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Use and Addiction of Smartphone in Adolescence Students in Bangladesh: Social Networking and Gaming Service

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Abstract

Smartphone becomes most popular in adolescence students for special feature like social networking and gaming service. Although smartphone are useful and convenient, adolescences are dependent on smartphone more and more for unnecessary communication. This study attempts to identify use patterns of smartphone and enlightened factors of the smartphone addiction in adolescence student in Bangladesh. For this cross-sectional study, 385 adolescence students were selected by stratified sampling with proportional allocation and also use a structured questionnaire has been developed to gathered data from adolescence students. More than 50% early adolescence students spend at least 3 hours on smartphone in a day for purpose of social media like you tube, facebook whereas 80.9% late adolescence students spend time on playing online game on smartphone.More than half (51.9%) of the parents encourages their early adolescence child use smartphone whereas friends encourages more (78.3%) late adolescence students.

Keywords: Smartphone; adolescence; social networking service; gaming addiction.

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1. Introduction

Smartphone use become an essential part of modern life for communicate with people around the world. In 2014 worldwide 1.85 billion peoples use smartphone and this number of smartphone user increase rapidly in 2017 (2.32 billion) and 2.87 billion in 2020 [1]. Use of smartphone has become extensive spread among adolescence, with surveys finding 76% mobile phone ownership in Hungary, 79% mobile phone accessing Sweden and 94% ownership in Germany [2-3]. Using internet in smartphone is very essential for convenient electronic commerce, rapid sharing of information, contact with others cultures, emotional support, and entertainment [5-7]. Smartphones have several avails in communication, but need to be aware of the negative effects of smartphone addiction. Negative use of smartphone is analogous as social, psychological, and health problems [8-9]. Smartphone addiction is considered as the inability to control the smartphone use despite negative effects on users. Adolescences are a high risk group for smartphone addiction and most of the users have strongly agree that they would not be able to live without a smartphone [10].The use of a smartphone not only enjoys pleasure and reduces feelings of pain and stress, but can also lead to failure to control the amount of use despite significant detrimental consequences to the financial, physical, psychological and social aspects of life [11-13].Children using the cell phone displayed more behavioral problems such as nervousness, temperament, mental distraction, and indolence, and these problems worsened if the children began using a cell phone at an early age [14].

2. Literature review

2.1 Smartphone addiction

Smartphone addiction turns into a new version of addiction along with internet addiction [15] and users were becoming addicted to the Internet in much that same way that others became addicted to drugs or alcohol which resulted in academic, social, and occupational impairment [16].Smartphone addiction should be considered a behavioral addiction, like Internet addiction. Seven common symptom have in Behavioral and chemical addictions such as salience, tolerance, mood modification, conflict, withdrawal, problems, and relapse [17-18].Smartphone addiction is indirectly satisfy human life but it is also linked in perceived stress and academic performance [19].The people using the Internet longer had poor social support and higher levels of loneliness and Smartphone addiction is considered as the inability to control the smartphone use despite negative effects on users [20].Adolescent using the cell phone displayed more behavioral problems such as nervousness, temperament, mental distraction, and indolence, and these problems worsened if the children began using a cell phone at an early age [21].

2.2 Socioeconomic status

Women mainly use internet for social purpose but males use it for downloading programs, getting information, and visiting pornographic sites [22-23]. To use internet females were more dependent on smartphones than males [24].Males are more likely to use their phones for functional purposes, such as work-related use, whereas females primarily use their phones to keep in contact with valued people [25-26]. Adolescents are more risk of

smartphone addiction because adolescents are not control themself towards negative effect of smartphone use [27].

3. Materials and Methods

A sample of 384 adolescence students were selected using probability proportional to size sampling from fourteen educational institute in Tangail city during may-september, 2019. A student were interviewd if he/she belongs to 11 to 19 age groups. In this study to intention adolescences age 10 to 19 (according to World HealthOrganization), to examine the characteristics of their smartphone addiction and use patterns of smartphone for social networking and gaming. Then on the basis of report on SOWC 2011 adolescence age divided into two categories such as Early Adolescence (10-14 years) and Late Adolescence (15-19 years). Univariate analysis were used to identify the trend of different variables and bivariate analysis is used to understand the relationship between independent and dependent variable [28]. To identify a significant difference between the expected frequencies and the observed frequencies in one or more selected categorical variable is used chi-squared test [29]. Subsequently, a multiple linear regression analysis was conducted to identify the predictors of smartphone addiction. Results were considered significant at $p<0.05$. Statistical analyses were performed using SPSS 20.0.

4. Results and discussion

The background characteristics of the adolescence students were shows in table 1. Table shows that two third (67.5%) of the respondents belongs to late adolescence group and the remaining are early adolescence group. Table shows that male (64.7%), muslim (85.5%) and most of them living area is urban (62.9%). Adolescence students parent were average educated and living with family (72.5%) member. Adolescences (50.6%) monthly spend (less than 200 TK) on smartphone for using internet (81.0%), playing game (67.8%) and 51.4% adolescences browsing YouTube, 73.0% play game less than 1 hour in a day. Encouraged adolescences to use a smartphone by friends (49.1%) for urgent communication (51.4%). The adolescence student's study 0 to 4 hours (51.7%) and also spend time on smartphone less than 3 hour (41.3%) in a day.

Table 1: Frequency Distributions of adolescences smartphone Status, Demographics and Perception of Personal Conditions (*N* =384)

Variables	No. of Respondents (Percentage)	Variables	No. of Respondents (Percentage)
Adolescence age group		**Gender**	
Early Adolescence (10-14 years)	125 (32.5)	Male	249 (64.7)
Late Adolescence (15-19 years)	260 (67.5)	Female	136 (35.3)
Religion		**Living area**	
Muslim	329 (85.5)	Urban	242 (62.9)
Non-Muslim	56 (14.5)	Rural	143 (37.1)
Father's Education		**Mother's Education**	
Primary	96(24.9)	Primary	109(28.3)
Secondary	170(44.2)	Secondary	219(56.9)
Higher Secondary & Above	119(30.9)	Higher Secondary & Above	57(14.8)
Monthly spend on smartphone(Tk)		**Benefit of using internet on smartphone**	
Less than 200	195(50.6)	Accessible everywhere	41(10.6)
200-400	94(24.4)	Urgent communication	198(51.4)
400-500	58(15.1)	Pass time	89(23.1)
More than 500	38(9.9)	Online benefit	57(14.8)
Living status of adolescence		**Use internet on smartphone**	
With family	279(72.5)	Yes	312(81.0)
Without family	106(27.5)	No	73(19.0)
Average study hour in a day		**Spend time on playing game on smartphone (hour)**	
0-4 hour	199(51.7)	Less than 1	281(73.0)
4-8 hour	137(35.6)	1-3	67(17.4)
More than 8 hour	49(12.7)	More than 3	37(9.6)
Playing game on smartphone		**Spend time on smartphone on an average in day**	
Yes	261(67.8)	Less than 3	283(73.5)
No	124(32.2)	More than 3	102(26.5)
Spend time on using YouTube on smartphone(hour)		**Sleeping time in a day(hour)**	
Less than 1	198(51.4)	5-6	176(45.7)
1-3	107(27.8)	6-8	173(44.9)
More than 3	80(20.8)	More than 8	36(9.4)
Kinds of game playing on smartphone		**Encouraged adolescences to use a smartphone**	
Online	68(17.7)	Parents	52(13.5)
Offline	116(30.1)	Relatives	39(10.1)
Both	93(24.2)	Friends	189(49.1)
No	108(28.1)	Others	105(27.3)
Time spend in a day on Facebook in smartphone(hour)			
Less than 1	210(54.5)		
1 -3	78(20.3)		
More than 3	97(25.2)		

Table 2: Association between adolescence age and socioeconomic behavioral factors

Variables	Adolescence age group(Year)				Chi-square	P-value
	Early Adolescence (10-14 years)		Late Adolescence (15-19 years)			
	n	%	n	%		
Gender						
Male	63	25.3	186	74.7	16.510	0.00
Female	62	45.6	74	54.4		
Religion						
Muslim	104	31.6	225	68.4	0.384	0.440
Non-Muslim	21	37.5	35	62.5		
Living area						
Urban	72	29.8	170	70.2	2.191	0.139
Rural	53	37.1	90	62.9		
Father's Education						
Primary	21	21.9	75	78.1		
Secondary	68	40.0	102	60.0	9.578	0.008
Higher Secondary & Above	36	30.3	83	69.7		
Mother's Education						
Primary	24	22.0	85	78.0		
Secondary	89	40.6	130	59.4	15.485	0.000
Higher Secondary & Above	12	21.1	45	78.9		
Monthly spend on smartphone(Tk)						
Less than 200	66	33.8	129	66.2		
200-400	35	37.2	59	62.8	3.634	0.304
400-500	14	24.1	44	75.9		
More than 500	10	26.3	28	73.7		
Living status of adolescence						
Without family	66	23.7	213	76.3	35.885	0.00
With family	59	55.7	47	44.3		
Average study hour in a day						
0-4 hour	78	39.2	121	60.8		
4-8 hour	39	28.5	98	71.5	10.931	0.004
More than 8 hour	8	16.3	41	83.7		
Use internet on smartphone						
Yes	108	34.6	204	65.4	3.462	0.063
No	17	23.3	56	76.7		
Benefit of using internet on smartphone						
Accessible everywhere	16	39.0	25	61.0		
Urgent communication	72	36.4	126	63.6	7.113	0.068
Pass time	26	29.2	63	70.8		
Online benefit	11	19.3	46	80.7		
Playing game on smartphone						
Yes	78	29.9	183	70.1	2.465	0.116
No	47	37.9	77	62.1		
Spend time on using YouTube on smartphone(hour)						
Less than 1	53	26.8	145	73.2		
1-3	36	33.6	71	66.4	8.732	0.013
More than 3	36	45.0	44	55.0		
Spend time on playing game on smartphone(hour)						
Less than 1	101	35.9	180	64.1		
1-3	16	23.9	51	76.1	5.786	0.05
More than 3	8	21.6	29	78.4		
Kinds of game playing on smartphone						
Online	13	19.1	55	80.9	8.946	0.030
Offline	35	30.2	81	69.8		

Both	36	38.7	57	61.3		
No	41	38.0	67	62.0		
Time spend in a day on Facebook in smartphone(hour)						
Less than 1	67	31.9	143	68.1		
1 -3	37	47.4	41	52.6	13.178	0.001
More than 3	21	21.6	76	78.4		
Encouraged adolescences to use a smartphone						
Parents	27	51.9	25	48.1		
Relatives	19	48.7	20	51.3	24.344	0.000
Friends	41	21.7	148	78.3		
Others	38	36.2	67	63.8		
Sleeping time in a day(hour)						
5-6	46	26.1	130	73.9		
6-8	64	37.0	109	63.0	6.224	0.045
More than 8	15	41.7	21	58.3		
Spend time on smartphoneon an average in day						
Less than 3	75	26.5	208	73.5	17.339	0.00
More than 3	50	49.0	52	51.0		

The test for independence of independent and dependent variable begins by assuming that there is no relationship between the two variables. The alternative hypothesis states that there is some relationship between the two variables. If the two variables in the cross classification then hypotheses are H_0: No relationship between independent and dependent variable and H_1: Some significant relationship between independent and dependent variable. The bivariate relationships among internet addiction, students' demographics conditions and behaviors, and perceptions on personal and family situations were examined. The results were summarized in Table 2. Since the p-value is less than level of significance (α = 0.05) for all variables so conclude that there is an enough evidence to suggest an association between adolescence age group and all other variables. About 40% of the early adolescence student's had fathers with secondary education but 78.1% had secondary education in late adolescence student's and for mothers education level 40.6% early adolescence student's in primary education, 78.9% late adolescence student's in higher secondary and above. The table shows that there is no significant difference among the respondents who spend more than three hours in smartphone but three in two late adolescence use smartphone less than three hours in a day whereas only one in four early adolescence use smartphone in a day. More than 50% early adolescence students spend at least 3 hours on smartphone in a day for purpose of social media like you tube, facebook whereas 80.9% late adolescence students spend time on playing online game on smartphone.More than half (51.9%) of the parents encourages their early adolescence child use smartphone whereas friends encourages more (78.3%) late adolescence students. More alarming issue for early adolescence's student is (16.3%) average study hour less than 4 hours in a day.

Table 3: Crude odds ratios (CORs) and Adjusted odds ratios (AORs) of adolescence students age in logistic regression analysis

Variable	COR	CI	P-Value	AOR	CI	P-Value
Gender						
Male	2.474	1.590-3.849	***	2.502	1.403-4.463	***
Female**						
Father's Education						
Primary**						
Secondary	0.420	0.237-0.745	***	0.687	0.301-1.567	*
Higher Secondary & Above	0.646	0.347-1.203	*	1.405	0.521-3.791	
Mother's Education						
Primary**						
Secondary	0.412	0.243-0.699	***	0.434	0.196-0.963	**
Higher Secondary & Above	1.059	0.485-2.313		1.018	0.322-3.216	
Living status of adolescence						
Without family	4.051	2.526-6.497	***	2.742	1.491-5.044	***
With family**						
Average study hour in a day						
0-4 hour**						
4-8 hour	1.620	1.015-2586	**	2.114	1.174-3.805	**
More than 8 hour	3.304	1.471-7.421	**	2.559	1.000-6.551	**
Spend time on using YouTube on smartphone (hour)						
Less than 1	2.238	1.303-3.846	**	1.934	1.019-3.800	*
1-3	1.614	0.889-2.928	*	1.901	0.871-4.146	
More than 3**						
Spend time on playing game on smartphone (hour)						
Less than 1**						
1-3	1.789	0.970-3.299	**	1.224	0.544-2.453	
More than 3	2.034	0.896-4.617	*	2.820	0.943-8.435	**
Kinds of game playing on smartphone						
Online	2.589	1.262-5.311	**	1.908	1.079-4.607	*
Offline	1.416	0.813-2.467		0.846	0.420-1.702	
Both	0.969	0.548-1.714		1.115	0.531-2.342	
No**						
Time spend in a day on Facebook in smartphone (hour)						
Less than 1**						
1 -3	1.519	1.305-2.088	***	1.089	1.406-2.091	**
More than 3	1.696	0.965-2.979	**	1.640	0.839-3.205	
Encouraged adolescences to use a smartphone						
Parents	0.525	0.268-1.030	**	0.596	0.267-1.332	
Relatives	0.597	0.284-1.256	*	0.653	0.261-1.638	
Friends	2.047	1.208-3.469	**	1.623	0.883-2.986	
Others**						
Sleeping time in a day(hour)						
5-6**						
6-8	0.603	0.382-0.951	**	0.751	0.431-1.306	
More than 8	0.495	0.236-1.041	**	0.521	0.212-1.283	
Spend time on smartphone on an average in day						
Less than 3	2.652	1.520-4.624	***	0.417	0.193-0.903	**
More than 3**						

Notes: ***< 0.001, **<0.05, *<0.1

The Hosmer-Lemeshow statistic indicates the model adequately fits the data because significance value is 0.889. Table 3 shows crude odds ratios (CORs) and adjusted odds ratios (AORs) of adolescence student's age in logistic regression analysis with 95% confidence intervals. In addition, father's education with secondary education level had 0.313 times less chance (AOR: 0.687, 95% CI: 0.301–1.567) of having late adolescence compared to primary education level and similarly in mother education were 0.566 times less chance likely to be happened. The respondents who stay without family have 4.051 (AOR= 4.051, 95% CI: 2.526-6.497) times more chance to be late adolescence compare to the respondents who stay with family. The students who spend less than one hours in YouTube have 2.238 (AOR= 2.238, 95% CI: 1.303-3.846) times more likely to be late adolescence compare to the respondents who spend more than three hours in a day. This may be due to the fact that as age increase the chance of You Tube use also increase. Less than 3 hours spend time on smartphone in a day has 2.652 (AOR= 2.652, 95% CI: 1.520-4.624) times more chance to be late adolescence compare to more than 3 hours.

4. Conclusion

The study show that respondents parents education, living status, average study times, spend times on Smartphone have significant effect on adolescence age group. The study also shows that age age increase the chance of Smartphone addiction also increase. Late adolescence students spend more time on facebook, youtube and others social media.

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