	120.45	-2.78*
	Uncomfortable	229		151.43	
X3	Pleasure	60	4660.00	108.17	-4.37*
	Uncomfortable	229		154.65	
X4	Pleasure	60	5269.50	118.33	-2.93*
	Uncomfortable	229		151.99	
X9	Pleasure	60	5271.00	118.35	-3.01*
	Uncomfortable	229		151.98	

Sources: Calculated from field survey; data analyses are done by SPSS version: 22; *, ** Significant at 5, 10 Level respectively; X1=It causes the feelings of physical uncomfortable; X2=It causes the headache; X3=It effects to the eye problem; X4=It leads to increase frustration; X5=Academic performance is hampered; X7=It troubles to take part in physical exercises; X8=It abstains from engage in outdoor/ indoor games and X9=It effects badly on overall health soundness.

The table No.2 measures the impact of the selected continuous variables X2, X3, X5, X7, X8, X1, X2, X3, X4 and X9 on the selected categorical variables related excessive use of smartphone. The z-statics of Mann-Whitney U test are found with the values of -2.13* (X2), and -2.20*(X3) at 5 percent level of significant and -1.61(X5) ** at 10 percent level of significant on the categorical variables gender (male, female). The categorical variable (Village, Town) and (Married, Unmarried) have the significant impacts of -2.03*(X7) and -1.95* (X8) respectively for z-statics of Mann-Whitney U test at 5 percent level of significant. The Mann-Whitney U test provides the z values -4.513*, -2.78*, -4.37*, -2.93* and-3.01* for the continuous variables X1, X2, X3, X4 and X9 respectively on (Pleasure, Uncomfortable) at 5 percent level of significant.

Table No. 3: Measures of the Opinion Differed Among Age Groups of Selected Variables Related to Excessive Mobile Uses

Age of the Students	N	Mean Rank	
		X1	X5
19	6	109.92	150.92
20	39	112.44	147.31
21	44	123.74	132.49
22	81	155.17	168.85
23	70	162.48	133.05
24	37	159.76	137.88
25	9	128.22	110.67
26	3	136.17	112.33
Chi-Square Value		18.77*	13.28**

Source: Compiled from primary data by SPSS version: 22, Kruskal Wallis Test, Degree of freedom 7, * significant at 1 percent level, ** significant at 10 percent level, Contentious X1=It causes the feelings of physical uncomfortable and X5=Academic performance is hampered and categorical variable age of the students.

The table No.3 shows the measures of the opinion differed among age groups by the selected continuous variables X1 and X5 related to excessive smartphone uses. The significant impacts of the selected continuous variables X1and X5 have been found by the Chi-Square values 18.77* and 13.28** respectively at 1 percent level of significant and 10 percent level of significant on different age group (19, 20, 21,22, 23, 24, 25 26) of the students. The highest mean rank shows the topmost priorities given by the respondents of the concerned age segment of the related issues.

Table No. 4: Measures of the Opinion Differed among Groups for the Selected Variables Related to Excessive Mobile Uses

Continuous variable	Categorical Variables	Mean Rank			Chi-Square Value
		m	n	o	
X1	Accommodation	158.66 (109)	131.88 (156)	168.23(24)	10.33*
X4		162.77 (109)	132.27 (156)	147.04(24)	9.50*
X6		147.44 (109)	138.60 (156)	175.52(24)	4.62**
X9		155.67(109)	135.78 (156)	156.48(24)	4.86**
-	-	p	q	r	-
X3	Using Freeness	142.52(157)	161.67 (81)	126.17(51)	7.72*
X4		134.78(157)	160.23 (81)	152.25(51)	6.02*

Source: Compiled from primary data by SPSS version: 22, Kruskal Wallis Test, Degree of freedom 2; * significant at 1 percent level, ** significant at 10 percent level; Categorical variable for accommodation where m= residential, n= Nonresidential, r= others; Categorical variable for Using Freeness where p= Home, q= Hall, r= others and within first parenthesis respondents numbers; X1=It causes the feelings of physical uncomfortable, X3=It effects to the eye problem, X4=It leads to increase frustration, X6= It woes the family bindings and X9=It effects badly on overall health soundness.

The table No.4 displays the measurements of the opinions of the respondents regarding groups of accommodation and using freeness of the selected continuous variables where X1, X4, X6 and X9 have the significant impacts on (residential, Nonresidential and others) and X3 and X4 show the significant impacts on (home, hall and others) related to excessive smartphone uses.

Table No. 5: Measures of the Opinion Differed among Groups for the Selected Variables Related to Excessive Mobile Uses

Continuous variable	Categorical Variables	Mean Rank					Chi-Square Value
		m	n	o	p	q	
X1	Students	110.82 (73)	156.30 (65)	153.88(52)	161.27(61)	153.08(38)	19.99*
X4		126.49 (73)	145.65 (65)	168.55(52)	152.34(61)	135.42(38)	9.64*
X6		133.11 (73)	157.09 (65)	164.70(52)	134.66(61)	136.80(38)	7.71**
X9		124.95 (73)	139.25 (65)	171.85(52)	149.73(61)	149.12(38)	11.96*
-	-	r	s	t	u	v	-
X6	Earner	149.44 (216)	142.55 (56)	78.69(8)	158.50(3)	89.67(6)	11.96*

Source: Compiled from primary data by SPSS version: 22, Kruskal Wallis Test, Degree of freedom 2; * significant at 1 percent level, ** significant at 10 percent level; Categorical variable for Students where m= BBA 1st year n= BBA 2nd year, o= BBA 3rd year, p= BBA 4th year and q= MBA; Categorical variable for Earners where r= 1 persons, s= 2 persons, t= 3 persons, u= 4 persons, r= 5 persons, and Within first parenthesis respondents numbers. X1=It causes the feelings of physical uncomfortable, X4=It leads to increase frustration, X6= It woes the family bindings and X9=It effects badly on overall health soundness.

The table No.5 enumerates the views of the respondents regarding the impacts of the continuous variables X1, X4, X6 and X9 on group variable students and X6 on earners allied to too much uses of smartphone. The significant impacts of these continuous variables been found by the Chi-Square values 19.99*, 9.64*, 7.71** and 11.96* on different groups of BBA (1st year, 2nd year, 3rd year, 4th year) and MBA students. Similarly, the continuous variable X6 has the impact on earner groups (1 person, 2 persons, 3 persons, 4 persons, and 5 persons). The highest mean rank confirms the highest importance given by the respondents of the concerned age segment of the related issues.

Table No. 6: Measures of the Opinion Differed among Groups for the Selected Variables Related to Excessive Mobile Uses

Contentious Variable	Categories	Respondents	Mean Rank	Chi-value
Physical Exercise (X7)	Friends	167	154.66	9.21*
	Family	64	149.31	
	Teacher	3	107.83	
	Others	55	112.66	

Source: Compiled from primary data by SPSS version: 22, Kruskal Wallis Test, Degree of freedom 3; * significant at 1 percent level and Categorical variable contact persons

The table No.6 indicates the measures of the beliefs of the respondent for continuous variable physical exercise (X7) on (Friends, Family, Teacher and Others) related to excessive smartphone uses. The significant impacts of the selected continuous variable has been found by the Chi-Square values 9.21* at 1 percent level of significant on group (Friends, Family,

Teacher and Others) of the students. The maximum mean rank indicates the highest preference given by the respondents of the related issue of physical exercise.

MAJOR FINDINGS

On the basis of analyses and interpretations, the following sets of findings are obtained:

i) The mean ranks for each of the issues of causes the headache (X2), effects to the eye problem (X3) and hampered academic performance (X5) is given topmost priorities due to excessive uses of smartphone by the female students than male of the undertaken study. The students reside in the towns thinking more than villages about the troubles of physical exercise are occurred by the undue uses of smartphone. The unmarried students feels more than married about abstained from engagement of games (X5) take place by the undue uses of smartphone. The uppermost inclinations of the students are found uncomfortable regarding physical uncomfortable (X1), causes the headache (X2), effects to the eye problem (X3) and effects badly on overall health soundness(X9) occurred by the undue uses of smartphone.

ii) The highest feelings of the students age segments is 24 where provide the agreed level uncomfortable that arises due to excessive uses of smartphone. On the other hand, academic performance hampered which views the highest preference by the students of age 22.

iii) The students reside in other places than residential or nonresidential feels very much physical uncomfortable, woe to the family bonding and effects badly on overall health soundness due to excessive uses of smartphone. The students at home feel most of the eye problems and frustration happen due to undue uses of smartphone.

iv) BBA fourth year students indicate the topmost feelings of physical uncomfortable due to undue uses of smartphone. BBA third year students show the topmost views regarding leads to increase frustration, woe to the family bonding and effects badly on overall health soundness due to excessive uses of smartphone. The students' 4 persons earners family specify woe to the family bonding come about by the reason of too much uses of smartphone.

v) The students point out the opinions most the excessive contacts with friends by smartphone hampered the physical exercise.

CONCLUSION

Excessive uses of smartphone impacts badly on the sound health of the university students obviously. The students having complications with different types of uncomfortable health conditions are not performing well not only in the academic activities but also in accomplishments of everyday life. So it is necessity to find out the ways of effective uses of smartphone for the university students to overcome the antagonistic situations.

SUGGESTIONS AND RECOMMENDATIONS

On the basis of analyses, interpretation and findings the following suggestions and recommendations are provided suitable feelings of health of the university students in Bangladesh:

i) To motivate and make self-awareness about harmful effects on health for excessive uses of smartphone of the university students by the proper authority.

ii) To make the university students enthusiasts in physical exercise, indoor-outdoor games and co-curricular activities by which their overall health soundness will be possible and it should be executed by the appropriate councilor.

iii) To create adequate opportunities in physical exercise, indoor-outdoor games and co-curricular activities for the university students by the responsible expert witness.

iv) The experience sharing conversations should be arranged junior, senior and different classes of the university students about badly impacts of overuses smartphone on health soundness.

v) Each of the university students should be accommodated in hall, so that they will be taken under proper guidance of the distinguished authority and it will be helpful to reduce excessive uses of smartphone.

vi) More earning member's family should be attentive to increase relationship among the household affiliates that will be supportive to decrease extreme uses of smartphone.

vii) The university students should reduce excessive contacts times of smartphone with friends. They should spend more times with parents, family members, relatives and teachers.

References

Bangladesh Telecommunication Regulatory Commission.(2022).License and statistics-Mobile Subscribers: Dhaka, Bangladesh. http://www.btrc.gov.bd/site/page/0ae188ae-146e-465c-8ed8-d76b7947b5dd/-

Bangladesh Telecommunication Regulatory Commission.(2022).License and statistics-Internet Subscribers: Dhaka, Bangladesh. http://www.btrc.gov.bd/site/page/347df7fe-409f-451e-a415-65b109a207f5/-#

Billieux, J., Maurage, P., Lopez-Fernandez, O. *et al. (2015)* Can Disordered Mobile Phone Use Be Considered a Behavioral Addiction? An Update on Current Evidence and a Comprehensive Model for Future Research. *Curr Addict Rep* **2,** 156–162. https://doi.org/10.1007/s40429-015-0054-y

Cha, S. S., & Seo, B. K. (2018). Smartphone use and smartphone addiction in middle school students in Korea: Prevalence, social networking service, and game use. *Health psychology open*, *5*(1), 2055102918755046.

Eichenberg C, Schott M and Schroiff A (2021) Problematic Smartphone Use—Comparison of Students With and Without Problematic Smartphone Use in Light of Personality*. Front. Psychiatry 11:599241*. doi: 10.3389/fpsyt.2020.599241

Gerosa T, Gui M and Büchi M (2021). Smartphone use and academic performance: a pervasiveness approach beyond addiction. *Social Science Computer Review*. https://doi.org/10.1177/08944393211018969

Gupta, S.P. (2000). *Statistical Methods*, Sultan Chand & Sons, New Delhi

Islam MS, Sujan MSH, Tasnim R, Mohona RA, Ferdous MZ, Kamruzzaman S, Toma TY, Sakib MN, Pinky KN, Islam MR, Siddique MAB, Anter FS, Hossain A, Hossen I, Sikder MT and Pontes HM (2021) Problematic Smartphone and Social Media Use Among Bangladeshi College and University Students Amid COVID-19: The Role of Psychological Well-Being and Pandemic Related Factors. *Front. Psychiatry 12:647386*. doi: 10.3389/fpsyt.2021.647386

Islamic University(n.d.) Retrieved August 18, 2022 from www.iu.ac.bd

Khatun, M. S., Rana, J., & Ali, J. (2017). Consumer's Attitude towards the Use of Smartphone in Bangladesh: A Circumstantial Study on Rangpur Region. *European Journal of Business and Management*, *9*(1).

Mubassira, M., & Das, A. K. (2019, January). The Impact of University Students' Smartphone Use and Academic Performance in Bangladesh: A Quantitative Study. *In International Conference on Ubiquitous Information Management and Communication* (pp. 734-748). Springer, Cham.

Sunday,O.j, Adesope.O.O. & Maarhuis,P.L.(2021).The effects of smartphone addiction on learning: A meta-analysis. *Computers in Human Behavior Reports*, 4(2021), https://doi.org/10.1016/j.chbr.2021.100114

Wacks, Y. & Weinstein, A.M.(2021). Excessive Smartphone Use Is Associated With Health Problems in Adolescents and Young Adults*. Front. Psychiatry 12:669042. doi: 10.3389/fpsyt.2021.669042*