

Research Paper :

Trends of internet use among adolescents: Impact on physical health

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ABSTRACT

The present study was conducted to assess the trends of internet use among the adolescents and its impact on their physical health. The sample comprised of 120 adolescents in 14 to 16 years of age range, purposively selected from four private Senior Secondary Schools of Ludhiana city. A self-structured questionnaire was used to assess the trends of internet use among the adolescents and to assess the physical health, a standardised tool was used. Data were scored, tabulated and analysed with the objectives to arrive at meaningful and relevant inferences. Percentages, means, t test, Z test, Chi square, and correlations were used to analyse the data. Results revealed that, frequency and degree of internet use was significantly higher among males as compared to females. Majority of adolescents spent 2-4 hours a day on internet. The prevalence of different types of physical health problems was higher among females as compared to males. The association between internet use and physical health problems was positively significant for urinary problems (such as frequent urination during day and night) and fatigability.

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Internet is a network connection between several computers of different types belonging to various networks all over the globe. It is a network of networks (Sethi, 2006). Internet adoption in homes has grown rapidly since 1990s. The internet is quickly and widely diffusing in our society, as both parents and children find themselves e-mailing, web-messaging, and listening to music and reading the news of the worldwide web. Adolescents use it mainly for the purpose of communication through e-mails, orkut and also gaining general information through web sites (Tewari, 2007).

It is the 21st century's gateway to opportunity for the youth. The rate of computer and internet as a means for socialisation, education, information access, entertainment, shopping and communication is increasingly dramatically in the life of youth (Tewari, 2007). It has transformed the contour of daily life by blurring the boundaries between the globes and presenting new channels for communication and interaction, allowing more and more everyday task to be carried out online (Sawyer *et al.*, 2005).

The increasing pervasiveness of the internet in the lives of adolescents is though well established, but there remains a dearth of research on what is the effect of

excess internet use on the health of the children and adolescents. An excessive use of internet is significantly related to health problems (Lenciauskiene and Apolinaras, 2007). There is a systematic research on physical effects of children's internet use is lacking, thus far, but insight can be gained from several sources. According to Granovetter (1986) research focussing on the physical risks of playing computer games is important, given that games remains the most frequent home computer activity for children across most age group. Subrahmanyam *et al.* (2001) have revealed that more and more kids are becoming victims of stress and this negative stress manifests itself in physical problems like vomiting, breathlessness, headache, abdominal pain, dry cough and tiredness, unmanaged negative stress, obesity and lack of physical activity are the major risk factors responsible for heart attack in later life.

There are several websites on internet which are not only exposing the youngsters to an alarming problems, it also has both physical and mental impact. Internet addicted persons succumb to depression very easily. Since they lack interaction within the society, they can't discuss their problems with anyone else (Kraut and Attewell, 1998). Keeping in view, the above discussion the present

study was designed to fill the empirical gap in the findings of already available research. It was aimed to investigate trends of internet usage by young adolescents and its impact on their physical health. The objectives are as follows: to explore the trends of internet use among adolescents (14-16 years), to assess the physical health status of adolescents and to analyse the impact of internet use patterns on physical health of adolescents.

Null hypothesis framed for this research, there was no negative impact of internet use on physical health of adolescents.

EXPERIMENTAL PROCEDURE

The present study was located in four Senior Secondary Schools of Ludhiana city, drawn through purposive cum random selection. For this, a list of all Senior Secondary School of Ludhiana city was procured from district education Department and from this list name of desired schools were shortlisted. The sample was comprised of 120 adolescents (14 -16 years of age), equally distributed among two genders (boys; N=60) and (girls; N=60). A self-structured questionnaire was used to explore the trends of internet use among the adolescents. Cornell Medical Health questionnaire (Wig *et al.*, 1983) was used for assessing the magnitude of physical health status among the adolescents.

Criteria of selection:

- Age range 14-16 years
- Use of internet regularly.

OBSERVATIONS AND ANALYSIS

The findings obtained from the present study have

been discussed in the following sub heads:

Trends of internet use among adolescents:

The following section gives the account of trends of internet use among adolescents. Table 1 shows that in the total sample, 99.17 per cent respondents liked surfing internet. All the male respondents (100%) and almost all females (98.33%) liked surfing internet. Gender differences were non-significant. Results showed that, 80.83 per cent of the adolescents had e-mail accounts and a higher percentage of males (86.67%) as compared to females (75%) had e-mail account. Gender differences, however, were found to be non-significant. In overall sample, 46.67 per cent respondents had one e-mail account, 31.66 per cent had two, 5.83 per cent had three and only 1.67 per cent had more than three email accounts. In case of males, a larger percentage (46.67%) of the respondents had two e-mail accounts, 26.67 per cent had one, 10 per cent had three and only 3.33 per cent had more than three e-mail accounts. While in case of females, 56.67 per cent had one e-mail account, 16.67 per cent had two, 1.66 per cent had three and none of the females had more than three email accounts. Gender differences were found to be significant in case of one and two e-mail accounts ($p < .01$). A larger percentage of males had two e-mail accounts as compared to females, who had mainly one e-mail account (75%). Overall, 92.50 per cent respondents liked chatting, in which, 95 per cent males as compared to 90 per cent female respondents liked chatting. Gender differences were found to be non significant.

It was seen that parents of 81.67 per cent males, females and overall respondents were aware that know

Table 1: Per cent distribution of adolescents as per trends of surfing internet

Trends	Total sample (n=120)	Male (n=60)	Female (n=60)	Z-value
Like surfing internet	119(99.17)	60(100.00)	59(98.33)	1.00
Have any e-mail account	97(80.83)	52(86.67)	45(75.00)	1.62
No. of e-mail accounts				
One	50(46.67)	16(26.67)	34(56.67)	3.88***
Two	38(31.66)	28(46.67)	10(16.67)	3.31***
Three	7(5.83)	6(10.00)	1(1.66)	0.66
More	2(1.67)	2(3.33)	0(0.00)	1.43
Like chatting	111(92.50)	57(95.00)	54(90.00)	1.04
Parents know child surfs internet	98(81.67)	49(81.67)	49(81.67)	-
Parents know child's password	33(27.50)	12(20.00)	21(35.00)	1.84*
Experienced cyber fraud	18(15.00)	12(20.00)	6(10.00)	1.53
Missed school for surfing internet	22(18.33)	11(18.33)	11(18.33)	-

*, ** and *** indicate significance of values at $P=0.10$, $P=0.05$, $P=0.01$

their child's surfed internet. Parents of 20 per cent males, 35 per cent females and 27.50 per cent of overall sample knew their child's password. Gender differences were found to be significant ($p < .10$) in favour of females. Parents of larger percentage of females knew their child's password. Table 1 also shows that, 15 per cent respondents have ever experienced cyber fraud. More males (20%) as compared to females (10%) had experienced cyber fraud, however, gender differences were found to be non-significant. In the overall sample as well as both the gender groups, 18.33 per cent adolescents reported to have missed school for surfing internet.

Gender differences in trends of internet use (mean score) of adolescents:

Table 2 shows that male adolescents possessed significantly higher number of e-mail accounts ($p < .01$) as compared to females (MS: Male = 1.73, female = 1.32). Among females, frequency of surfing internet was found to be lower as compared to males, though differences were non-significant. Males surfed internet for less number of hours than females in one sitting, though the gender differences were found to be non-significant.

Distribution of adolescents according to the degree of internet use:

Data of Table 3 clearly indicate that in overall sample, 35.83 per cent adolescents were low users of internet, 32.5 per cent were the average users and 31.67 per cent were the high users. Among males, 36.67 per cent were found in the category of high internet users while 33.33 per cent males were found in the category of average

internet users and 30 per cent used low internet at lower degree. Among females, 41.67 per cent were low internet users, 31.67 per cent in the category of average users and 26.66 per cent were the high users of internet. It shows that, higher percentage of females used internet at a lower degree while a greater percentage of males used internet at higher degree. Gender differences were found to be non-significant. These results are consistent with the findings of previous research of Subrahmanyam *et al.* (2001) which reported that males were more active users of internet than females.

Adolescents health:

This section explains about the health status of the adolescents in the present study. Adolescents health was operationalised as the prevalence of physical health problems among them and freedom from these was termed as their well being status.

Before we examine the impact of internet use on adolescents well being, it is imperative to discuss the health status of adolescents by way of presenting the incidence of physical health problems among them.

Per cent distribution of adolescents as per incidence of physical health problems:

Table 4 presents the percentage distribution of adolescents as per physical health problems.

Problems related to eyes and ears:

In the overall sample, 69.17 per cent of the respondents reported to have one or the other problems related to eyes and ears. The problems they were mainly suffering from such as using spectacles for reading,

Table 2: Mean scores in selected aspects of trends of internet use among adolescents

Trends	Total sample (mean \pm SD) (n=120)	Male (n=60)	Female (n=60)	t-value
Number of e-mail account	1.53 \pm 0.74	1.73 \pm 0.82	1.32 \pm 0.60	3.13***
Frequency of surfing	2.83 \pm 0.98	2.88 \pm 0.97	2.77 \pm 0.98	0.61
Duration of one sitting	1.83 \pm 0.71	1.60 \pm 0.69	1.67 \pm 0.5	0.53
Total	6.19 \pm .83	6.1 \pm 0.79	5.87 \pm .95	1.63

*, ** and *** indicate significance of values at $P=0.10$, $P=0.05$, $P=0.01$, respectively

Table 3: Distribution of adolescents according to the degree of internet use

Degree of internet use	Total (n=120)		Male (n=60)		Female (n=60)	
	no	%	no	%	no	%
Low	43	35.83	18	30.00	25	41.67
Average	39	32.50	20	33.33	19	31.67
High	38	31.67	22	36.67	16	26.66
Chi-Square			2.11			

Table 4: Per cent distribution of adolescents as per incidence of physical health problems

Problem	Total sample (n=120)		Male (n=60)		Female (n=60)		Z-value
	no.	%	no.	%	no.	%	
Physical health problems related to							
Eyes and ears	83	69.17	34	56.67	49	81.67	2.97***
Respiratory system	96	80.00	50	83.33	46	76.67	0.91
Palpitation	95	79.17	41	68.33	54	90.00	2.92***
Digestive tract	91	75.83	49	81.67	42	70.00	1.49
Muscular skeletal	48	40.00	18	30.00	30	50.00	2.29**
Skin	61	50.83	25	41.67	36	60.00	2.01**
Nervous system	74	61.67	29	48.33	45	75.00	3.00***
Urinary system	36	30.00	16	26.67	20	33.33	0.80
Fatigability	53	44.17	19	31.67	34	56.67	2.76***
Frequency of illness	51	42.50	17	28.33	34	56.67	3.14***
Miscellaneous	58	48.33	22	36.67	36	60.00	2.56**
Habit	35	58.33	44	73.33	79	65.83	1.73*

*, ** and *** indicate significance of values at P=0.10, P=0.05, P=0.0, respectively

watery eyes, feeling pain in eyes, blown ears and ears sound frequently etc. Gender differences were significant ($p < .05$) as greater percentage of female respondents (81.67%) were suffering from such problems as compared to males (56.67%).

Respiratory system:

Data revealed that in total sample, majority of the adolescents (80%) were suffering from one or the other problems related to respiratory system such as continuous sneezing, running nose and difficult breathing. Though, gender differences were non-significant, yet, a larger percentage of males (83.33%) were having respiratory problems as compared to their female counterparts (76.67%).

Palpitation:

It is clearly indicated that, majority of the respondents (79%) suffered from palpitation. Gender differences were significant ($p < .01$), because a larger percentage of female respondents (90%) reported this problems than as compared to their male counterparts (68.33%).

Digestive tract:

It is also evident from the Table 4 that, a greater percentage (75.83%) of the adolescents were having one or the other problems related to digestive tract. The problems from which they were mainly suffering were vomiting, indigestion, flatulence and less appetite. Though the gender differences were non-significant, yet, majority

of the males (81.67%) experienced such problems as compared to females.

Muscular-skeletal system:

Table 4 also shows that, only 40 per cent of the respondents were suffering from some kind of problems related to muscular-skeletal system such as joints remain stretched, backache etc. Gender differences were significant ($p < .05$) and a larger percentage of females had muscular -skeletal problems.

Skin:

It was seen that in total sample, 50.83 per cent of adolescents had one or the other skin related problems. The problems adolescents reported were, redness of skin, skin generally becomes warm and turns red, rashes on skin and troublesome itching. Females had significantly ($p < .10$) more skin problems (60%) than males (41.67%).

Nervous system:

Table 4 presents that, 61.67 per cent of the adolescents were suffering from problems related to nervous system mainly headache. Gender differences were significant ($p < .01$). A larger percentage (75%) of females suffered from problems related to nervous system as compared to males (48.33%).

Urinary system:

Table 4 also shows that in overall sample, 30 per cent of respondents were having one or more problems related to urinary system such as frequent urination during

day and night. Gender differences were found to be non-significant in urine related problems.

Fatigability:

It is indicated that 44.17 per cent of the respondents experienced fatigability. The kind of fatigability they suffered were tiredness, and frequently becoming tired after little work. A greater percentage (56.67%) of the girls reported fatigability than boys 31.67% and gender differences were significant ($p < .01$).

Frequency of illness:

Data revealed that in overall sample, 42.5% respondents had frequent illness. It has been noticed that a larger percentage of female respondents reported to have more tendency of being ill (56.67%) as compared to their male counterparts (28.33%).

Miscellaneous:

It was reported that 48.33 per cent adolescents had miscellaneous problems such as anaemia and obesity. Percentage of female respondents (60%) having such problems was significantly higher ($p < .01$) as compared to males (36.67%).

Habit related problems:

Table 4 also shows that 58.33 per cent respondents had habit related problems like insomnia and feeling difficulty in sleep. The problems were higher among boys (73.33%) as compared to girls (65.83%) and gender differences were significant ($p < .10$).

The above discussion makes it clear that a larger percentage of female adolescents were suffering from physical health problems than male adolescents.

Distribution of adolescents according to the level of physical health problems:

Gender differences in the distribution of the sample across three levels of physical problems were significant ($p < .05$). It shows that, higher percentage of females suffered from more physical problems as compared to male adolescents (Table 5).

Correlation between degree of internet use and physical health problems:

Table 6 gives the correlation between degree of internet use and various dimensions of physical health problems among total sample. The data on correlation between internet use and physical health problems among males presented significant positive correlation between internet use and problems like muscular-skeletal system

Table 5: Distributions of adolescents according to the level of physical health problems

Physical health problems	Total (N=120)		Male (n=60)		Female n=60)	
	no.	%	no.	%	no.	%
Low	53	44.17	32	53.33	21	35.00
Average	36	30.00	18	30.00	18	30.00
High	31	25.83	10	16.67	21	35.00
Chi-Square	6.19**					

*, ** and *** indicate significance of values at $P=0.10$, $P=0.05$, $P=0.01$, respectively

Table 6 : Correlation between degree of internet use and physical health problems

Physical health problems	r-value		
	Total (n=120)	Male (n=60)	Female (n=60)
Eyes and ears	-0.061	-0.147	0.085
Respiratory system	0.092	-0.029	0.232*
Palpitation	-0.060	0.038	-0.095
Digestive tract	0.077	0.040	0.120
Muscular skeletal	0.100	0.284**	0.040
Skin	0.057	0.130	0.056
Nervous system	0.136	0.254	0.125
Urinary system	0.263***	0.266**	0.301**
Fatigability	0.203**	0.167	0.316**
Frequency of illness	0.031	0.176	0.034
Miscellaneous	0.095	0.065	0.192
Habit	0.119	0.204*	0.082
Total physical problems	0.151	0.177	0.211

*, ** and *** indicate significance of values at $P=0.10$, $P=0.05$, $P=0.01$, respectively

Significance level	M/F	Total
1%	0.331	0.254
5%	0.255	0.195
10%	0.215	0.164

($p < .05$), urinary system ($p < .05$) and habit related problems. As the degree of internet usage among boys increased, they experienced significantly greater number of such problems. While among females, significant positive correlation were present in the problems related to respiratory system ($p < .10$), urinary system ($p < .05$) and fatigability ($p < .05$). Similarly, with the increase in internet use among females, these problems increased. While negative correlation was present in the problems related to eyes and ears. Because the correlation between degree of internet use and total health problems in males, females and total sample was significant, thus the Null hypothesis is rejected.

Conclusion:

This study concluded that frequency and degree of internet use were significantly higher among males as compared to females. Majority of adolescents spent 2-4 hours on internet. The prevalence of different types of physical health problems was higher among females as compared to males. The association between internet use and physical health problems was positively significant for problems (such as frequent urination during day and night) and fatigability. As this study provides information about trends of internet use so it can be used to plan parents' guidance programme and also teach them regarding safe internet use.

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