

# A Cross-Sectional Study to Assess the Impact of Internet Usage on the Psychosocial Health and Academic Performance of Adolescents in a Selected School of Delhi, NCR

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## Abstract

Adolescence is a crucial phase in an individual's life. Adolescence is a time when we are honing our skills for sound mental and social health, and wisdom and a lack of opportunity to engage in this skill-building behavior could impede development. Internet's importance in the life of an adolescent, as a boon or a bane needs to be analyzed to ensure that not one is lost in this race of growth. Keeping this in mind, a cross-sectional study was conducted to assess the impact of internet usage on the psychosocial health and academic performance among adolescents in a selected school of Delhi NCR. A survey was conducted among 200 adolescents, aged between 14 years to 17 years studying in 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> standards, selected through purposive sampling technique from Delhi Public School, Indrapuram, New Delhi. A structured rating scale to assess the psychosocial health and academic performance was used for data collection and the data was analyzed using descriptive and inferential statistics. The study findings revealed that a substantial number of adolescents had fairly significant impact of internet use on their psychosocial health and academic performance with favorable impact of internet users exceeding the number of adolescents with unfavorable impact of internet use. It was found that the average time of internet usage daily had a significant association with the impact of internet use on psychosocial health. It was also seen that the impact of internet use was more on psychosocial health rather than on academic performance. The results inferred that the internet splurge in the life of adolescents is keeping them at pace with the fast-growing world bringing out a productive generation who is well exposed and wise to face the challenges. Risks and dangers are not been overlooked but rather internet use in moderation is the need of the hour.

**Keywords:** Adolescents, Psychosocial health, Academic performance

## Introduction

Today, 1.2 billion adolescents stand at the crossroads between childhood and the adult world. Around 243 million of them live in India.<sup>1</sup> As they stand at these crossroads, so do societies at large – the crossroads between losing out on the potential of a generation or nurturing them

to transform society.<sup>2</sup> As adolescents flourish, so do their communities, and all of us have a collective responsibility in ensuring that adolescence does in fact become an age of opportunity.

The internet is a fabulous human invention, and the traffic of endless data is a wonder to behold.

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As technology seeps into the life of today's adolescents, many begin to question how healthy these devices truly are. Adolescence is a critical period of human development, often characterized by confusion, mixed interpretation and understanding of adult behavior and environment, exuberance and a penchant for experimentation.<sup>3</sup> Technology of which internet being the most popular has to a major extent enabled in quenching this inquisitive age group. It can be rightly said that at an age when curiosity seems to have no bounds, the internet offers information without limits.

Health in general and psychosocial health and academic performance in specific has greatly altered due to the extensive use of internet among adolescents. Depression is the third leading cause of illness and disability among adolescents, and suicide is the third leading cause of death in older adolescents (15–19 years).<sup>4</sup> In the Indian context, 14–40% of adolescent students are assumed to have mental health problems.<sup>5</sup> Lack of attention to the mental wellbeing of children and adolescents, in a key phase of socialization, may lead to mental health consequences that may remain throughout life and reduce the capacity of societies' socioeconomic productivity.<sup>6</sup>

This was supported by a study conducted by Mesch<sup>7</sup> in 1998 to examine the relationship between youth leisure activities, peer relations, pro-social attitudes and the frequency of internet use among adolescents in Israel. The study concluded that adolescents who were more socially isolated were more likely to be frequent internet users.

On the other hand, academic achievement has always been the center of educational research and despite varied definitions about the aims of education, the academic development of the child continues to be the primary and most important goal of education.<sup>8</sup> With the advent of computer's internet, the earth has shrunk and attained the form of a global village. Any kind of information on any topic under the sun is available on the internet. Adolescents and children are among the top users who surf internet for learning, entertainment and research.<sup>9</sup>

Kim et al.<sup>10</sup> conducted a cross-sectional study from the 2013 Korean Youth Risk Behavior Web-based Survey (KYRBWS). Data was retrieved for 59,105 adolescents in the age group of 12 years to 18 years. The associations between school performance and internet use were analyzed and it was found that higher school performance was positively associated with longer internet use for study but negatively associated with in a place they wish they weren't. The dangers must be unmasked and learned to protect our adolescents while allowing them to reap the rich benefits of internet in a safe environment.

## Objectives of the Study

- To assess the impact of internet use on psychosocial health of adolescents
- To assess the impact of internet use on academic performance of adolescents
- To determine the relationship between impact of internet use on psychosocial health of adolescents and selected demographic variables
- To determine the relationship between impact of internet use on academic performance of adolescents and selected demographic variables

## Materials and Methods

In order to attain the objectives of the study, quantitative research approach (non-experimental research) using cross-sectional survey research design was used. The target population was adolescents of Delhi Public School, Indirapuram, New Delhi. The setting for the study was Delhi Public School, Indirapuram, New Delhi. The sample comprised 200 adolescents belonging to the age group of 14–17 years studying in 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> classes of a Delhi public school, Delhi NCR. Purposive sampling technique was used for the study. After obtaining the consent of the students, the sheet consisting of background detail was provided; those who met the inclusion criteria (of using internet more than 30 min daily) were provided with the valid and reliable main structured questionnaire tool to gather the data. Ethical permission was taken from the Institutional Ethical Committee (IOE) of Jamia Hamdard, New Delhi, to conduct the research study. Permission was obtained to conduct the research study, from the principal of Delhi Public School, Delhi. The technique of data collection was a structured questionnaire to collect background details to assess the impact of internet usage on psychosocial health and to assess the impact of internet usage on academic performance of adolescents. Paper and pencil method was used to administer the tool.

The possible range of scores to assess the impact of internet usage on psychosocial health of adolescents was from 0–160. And the scores were interpreted as follows.

## Scores Category

- **0–95:** Unfavorable impact of internet on psychosocial health
- **96–116:** Fairly significant impact of internet on psychosocial health
- **117–160:** Favorable impact of internet on psychosocial health

The possible range of scores to assess the impact of internet usage on academic performance of adolescents was from 0 to 76. And the scores were interpreted as:

### Scores Category

- **0–45:** Unfavorable impact of internet on academic performance
- **46–58:** Fairly significant impact of internet on academic performance
- **59–76:** Favorable impact of internet on academic performance

The reliability of the rating scale to assess the impact of internet usage among adolescents was calculated using Cronbach’s Alpha formula. The reliability was found to be 0.94 for the questionnaire on impact of internet use on psychosocial health, and it was found to be 0.89 for the questionnaire on impact of internet usage on academic performance. The purpose of the study was explained to the adolescent subjects and they were assured of anonymity and confidentiality of their responses. After obtaining the subjects’ consent, the sheet consisting of background detail was provided; those who met the inclusion criteria (of using internet more than 30 min daily) were provided with the valid and reliable main structured questionnaire tool to gather the data. Descriptive and inferential statistics were used for the analysis of the data.

### Results

#### Section 1: Demographic Characteristics of Adolescents

Frequency and percentage of the demographic characteristics of the adolescents were computed (Table 1).

**Table 1. Frequency and Percentage Distribution of Adolescents by their Demographic Characteristics**

n=200			
S. No.	Variable	Frequency (f)	Percentage (%)
<b>1</b>	<b>Age (in years)</b>		
	14	68	34.0
	15	37	18.5
	16	53	26.0
	17	42	21.5
<b>2</b>	<b>Gender</b>		
	Male	114	57.0
	Female	86	43.0
<b>3</b>	<b>Class</b>		
	9 <sup>th</sup>	79	39.5
	10 <sup>th</sup>	27	13.5
	11 <sup>th</sup>	53	26.5

	12 <sup>th</sup>	41	20.5
<b>4</b>	<b>Educational status of father</b>		
	Graduate	89	44.5
	Postgraduate	100	50.0
	Doctorate	11	5.5
<b>5</b>	<b>Educational status of mother</b>		
	Graduate	105	52.5
	Postgraduate	70	35.0
	Doctorate	25	12.5
<b>6</b>	<b>Occupation of Father</b>		
	Government service	36	18.0
	Private job	91	45.5
	Business	73	36.5
<b>7</b>	<b>Occupation of Mother</b>		
	Government service	13	6.5
	Private job	38	19.0
	Business	14	7.0
	Housewife	135	67.5
<b>8</b>	<b>Grades obtained in last year exam</b>		
	Less than 5	2	1.0
	5 to 6	3	1.5
	6 to 7	6	3.0
	7 to 8	29	14.5
	8 to 9	45	22.5
	9 to 10	115	57.5

The parameters used in the questionnaire like gender were supported with the studies by Pardhasaradhi and Goal<sup>9</sup> that suggest gender difference as male adolescents are higher user of internet than female ones. Similarly, studies on academic performances suggested that increased internet use by students resulted in lower grades supported by the study done by Englander et al.<sup>11</sup> in 2010.

#### Section 2: Details related to Internet Use among Adolescents

Frequency and percentage of the details related to internet usage among adolescents were computed (Table 2).

**Table 2. Frequency and Percentage Distribution of Adolescents by the Details related to Internet Use**

n=200			
S. No.	Variable	Frequency (f)	Percentage (%)
<b>1</b>	<b>Number of internet accessible devices at home (except mobile phones)</b>		
	1	22	11.0
	2	51	25.5
	3	40	20.0
	>3	87	43.5
<b>2</b>	<b>Possession of a mobile phone for self by adolescents</b>		
	Yes	157	78.5
	No	43	21.5
<b>3</b>	<b>Age when you first started using internet</b>		
	Less than 3 years	0	0
	3 to 6 years	26	13
	7 to 10 years	106	53
	11 to 14 years	68	34
<b>4</b>	<b>Monthly expenditure on internet which includes only your personal data plan</b>		
	Less than 100 rupees	67	33.5
	100–500 rupees	73	36.5
	500–1000 rupees	60	30.0
<b>5</b>	<b>Average time of internet usage daily</b>		
	Less than 30 min	0.0	0.0
	30 min–1 hour	80.0	40.0
	1 hour–2 hour	72.0	36.0
	2 hour–3 hour	48.0	24.0
<b>6</b>	<b>Reasons for accessing internet daily</b>		
	For academic work	156	78.0
	Use of social networking	145	72.5

**Table 3. Frequency and Percentage Distribution of the Adolescents by the Impact of Internet Use on Psychosocial Health and Mean, Median and Standard Deviation of Impact of Internet Use on Psychosocial Health Scores**

n=200						
S. No.	Impact of Internet on Psychosocial Health	Frequency	Percentage (%)	Range of Obtained Score	Mean ± SD	Median
1	Unfavorable impact of internet (0–103)	31	15.5	70–152	120.34 ±16.78	122
2	Fairly significant impact of internet (104–136)	133	66.5			
3	Favorable impact of internet (137–160)	36	18.0			

	Playing games	92	46.0
	Online shopping	80	40.0
	For chatting	149	74.5
	Pornography	21	10.5
<b>7</b>	<b>Perception of adolescents about internet impacts</b>		
	Internet use will have healthy impact on self	9	4.5
	Internet if used moderately can be beneficial, else can lead to addiction	186	93
	Internet use will have deteriorating impact on health	5	2.5

The questionnaire on internet use such as hours spent on internet was highly significant and chosen as the screening question that defined participants who will remain in the study and those who will be screened out. 30 min or more was considered as the minimum time a student must spend on internet so as to be a part of the study. This was supported by a study conducted by Seo et al.<sup>12</sup> which says that there is significant positive correlation between internet addiction and hours spent on internet. The purpose with which internet is used is also relevant to see the impact as the research study by Jacobsen and Forste<sup>13</sup> suggests that if the student spent time on the Internet using it for academic purposes then it has a positive correlation with grade point average (GPA).

### Section 3: Impact of Internet Use by Adolescents on Their Psychosocial Health

Frequency and percentage of the impact of internet use by adolescents on their psychosocial health were computed. Mean, median and standard deviation of the impact scores were computed (Table 3).

The data in Table 3 depicts that 133 (66.5%) adolescents had fairly significant impact of internet on their psychosocial health. 31 (15.5%) adolescents had unfavorable impact on them while 36 (18%) adolescents had favorable impact of internet use on their psychosocial health. Mean impact score related to internet use on psychosocial health was 120.34, median being 122 and standard deviation obtained was 16.78. The range of scores obtained was between 70 and 152.

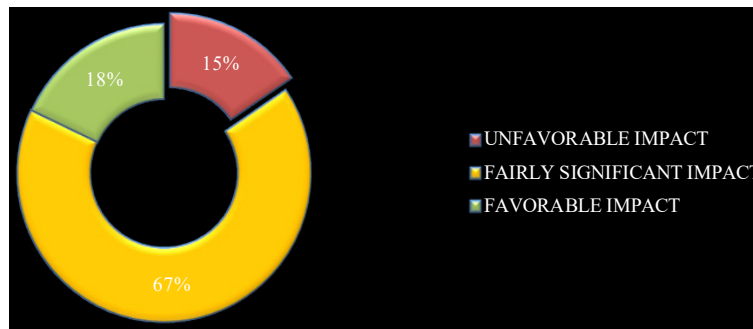


Figure 1.A Doughnut Diagram Showing the Percentage Distribution of Adolescents as per the Impact of Internet Use on Their Psychosocial Health

#### Section 4: Impact of Internet Use on the Academic Performance of Adolescents

Frequency and percentage of the impact of internet use by adolescents on their academic performance were computed. Mean, median and standard deviation of the impact scores were computed (Table 4).

Table 4. Frequency and Percentage Distribution of the Adolescents by the Impact of Internet Use on Academic Performance and, Mean, Median and Standard Deviation of Impact of Internet Use on Academic Performance

S. No.	Impact of internet on Academic Performance	Frequency	Percentage (%)	Range of Scores	Mean±SD	Median
1	Unfavorable impact of internet (0–42)	34	17.0	24-64	48.34 ±5.89	49
2	Fairly significant impact of internet (43–53)	112	56.0			
3	Favorable impact of internet (54–76)	54	27.0			

n=200

The data in Table 4 depicts that 112 (56%) adolescents had fairly significant impact of internet on their academic performance. 34 (17%) adolescents had unfavorable impact on them and interestingly 54 (27%) adolescents had favorable impact of internet use on their academic performance. Mean impact scores related to internet use on academic performance was 48.34, median being 49 and standard deviation obtained was 5.89. The range of scores obtained was between 24 and 64.

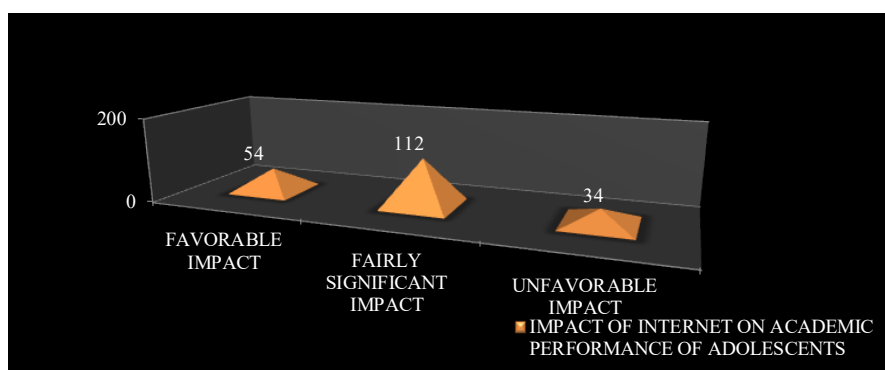


Figure 2.A Pyramid Diagram Showing the Frequency Distribution of Adolescents as per the Impact of Internet Use on Their Academic Performance

#### Section 5: Relationship between Demographic Characteristics and Impact of Internet Use of Psychosocial Health and Academic Performance among Adolescents

Fischer exact test and chi-square test was used to analyze the relationship and it was found that age, gender, grades obtained in last exam, whether an adolescent possesses a mobile phone had no significant relationship with impact

of internet use on psychosocial health. But the average time of internet use daily had a significant relationship at 0.01 significance level with impact of internet use on psychosocial health. Age, gender, grades obtained in last exam, whether an adolescent possesses a mobile phone and average time of internet use daily has no significant relationship with impact of internet use on academic performance among adolescents.

## Section 6: Comparison between Impact Scores of Psychosocial Health and Academic Performance

Mean and modified mean of the impact scores of psychosocial health and academic performance were computed (Table 5).

**Table 5. Mean and Modified Mean of Scores to Assess the Impact of Internet Use on Psychosocial Health and Academic Performance of Adolescents**

Variables	Mean of Impact of Internet	Number of Questions	Modified Mean of the Impact of Internet
On psychosocial health scores	120.34	40	3.0085
On academic performance scores	48.34	22	2.1972
3.0085 > 2.1972			

n=200

The data in Table 5 shows that modified mean of the impact of internet on psychosocial health scores of adolescents was more than the modified mean of the impact of internet on academic performance scores. This showed that internet use had more impact on psychosocial health of adolescents rather than their academic performance.

## Discussion

The naturally malleable period of adolescence, which is often defined as beginning around puberty and ending when one obtains a relatively stable role in society, makes this a time of particular concern to adults.<sup>14</sup> Adolescence is a time when we are honing our skills for navigating complex social interactions and that a lack of opportunities to engage in this skill-building behavior could impede development.

The findings in the present study revealed that a notable number of adolescents had a fairly significant impact of internet use on their psychosocial health; some adolescents were found to have favorable impact of internet use on their psychosocial health and almost an equal number were found to have unfavorable impact of internet use on their psychosocial health. The findings were similar to the findings of the study by Yeora<sup>15</sup> which suggests that children who spend more time on the internet were more likely to spend more time with other media, more time on some kind of physical activities, and were more socially involved. The internet provided a place for communication and social relationships for children with a threat and an equal chance of falling down.

The findings in the present study revealed that more than half of the adolescents had a fairly significant impact of internet use on their academic performance and an interestingly more number of adolescents were with favorable impact than with unfavorable impact on their academic performance. The findings of a study by Kim et

al.<sup>16</sup> showed that higher school performance significantly positively correlated with internet use for study but negatively correlated with internet use for general purpose. The present study also reveals that 156 students among 200 accessed internet for academic work along with general purpose.

The present study revealed that a significant number of adolescents had fairly significant impact of internet use on their psychosocial health and academic performance. Out of the 250 samples, 200 met the inclusion criteria of using internet more than 30 min daily, out of which 78% accessed internet for academic work, and 93% believed that moderate use of internet will have positive effect on health. Although 87% of the population had more than three internet accessible devices at home and 79% possessed a mobile phone, yet more than half of the total population had a CGPA between 9 and 10. The findings revealed that although internet use has been surging with a great speed among adolescents, still it has been used with a good purpose strengthening their psychosocial health and academic performance.

Technology has evolved in our lives as a boon and it will remain so only if we learn to use it in the right way. The study has certain limitations like it was conducted on a small sample and in a selected school of Delhi which limits the generalization of the findings of the study. The present study offers some recommendations like a comparative study between adolescents studying in private and government schools can be conducted to ascertain the prevalence of internet addiction, a similar study can be replicated on a larger sample to help validate and generalize the findings to the entire population of a region or a part of the country, studies on the effect of internet use on different aspects of health, such as physical health, emotional health and spiritual health can also be done. A similar study can be carried out on impact of internet use

on health into varied age groups of the population and compare the differences. An exploratory study can be done among parents of adolescent children regarding their perception about internet use and a comparative study can be done among school-going and college-going adolescents regarding internet use and its impact on them. The study has several implications on nursing education, practice and research. The adolescents should be educated and made aware of wise and smart use of internet and other such technological advancements so that internet can prove to be a boon rather than a bane. School health nurses and school counselors, besides assessing the physical health status of school children, should also make regular, systematic and thorough assessment of psychological, social, emotional and spiritual wellbeing. Nurse educators can have an interface with school teachers and counselors so as to look into the effects of internet on individual students. In-service and continuing education programs can be organized for the nurses working in hospitals, communities and the schools, so that they are updated on the ill effects of internet use as a leading cause of mental, physical, emotional and social problems. Educational programs should be conducted for school students to improve their knowledge regarding various aspects of internet use.

## Conclusions

The major conclusions drawn on the basis of the findings of the study were that a notable number of adolescents had a fairly significant impact of internet use on their psychosocial health. Approximately half of the adolescents had a fairly significant impact of internet use on their academic performance. The average time of internet use daily had a significant association at 0.01 with the psychosocial health of adolescents. The impact of internet use was more on the psychosocial health of adolescents rather than on their academic performance.

**Conflict of Interest:** None

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