

Physical and Psycho-Social Impact of Mobile Phone Usage among the High School Students of Rural Areas in Bangladesh

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Abstract

Mobile phone is the most common means of communication with family, friends, and Business partners and even in office work at home and abroad. Bangladesh is a densely populated country of 160 million people where 130 million people (1.2) including 4 million teenagers (10-16 year age) use mobile phone. A study entitled “Physical and psychosocial impact of mobile phone usage among the high school students of rural areas in Bangladesh” was conducted to assess the physical and psychosocial impact of mobile phone among school going teen agers. The specific objectives were to: (1) describe the socio-demographic and economic characteristics of parents. (2) assess knowledge on different options of standard mobile phones (3) identify attitude towards proper utilization of mobile phones by the high school students and (4) to explore the common areas of practice of mobile phones. It was a descriptive cross sectional study. at Seven upozillas in six districts of five divisions in Bangladesh. These were conveniently selected for the study. Sample size was 384 respondents. Data were collected from respondents using a pretested semi structured questionnaire through face to face interviews. Data thus obtained were analyzed using SPSS (version21.0). One of the major findings was that 63% high school students used mobile phones. Regarding parental professions, 13 % parents were farmers, followed by 29% businessmen, 34% Government employees, while only 5.5 % were illiterate. Parents’ monthly income was 9000 BDT /112.5 USD to 15,000 BDT /187.5 USD (29 %) and maximum income was more than 50,000 BDT/ 625 USD 14.5 %. Mobile phone expense 20 BDT/ 0.25 USD (17 %) and more than 500 BDT/ 6.25 USD (11%) The respondents have been using mobile phones for one year (63%) and for two years (18%). Respondents visit internet (33%), enjoy games (28%) and visit

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face book (21%). This study also revealed that they faced physical problems such as headache (45%), neck pain (17%), and heart palpitation (13%). Psychological problems like stress (10 %) and sleep disturbance (14 %). Social problems like incidence of derailment (0.5%) were reported by the respondents though 91 % parents monitor their children's mobile phones. It is recommended that of mobile phone use should be controlled and monitored more carefully by their guardians to reduce physical, psychological and social problems as identified by this study. Health departments may consider utilizing ICT, especially mobile phones for information dissemination, health education and health promotion among the students.

Keywords: Mobile Phone, High School, Psycho-Social, ICT, Bangladesh

Introduction

A mobile phone (also known as a cellular phone, cell phone, hand phone or simply a phone) is a device that can make and receive telephone call over a radio link while moving around a wide geographic area. It does so by connecting to a cellular network provided by a mobile phone operator, allowing access to the public telephone network. By contrast, a cordless telephone is used only within the short range of a single, private base station.

In addition to telephony, modern mobile phones also support a wide variety of other services such as text messaging, email, Internet access, short-range wireless communications (infra red Bluetooth,), business applications, gaming, and photography. Mobile phones that offer these and more general computing capabilities are referred to as smart phones.

The first hand-held cell phone was demonstrated by John F. Mitchell^(3,4) and Dr Martin cooper of Motorola in 1973, using a handset weighing around 4.4 pounds (2 kg)(5) . In 1983, the Dyna TAC 8000x was commercially available. From 1983 to 2014, worldwide mobile phone subscriptions grew from zero to over 7 billion, penetrating 100% of the global population and reaching the bottom of the economic pyramid (6) .In 2014, the top cell phone manufacturers were Samsung, Nokia, Apple and LG (7). History: A hand-held mobile radiotelephone is an old dream of radio- engineering. Low-end mobile phones are often referred to as feature phones and offer basic telephony. Handsets with more advanced computing ability through the use of native software applications became known as smart phones. Mobile phone is one of a major means of communication throughout the world connecting several hundreds of people. This system can range from very poor people to very rich and chief administrator/executive of the countries. When a person wants to communicate with other who is/are far away s/he needs a media by which s/he can contact – the means is phone (land/mobile) or wireless.

Mobile is one of the versions of wireless. Use of mobile phone started in very limited persons, mainly within high class families, including businessmen, high officials and tends to increase gradually. Government of Bangladesh tried to introduce more mobile companies. After 1996 this sector has tremendously been improved and reached to the general people in rural area as well. Bangladesh is a developing country in Asia with population of about 160 million. Approximately 130 million people use mobile (as of Feb 2017) among them at least 4 million teen (10- 15 years) ager students in rural area use mobile phone. After 2009 mobile phone reached to common people and especially in village area in the sector of Health Services and I T (Information technology) for many purposes to give rise Digital Bangladesh. Due to many reasons, the students of university, college and school boys/girls of urban area started using phone which has been reached up to the school of rural areas in Bangladesh. As of today electronic media communication is a part of life. Use of mobile phone by the teen agers has many physical and psycho-social impacts on them. It may be hazardous and may poses a threat sometimes to the society and these are to be filtered.

Materials and Methods

The study was cross-sectional descriptive way. Study was carried out among the students of high school of upozilla at Savar, (Dhaka division), Upozilla Paba & Godagari (Rajshahi Division), Upozilla Moinamoti and P.S. Bayazid (Chittagong Division), upozilla Saidpur Rongpur division. Total numberof students were approximately 10,000 (Ten thousand). The sample was 384 approximately (Students of class VI to class x). Purposive convenient sampling method was applied. Questionnaires were prepared in view of the research question, objective and variables of the study. Data were collected in school time except holy day after explaining the purpose of the study to the teacher and respondents. The data were collected through face to face interview. Every filled in questionnaire were checked and then data were compiled, tabulated and analyzed accordingly. The SPSS (Statistical package for social service) program 21.0 was used for data processing.

Results

This chapter illustrated results from the research findings. Basically, it was divided into four categories aligned with study objectives. These include socio-demographic characteristics, knowledge regarding mobile phones use, attitude towards using mobile phone and the problems faced by the respondents.

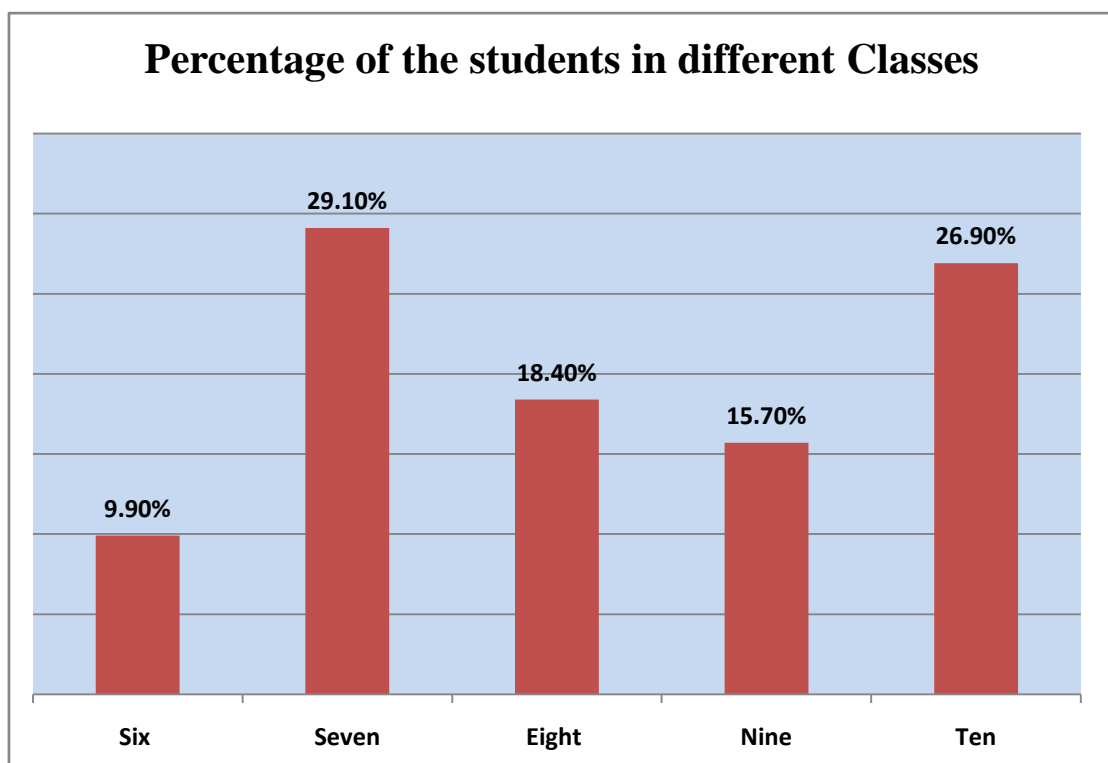
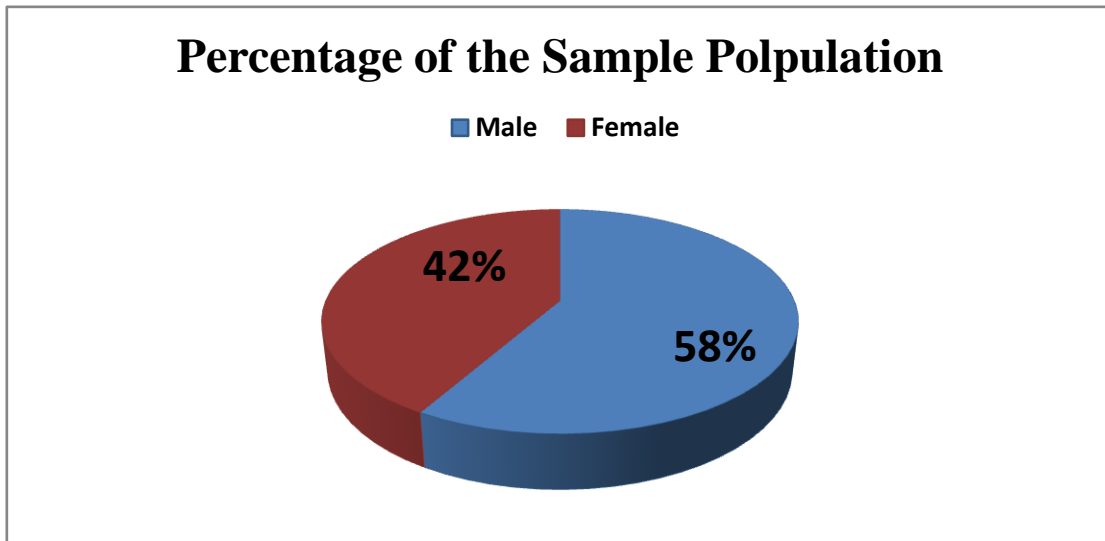
The present study was designed with a purpose to assess the Physical and psycho-social impact among the High School students of rural areas in Bangladesh. Using the structured questionnaire respondents of pre-

determined sample size were interviewed at selected areas. Self-administrated questionnaires were used in this study. Total of 384 students were interviewed. The results are shown below:

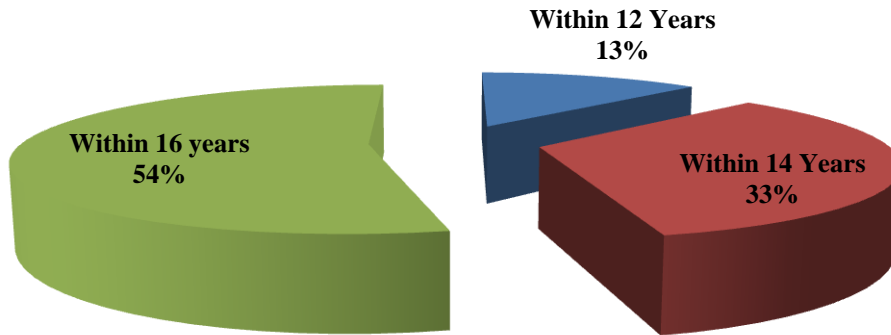
Section 1: Socio- demographic Information

In this portion, overall demographic characteristics and socioeconomic status of the respondents are presented. Information such as respondent's age, sex distribution, literacy level, occupation, monthly income and corresponding district and Thana is given below.

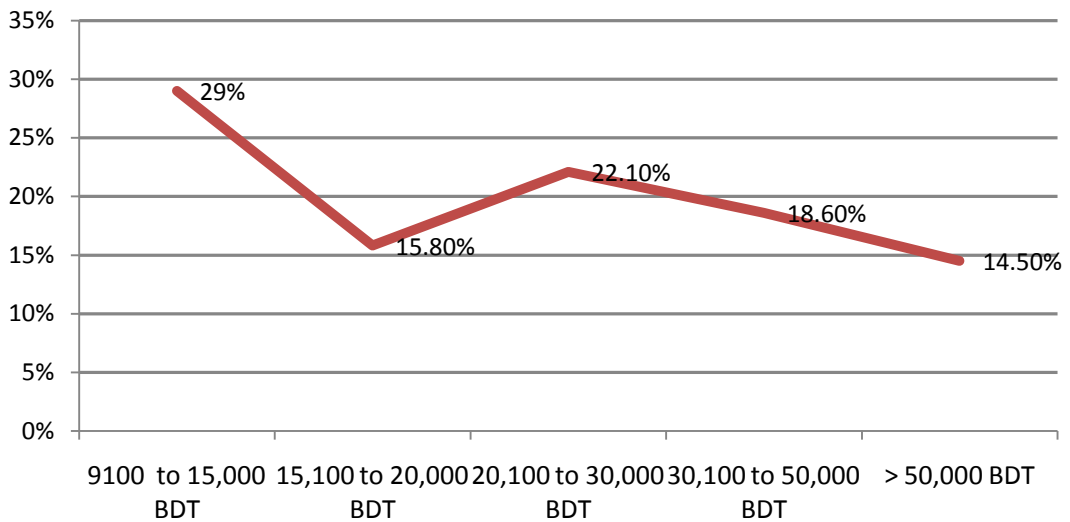
Chart 1: Distribution of the sample population, classes of study, Age distribution, monthly family income, distribution of study location



Age distribution of the study population



Average monthly family income



Distribution of the study site

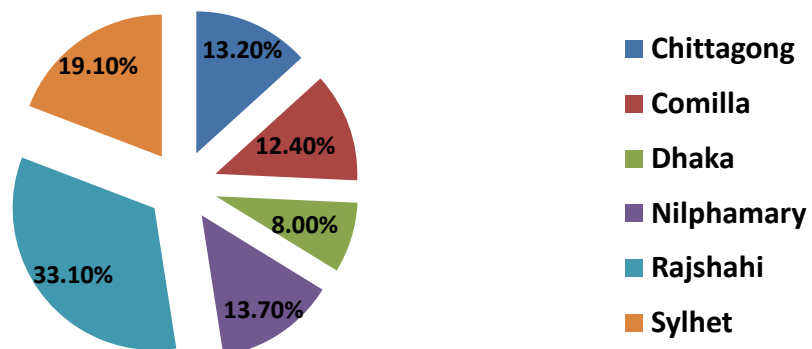


Chart 1: The study findings show the percentage of boys and girls were 42% and 58% respectively. The class distribution were as in class Six 9.90% , class Seven 29.10, class Eight 18.40 % class Nine 15.70% class Ten 26.90 % . It was found from the study that majority (53.8 %) of the students was within 16 years of age and 33.5% were within 14 years of age. Monthly family income of (29%) were between 9,000 /(112.5 USD) to 15,000 BDT (187.5 USD). Among 384 respondents only 14.5% monthly family income were more than 50,000 BDT (625 USD) .This study finding also showing. 13.2% respondents from Chittagong District , 12.4% from Comilla District , 8% from the Dhaka District , 13.7% from Nilphamary district, 33.1% from the Rajshahi district, 19.1% from the Sylhet district.

Table 2: Educational and Occupation Level of parents

Parents Education	Frequency (n)	Percentage (%)
Illiterate	21	5.5
Primary (5th Grade)	48	12.7
Secondary (10th Grade)	53	14.0
Higher secondary	73	19.3
Graduate	86	22.7
Post Graduate	72	19.0
Total	353	100.0

Parents' Occupation	Frequency (n)	Percentage (%)
Farmer	51	13.6
Small Business	57	15.2
Large Business	50	13.3
Govt. Service	128	34.1
Private Service	89	23.7
Total	375	100.0

Table 2, showing the distribution of the parent's education and occupation. Among 353 respondents only 5-5% are illiterate, primary school (12.7%), secondary school (14.0 %) higher secondary (19.3 %), graduate (22.7%) and 19.0% having post graduate level of education. Among 375 respondents (34.1%) of the respondents were in Govt. service. Farmer (13.6%), small business (15.2%), large business (13.3%) and private sector (23.7%).

Table 3: Distribution of the Respondents- percentage of Use, types of Sets, types SIM and Monthly Expense for mobile use.

Use of Mobile phone	Frequency (n)	Percentage (%)
No	144	37.5
Yes	240	62.5
Total	384	100.0
Type of Mobile phone Sets	Frequency (n)	Percentage (%)
Nokia	100	26.2
Walton	23	6.2
Symphony	143	37.3
Others	116	30.2
Type of SIM use	Frequency (n)	Percentage (%)
e Ward	21	5.8
f Others	9	2.2
Total	384	100.0
Monthly Mobile Expense in TAKA (BDT) / US DOLLAR	Frequency	Percentage (%)
less than 20 TK/ 0.25 USD	64	16.8
less than 50Tk / 0.625 USD	94	24.5
more than 100 Tk/ 1.25 USD	102	26.8
more than 200 Tk/ 2..50 USD	80	20.9
more than 500Tk/ 6.25 USD	42	10.9
Total	382	100.0

Table 3 This research finding also shows some important information regarding the mobile phone use of school going children. Among 384 respondents it is seen that 37.5% of the respondents do not have their own mobile phone. But rests 62% are using various mobile phones such as Nokia (26.2%), Symphony (37.3%), Walton (6.2%) and other type of mobile phone. In terms of using S IM card, majority (53%) of the respondents use Grameephone, Banglalink (21.8%), Rabi (15.1%) and Airtel (5.8%) are being used by the school going children. In case of mobile Phone expense, this study finds that, almost 26.8% of the respondents spent more than 100 BDT/ 1.25 USD per month. And almost 11% of the respondents use more than 500 BDT / 6.25 USD per month.

Table 4: Distribution of the Respondents Regarding the Monitoring, Source and Time of keeping and duration (in year) of Mobile Phone Use

Monitoring by Parents	Frequency (n)	Percentage (%)
Yes	205	91.5
No	19	8.5
Total	224	100.0

Mobile phone supplied by	Frequency (n)	Percentage (%)
Father	226	59.0
mother	81	21.2
Brother	19	5.0
Sister	5	1.4
own saved money	36	9.5
others	15	4.1
Total	383	100.0

Time of keeping phone	Frequency (n)	Percentage (%)
Sometimes	323	84.3
All time	61	15.7
Total	384	100.0

Duration of Use of mobile phone (in year)	Frequency (n)	Percentage (%)
One year	244	63.7
Two years	69	18.1
Three years	28	7.4
Four years	14	3.9
Five years	9	2.5
Total	384	100.0

Table 4: showing that almost 91% teenage mobile users are being monitored by their guardian. 59% of the respondents got the mobile phone from their father, also 21% from their mother and 9.5% student purchased mobile by savings from their pocket money. Interestingly 15.7% of the respondents use mobile phone for all the time. But rest (84.3%) of the respondents use mobile occasionally. This study also finds

the duration of use of mobile phone of the respondents. Maximum (63.7%) of the respondents use mobile phone since one year, for two years 18.1% and for five year only 2.5 %. This also reflects that use of mobile has increased many (five times) folds within two years of time.

Table 5: Distribution of the Respondents Regarding the Safety measure Reason of using Mobile and Weekly Bringing Mobile Phone in the School.

Safety method regarding mobile use	Frequency (n)	Percentage (%)
Hiding	128	33.1
Mobile phone kept wih respondent	256	66.9
Total	384	100.0

Reason behind using Mobile phone	Frequency (n)	Percentage (%)
Internet	126	33.0
Facebook	81	21.1
Game	107	28.0
Song	70	17.9
Total	384	100.0

Other causes for keeping Telephone	Frequency (n)	Percentage %
Communicate with relatives	276	71.9
Communicate friends for study materials	60	15.6
Communicate with friends to gossip	20	5.2
Communicate with teacher regarding study	28	7.3

Carrying mobile in school in a week	Frequency (n)	Percentage (%)
one day	324	84.5
two days	52	13.8
Three days	7	1.7
Total	383	100.0

Table 5 is showing the distribution of the respondents regarding the safety measure taken by the students. Almost 67% of the respondents sleep keeping their mobile phone with them and rest (33.1%) kept on hide their mobile phone. Respondents use mobile phone for Internet (33%), Facebook (21.1%) and gaming purpose (28%). This study finding also shows that in rural area, 84.5% of the students bring the mobile phone in school once in a week and about 14% two days in a week.

Table 6: Distribution of the Problems faced for Mobile Phone and Physical problem of the Respondents.

Problem of mobile phone	Frequency (n)	Percentage (%)
Lost	35	9.1
Snatching	17	4.5
Sudden off	331	86.4
Total	383	100.0

Physical problem for using mobile phone	Frequency (n)	Percentage (%)
Neck pain	63	16.6
Headache	173	45.2
Palpitation	51	13.4
any other problem	96	24.8
Total	383	100.0

Talking at midnight	Frequency (n)	Percentage (%)
Yes	15	4.0
No	368	96.0
Total	383	100.0

Social problem (Derailed)	Frequency (n)	Percentage (%)
Yes	20	5.208
No	364	94.792
Total	384	100.0

Table 6, showing the problem faced by the students regarding mobile use. Majority (45.2%) of the respondents felt headache on using mobile

phone. Neck pain (16.6%) and palpitation (13.4%) were other problems said by the students. Around 96% of the respondents do not talk at midnight which is a good finding from the study. On the other hand about 5% students have fallen in love, some of them specially the girls have flown away from her family and got married and most of the partners could not continue further study

Study findings show that, around 27% students went on sleep after 10 PM, 44% after 11 PM and 23.6% went sleep after 12. These findings indicate that, majority (70) of the goes into sleep within 11 AM. Though it seems to be late but for a student it is normal irrespective of Mobile use. 96% of the students do not talk over mobile phone after midnight. It is a good sign for the rural teenage student that 79 % are early riser from the bed. It is seen that, within the study population relatively senior students adopted with the habit of sleeping with mobile phone, which creates the opportunity to talk at midnight.

Table: 7: Cross Tabulation of the Students Studying in Different Class with the Use (year basis) of Mobile Phone

	Value	Degree of freedom	Asymp. Sig. (2-sided)			
Pearson Chi-Square	39.233a	20	.006			
Likelihood Ratio	44.134	20	.001			
Linear-by-Linear Association	1.860	1	.173			
N of Valid Cases	204					
a. 21 cells (70.0%) have expected count less than 5. The minimum expected count is .54.						
	Year of mobile use					Total
	One year	Two years	Three years	Four years	Five years	

Physical and Psycho-Social Impact of Mobile Phone

Study Class	Six	14	3	1	1	0	22
	Seven	49	8	1	0	4	62
	Eight	23	5	3	3	0	36
	Nine	20	3	3	1	1	29
	Ten	24	18	7	3	0	55
Total		130	37	15	8	5	204

From this table it is shown that, with the degrees of freedom of 20 the p value of the cross tabulation is .006 which is less than .005 means there is no significant association between the year of study and the year use of mobile phone. The study finding shows that, increase of class of study has no association with the increase of mobile use.

Discussion

The overall objective of this study is to identify the physical and psycho-social impacts of mobile phone usage among the high school students of rural areas of Bangladesh. The study sheds light on some important issues regarding the physical and psycho-social problems are facing by the school going students. In particular, the lack of terrestrial telephone infrastructure might increase benefit perceptions in Bangladesh. Other negative perceptions may be related to specific locally determined conditions, or align with international citizen opinion. This is important for delivering effective risk management and communication in different national contexts. For example, it is increasingly acknowledged that the concerns and communication preferences citizens need and to be taken into consideration. When developing effective risk (benefit) of communication about a specific issue, it has to be taken into consideration and best practices of governance have to be developed.

Drawing the results of the quantitative findings in the survey, in Bangladesh the perceived benefits of mobile phone technology appear to outweigh the perceived risks .Whilst this is not dissimilar to the pattern of perception of other countries. Frequent mobile phone use was associated with current stress, sleep disturbances, and symptoms of depression among the school going children. Study findings indicated that high frequency of mobile phone use could be a risk factor for developing sleep disturbances, headache. The majority of the students reported about headache, neck pain and palpitation.

This research identified a relationship between cell phone uses, physical and psycho-social problems. The negative relationship between cell phone use and fitness may be explained in two ways. First, cell phone

use can disrupt leisure time physical activity and promote sedentary behaviors among high frequency users. In comparison to low frequency users, high frequency users are more likely to forgo opportunities for physically active pursuits in order to use their cell phones. They are engaged more in sedentary activities such as using Facebook, Twitter, video games, apps, and searching the internet. Second, relatively high levels of cell phone use may serve as a marker for a broader pattern of leisure time sedentary behaviors which are independent of cell phone use, such as watching television, playing video games and using the computer.

Uses of cell phones in school campus are mostly for common uses like texting, updating social networking sites, and browsing the internet are standard practices^{16, 17}. The negative association with cell phone uses is disturbances in night by mobile phone calls or messages to be a major problem for today's adolescents. It is seen that mobile phone use enhances social support^{12, 15}, but in this study, high frequency of use among the school going students had little or no association with perceived access to social support in private life. The study finding shows that, increase of class of study has no association with the increase of mobile use.

Quite a few participants reported subjective overuse which could indicate possible addiction to the mobile phone or its functions. Addictions can occur due to excessive behaviors of all types, and some factors can be argued to be present in all types of addictions (e.g., salience, tolerance, withdrawal, conflict, and relapse)¹⁷. The most common symptom of problem with mobile phone use among adolescents in a study by Yen et al²⁴ was "withdrawal symptoms without cellular phone use". Furthermore, impulsivity, especially urgency, has been related to mobile phone dependency, and feeling compelled to provide for needs as soon as possible. It has been suggested not to increase the likelihood of using the mobile phone in a destructive way, for example when prohibited¹⁵. There is also the risk for addiction through gambling on mobile phones²³, which could be detrimental since the mobile phone enables gambling without time or space restrictions.

Using a questionnaire to collect information on exposure as well as health aspects poses several limitations. It is important to emphasize that the study concerns subjective symptom-reports and actual physical and psycho-social problems. There are limitations to this study on psycho-social aspects of mobile phone use. Possible biophysical pathways due to exposure to electromagnetic fields have not been considered. Furthermore, there might be factors, e.g. individual factors or personality traits, not accounted for in this study. It co-varies with exposure variables

and is "true" pathways to mental health problems. This could particularly be the case concerning accessibility stress which had no association with availability demands and low association with actual frequency of use, but yet seemed to be the greatest risk factor among the mobile phone variables for developing mental health symptoms.

If the physical and psycho-social terms are dissected and the outcomes as revealed from data will give raise the figure as:

- a. Physical problems are Neck pain, headache and palpitation
- b. Psychological problems are stress, sleep disturbances, and symptoms of depression.
- c. Social problems are :
 - (i) Midnight conversation which may cause sleep disturbance followed by behavioral change.
 - (ii) Respondents have given information about love affairs between teenage girls and boys. About 5% teenage mobile users became the victim of circumstances, that is they discontinued further study due to early love marriage

Conclusion

This was a descriptive cross-sectional study conducted to identify the physical and psycho-social impacts of mobile phone usage among the High School students (10-15 years) of rural areas in Bangladesh. High frequency of mobile phone use at baseline was a risk factor for reporting sleep disturbances and symptoms of depression for the school going children. Neck pain, Headache and palpitation are commonly addressed by the students as physical problem regarding the after use mobile phone. Emotional instability is one of the outcomes as psychosocial problem of mobile phone use among the school going children of rural areas in Bangladesh. Public health prevention strategies focusing on attitudes could include information and advice, helping young adults to set limits for their own and others' accessibility by mobile phone.

Several questions remained unanswered in the literature on the social impacts of ICT use among students and young adults. For example, it is a little known about the use of multiple technology devices, multitasking with these and other devices, and the impacts of use on well-being. It is the means of social networking, texting, and thus cell phone use are key aspects through which youth communicate with others today. It behooves us to better understand the social impacts of this use. It is suggested that school going students are less interested in using e-mail and more interested in real-time data communication and texting (Salaway, Caruso, and Nelson, 2007). This suggests that future research needs to continue to

expand the range and functionality of different types of technologies being assessed. It is not enough to simply assume that youth merely use their cell phones to talk to others. Rather with the advancing capabilities and diffusion of cell phones assessing the functions and processes through which youth use them to connect with others. The social impacts of these functions will be critical to elucidating the key ways that use of these technologies has impacts on youth.

In addition to expand the assessment of the range, type, and functions of technologies being used by school going students, it also need to assess a range of social impacts of these technologies. Most studies focus on contact with social networks, social support, loneliness, and depression as outcomes. Almost no study followed youth over time to examine trajectories of use and well-being. This is certainly partially a result of funding mechanisms and the desire of funding agencies to fund research aimed at identifying inherent biological or physiological mechanisms as the causes of health problems. Funding agencies need to recognize the importance of social factors and processes in health and well-being outcomes, particularly in relation to technology use and its impacts. It is need to embark on more extensive research projects related to technology use and the social impacts among school going students and young adults. Problems specified in discussion to be taken into consideration for remedy.

Recommendation

- The use of mobile phone should be controlled and monitored by their guardians to eliminate or to reduce the physical, psychological and social problems as detected in this study.
- . Sense of stress and self-efficacy of the teenage students are to be monitored by the parents and to be discussed with physicians if necessary. These outcomes are important manifestations for students' well-being.
- Health departments may consider utilizing ICT, specially mobile phone for information dissemination health education and promotion.

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Physical and Psycho-Social Impact of Mobile Phone

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