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Does Internet Addiction in Adolescents cause a permanent Impact on their Mental Health: An Exploratory Study using a Quantitative Approach

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Abstract

The internet has rapidly developed into one of the most critical components of our everyday lives. The majority of adolescents use mobile phones, and downloading content might raise their stress levels. For starters, it may be difficult for them to do their daily homework at night, which can result in sleeping difficulties among adolescents. They much prefer conversing with their buddies online. This results in less time spent with the family. It is vital to conduct research on the significance of investigating the growing problem of Internet addiction and how it impacts mental health. A total of 500 adolescents are surveyed for the purpose of this study using questionnaires. , the study reveals that there are 50% students who can be termed as having moderate levels of internet addiction followed by 42% which have mild levels of addiction. There are only 8% students who fall in the normal usage of the internet category. It shows a negative impact of internet addiction on the mental health of the children using multiple linear regression. It also establishes the differences in the internet addiction and mental health levels based on the gender and type of school of the child.

Keywords- Adolescents; Mental; Health; Internet Addiction

Introduction

The unpredictability of modern life has made it so that people are always in a rush and preoccupied with worries about their day-to-day routines. This way of living has clear repercussions, not just on mental health but also on physical health. The state of one's mental health is an essential component in the life of an individual. Due to the intense level of competition and the hectic pace of life in the 21st century, it is an extremely challenging endeavour to maintain a condition of normalcy or peace. In today's environment, maintaining a healthy balance between one's mental and physical well-being can be difficult for even the most physically and mentally robust persons.

The internet has rapidly developed into one of the most critical components of our everyday lives. If we were unable to connect to the internet, it would be quite challenging for us to continue carrying out the tasks we do on a daily basis. Internet technology has seen widespread adoption, which has made it possible to bring together people from all over the world and paved the way for more productive ways to carry out ordinary chores in a variety of spheres of life (Lam, 2015).

On the other hand, despite the fact that it offers a wide variety of advantages, the internet is not devoid of any disadvantages. As a direct consequence of this, people have formed a dependency on it, which makes it challenging for them to function normally in the absence of it. The internet is put to use for a number of functions that are essential; yet, it is also used for recreational activities such as navigating various social media platforms and playing games online (Xiuqin, et al., 2010). Due to the amount of time that is consumed by these routines, a person finds that they are unable to just unwind in the absence of a device that is linked to the internet. It has been observed that there has been a rise in the amount of addiction to the internet, which has been shown to have a number of unfavourable impacts on their health and can even create addiction in certain people (Lebni, et al., 2020).

Due to the unpredictability of modern life, everyone is constantly in a rush and anxious about their normal activities and schedules. This manner of life has obvious consequences, not just for one's mental health but also for one's physical health (Gorfich, et al., 2018). A person's life cannot be understood in its entirety without first taking into consideration their mental state. Maintaining a level of normalcy or mental composure in today's world, with all of its frenetic activity and cutthroat competition, is an extremely difficult task that requires a lot of effort. Even for the most physically and intellectually robust individuals, today's environment can make it challenging to strike a healthy balance between one's mental and physical well-being and to keep that balance intact (Karacic & Oreskovic, 2017).

Websites are becoming an increasingly important topic of discussion among adolescents in today's society. They are devoting more of their time to using the internet and are devoting less of their time to engaging in activities that require physical movement. Unnecessarily, adolescents spend the majority of their time on their smartphones. It has an

effect on one's mental health as well as their ability to study (Tiwari, 2011). Due to the proliferation of various technology, there is a growing worry among adolescents over problems related to their mental health (Thome, et al., 2011). Their addiction to the Internet interferes with their important life activities.

The majority of adolescents use mobile phones, and downloading content might raise their stress levels. For starters, it may be difficult for them to do their daily homework at night, which can result in sleeping difficulties among adolescents. They much prefer conversing with their buddies online. This results in less time spent with the family.

As a result of the review of previous research that was carried out as part of the study, it was determined that there are no studies that explore the rising prevalence of internet addiction and the impact that it has on the "Mental Health" and overall wellbeing of students who are enrolled in secondary education. This finding came about as a direct result of the fact that there were no studies that investigated the rising prevalence of internet addiction and the impact that it has on the overall wellbeing of students. It is vital to conduct research on the significance of investigating the growing problem of Internet addiction and how it impacts mental health.

The following research question is devised:

RQ1: "What is the association between Internet Addiction with the Mental Health of school students?"

In order to understand the answers to the research question, a thorough understanding about the current literature and establish the methodological process to be undertaken during this study.

Review of Literature

Internet Addiction among Adolescents:

Romero-Rodriguez et al., (2022), stated that the internet use causes problematic behaviour on the users. This was mostly observed among the students. The researchers stated that there is a need to mitigate the negative impact of "internet addiction" in order to promote healthy lifestyle among the youth. The addicted person will eventually start abdicating the responsibilities at work, which will not only strain their relationships but also have a negative impact on the addicted person's overall health. Tolerance is a phenomena that occurs in some cases of dependency, such as alcoholism and opium addiction. This phenomenon describes the situation in which an increasing amount of stimulation is required to provide the same pleasurable effect. There is also the possibility of an associated occurrence called elimination, in which the individual who is hooked comes to be established upon knowledgeable of a significantly unpleasant reaction when he is going without it.

Berte, et al., (2021), concluded that the internet addiction has the potential to impact the efficacy level of the adolescents. The relationship between the two factors—namely, an addiction to the internet and a sense of self-efficacy—was investigated in this study. The findings that were obtained showed that an addiction to the internet has a propensity to have a negative impact on the level of self-efficacy that is present among university students. This was the case regardless of the students' ages, genders, or levels of academic achievement.

Hu, et al., (2021), stated that psychological sushi can help youth to modify their internet addiction behaviour. As a result of the proliferation of various technologies, there is a growing worry among adolescents over problems related to their mental health. Their addiction to the Internet interferes with their important life activities. The majority of adolescents use mobile phones, and downloading content might raise their stress levels. For starters, it may be difficult for them to do their daily homework at night, which can result in sleeping difficulties among adolescents. They much prefer conversing with their buddies online. This results in less time spent with the family.

Hassan, et al., (2020), focused on identifying the associated variables that causes internet addiction among the young adults. It was observed that certain factors such as the living set-up of the individual, the relationship shared with the family and the physical activity indulged in has a potential to influence the level of internet addiction among the young adults. The research study highlights the fact that internet addiction also causes damage to social, physical, and mental aspects of life, as well as the loss of technological processes, divorce, own family disputes, social isolation, academic nonfulfillment, insomnia, complications, tensions, tiredness, blurred imaginative and prescient abilities, and cognitive impetrates such as inattention, difficulty concentrating, and incomplete responsibilities.

Ibrahim, et al., (2020), carried out an observation of the impact of automatic games on the performance of youngsters and their instructional attainment in the faculty in Mosul town. In this scenario, each man, girl, and child has been chosen in the same manner. An examination that is both descriptive and analytical is almost finished. The outcome of the study showed that playing electronic video games has an effect on the behaviour of sixty children living in the city of Mosul. There appears to be a gender gap in the use of video games among college students based on the amount of time they spend playing them.

Karaca, et al., (2020), indicated that addiction to playing video games online can lead to increased

levels of social pressure among adolescents, and this effect can be seen across a population's varied socio-demographic factors. Because addiction to the internet is such a broad notion, there is no single term that adequately describes this illness. Uncontrolled internet use is a form of impulse control disorder called as "uncontrolled internet usage." similar to other addictions according to the ICD International Classification of Diseases In recent years, this idea has evolved into a phenomena that has been referred to by a variety of names, including online addiction, cyber addiction, and pathologic internet use. These titles are attempts to identify different aspects of the condition.

Prochnow, et al., (2020), observed that online gaming addiction has led to depressive symptoms among the users and lack of social skills. The use of the internet and addiction to playing games online are both harmful to an individual's mental health and should be avoided at all costs. In the past, locating any information at all, for any reason, was not only quite difficult but also required a great amount of time and effort on the part of the person conducting the searching. On the other hand, due to the development of the internet, electronic mail, and computer programming, such information is now easily accessible at the touch of a button. These changes, taken as a whole, are having the effect of making people's lives easier. It also provides the convenience of online shopping, the ability to pay bills and research some historical content online, as well as other services of a similar nature; yet, excessive use of the internet can lead to addiction to it. Addiction to the internet can affect people of any age or location in any part of the world.

Internet Addiction and mental health problems:

Zhou, et al., (2022), conducted a research study on the level of internet addiction among the adolescent. The researchers focused on the impact that internet addiction have on the physical and mental health of the adolescent. It was discovered that the levels of the adolescent's anxiety had increased, and the coping method that the adolescent had developed was an addiction to excessive use of the internet as a means of self-medicating their symptoms of worry. This was found to be the adolescent's method of dealing with their symptoms of worry. This was seen as a means for the adolescent to deal with the symptoms of worry that they were experiencing. According to the findings of the study, an unhealthy addiction to the internet may be connected to a higher occurrence of feelings of fear when confronted with the prospect of being alone.

Bagheri, et al., (2021), conducted a research to determine the role played by internet addiction on the mindfulness, and resilience of the mental health of the students. The research study was conducted during the pandemic of coronavirus – 19. The levels of the adolescent's anxiety were found to have increased, and the coping method that the adolescent had developed was an addiction to excessive use of the internet as a means of self-medicating their symptoms of worry. This was observed as a way for the adolescent to manage their symptoms of worry. The results of the study suggest that an unhealthy addiction to the internet is linked to a higher incidence of feelings of dread when faced with the prospect of being alone.

Duan, et al., (2020), conducted a research study to evaluate the mental health of the children and adolescents. The researchers in the research study are young people from China who are in their teens. During the course of the COVID-19 epidemic, particular attention was paid to the adolescents living in China. During the course of the Covid-19 pandemic, an increase in the prevalence of smartphone addiction was noted. An increase in the adolescent's anxiety levels was detected, and the coping technique that the adolescent had developed was an addiction to excessive internet use as a means of self-medicating their symptoms of worry. According to the findings of the study, excessive internet addiction is associated with an increase in the level of separation anxiety.

Lin, (2020), carried out an investigation in the form of a research study in order to assess the mental health of the children and adolescents. Young individuals from Taiwan who are in their teens are conducting the research for the study, and they are the researchers. Throughout the course of the COVID-19 outbreak that swept through China, a special focus was placed on the country's adolescents. During the course of the Covid-19 pandemic, there was a discernible rise in the number of people who were addicted to their smartphones. The levels of the adolescent's anxiety were found to have increased, and the coping method that the adolescent had developed was an addiction to excessive use of the internet as a means of self-medicating their symptoms of worry. This was observed as a way for the adolescent to manage their symptoms of worry. The results of the study suggest that an unhealthy addiction to the internet is linked to a higher incidence of feelings of dread when faced with the prospect of being alone.

El Asamm, et al., (2019), conducted a research study to evaluate the “problematic internet use” among the adolescents. The research study was conducted among the British adolescents. It is difficult to decide how to transition from excessive use of the internet to normal usage of the internet because so many individuals in so many different areas use the internet on a regular basis as an integral component of their career or study. It is not possible to make this shift by making use of straightforward metrics, such as the total amount of time spent online over a particular time period. A

sensation of urge to use the internet, which can be differentiated from normal internet use, is the most typical sign of problematic internet use. Regular internet use does not lead to problems.

Research Methodology

The study here follows an exploratory nature of investigation where quantitative methods have been used to arrive at the results of the study. The sampling population serves as one of the important parts in the entire study. The study here is focusing on the country of India and is interesting to know about the students studying in the government and private schools. The study has been limited to the locations of Ferozepur, Faridkot and Fazilka districts in Punjab. The primary data collection with the help of the research instrument is collected from the students considered. The process of data collection is self-administered in nature where the respondents would fill up the questionnaire with the required assistance from the researcher. The study would use secondary sources of data from various journals, books and reports.

The inclusion and exclusion criteria specified for the primary samples are as follows.

Inclusion Criteria

1. The Age of the respondents must be between 14 to 18 years;
2. Classes IX and X11;
3. Both female and male;
4. Having access to the Internet for the last 12 months or more.

Exclusion Criteria

1. Students not having access to the internet.
2. Students with intellectual disabilities.
3. Students dependent on any psychoactive substance currently except caffeine and nicotine;
4. Students who have any mental health issues and are currently seeking any sort of psychiatric consultation.

The samples selected from the population would be subjected to the above criteria mentioned.

Out of the two categories of sampling i.e., probabilistic and non-probabilistic, the probabilistic techniques are selected and considered appropriate for the study. The advantage of using probabilistic sampling is that it helps in reducing biasness as all the units have equal chances of being selected in the final sample. The sampling technique used here is simple random sampling.

The study would involve the researcher collecting the list of students from the schools in the specified districts. In doing so, by employing a random number generator in excel, the particular respondent would be selected for collecting the primary set of data. Keeping in mind the number of students in the specified category across the schools of the districts considered, a total of 500 responses are taken. In this there would be 250 boys and 250 girls considered for the sample composition from across the three districts.

The final data analysis process using the appropriate statistical tools are provided below.

Data Analysis

Demographics Overview

The study here has specified the population of the study to be school students who are in the age group of 14 to 18 years. The objectives include identifying the responses of the students based on their gender and the type of school they study in. Based on that the responses generated are segregated into equivalent groups and are shown below.

Frequencies of Gender

Gender	Counts	% of Total	Cumulative %
Female	250	50.0 %	50.0 %
Male	250	50.0 %	100.0 %

Frequencies of Gender

Gender	Counts	% of Total	Cumulative %
Private	250	50.0 %	50.0 %
Government	250	50.0 %	100.0 %

The two tables above show that out of the 500 datasets collected, there are an equal number of male students and female students. Moreover, the type of schools that they read in comprise 50% private type and 50% government based. Overall, there are 175 boys who study in private schools and 175 boys who are students in government schools. In the case of girls a similar pattern is followed.

In the inclusion criteria for the samples, the mandatory use of the internet for at least a duration of 12 months has been specified. To learn more about the amount of time the respondents have spent on the internet, the following questions have been asked in the questionnaire.

Frequencies of Years of Using Internet

Years of Using Internet	Counts	% of Total	Cumulative %
3-5 years	125	25.0 %	25.0 %
More than 5 years	375	75.0 %	100.0 %

The options in the question included responses of duration of less than 3 years as well. However, for the students considered here, the majority with 75% have an experience of using the internet for more than 5 years followed by 25% using it for 3 to 5 years.

Internet Addiction Scale

The first scale to be investigated here is the internet addiction scale. This scale inclusive of 20 items measures the level at which the respondents are inclined towards the use of the internet over other activities in their lives.

The scale is based on a rating from 0 to 5 where 0 represents not applicable and 5 represents always. As it measures the level of use the options from 1 to 4 vary from rarely, occasionally, frequently to often. In order to identify the level of internet addiction among each of the respondents, the use of IAT total score is used. It is nothing but the sum of the ratings provided with respect to each of the 20 items. The highest score that can be achieved by any individual is 100 which states that the internet addiction is the highest. The higher the score, the more serious is the internet addiction level.

According to the score attained by the respondents, the following categories can be created.

Score Range	Category
0 -30	Normal Level of Internet Usage
31-49	Mild Level of Internet Addiction
50-79	Moderate Level of Internet Addiction
80-100	Severe Dependence on Internet

In this study, the above range would be used to define the internet addiction level of the students. Before moving into the score calculation, a look into the items and its individual responses are provided using the descriptive analysis.

Descriptives – Internet Addiction Scale

	N	Mean	Median	SD	Minimum	Maximum
How often do you find that you stay online longer than you intended?	500	2.4120	2.00	1.604	0	5
How often do you neglect household chores to spend more time online?	500	2.3280	2.00	1.699	0	5
How often do you prefer the excitement of the Internet to intimacy with your partner?	500	0.0820	0.00	0.275	0	1

Descriptives – Internet Addiction Scale

	N	Mean	Median	SD	Minimum	Maximum
How often do you form new relationships with fellow online user	500	1.9060	1.00	1.550	0	5
How often do others in your life complain to you about the amount of time you spend online?	500	2.0820	2.50	1.554	0	4
How often do your grades or school work suffer because of the a	500	1.3360	1.00	1.030	0	3
How often do you check your email before something else that you need to do?	500	1.1660	1.00	0.988	0	3
How often does your job performance or productivity suffer because of the Internet?	500	1.3360	1.00	1.030	0	3
How often do you become defensive or secretive when anyone asks you what you do online?	500	1.7520	1.50	1.094	0	4
How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?	500	2.7500	3.00	0.832	1	4
How often do you find yourself anticipating when you will go online again?	500	2.3360	2.00	0.851	1	4
How often do you fear that life without the Internet would be boring, empty, and joyless?	500	3.2500	3.00	0.597	2	4
How often do you snap, yell, or act annoyed if someone bothers you while you are online?	500	2.0840	2.00	0.862	1	3
How often do you lose sleep due to being online?	500	2.8280	3.00	1.070	1	4
How often do you feel preoccupied with the Internet when off-li	500	2.5820	3.00	0.494	2	3
How often do you find yourself saying "just a few more minutes" when online?	500	2.8280	3.00	1.070	1	4
How often do you try to cut down the amount of time you spend online and fail?	500	2.5820	3.00	0.494	2	3
How often do you try to hide how long you've been online?	500	2.3360	2.00	0.851	1	4
How often do you choose to spend more time online over going out with others?	500	3.2500	3.00	0.597	2	4

Descriptives – Internet Addiction Scale

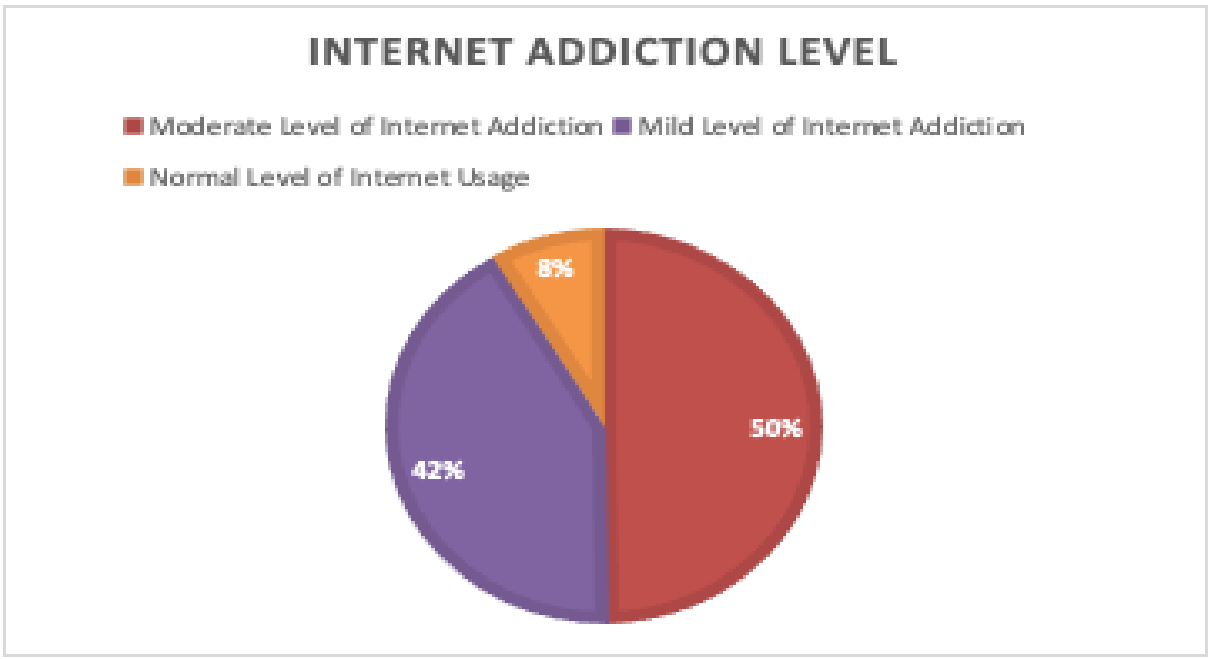
	N	Mean	Median	SD	Minimum	Maximum
How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back online?	500	2.9940	3.00	1.294	1	5

The mean scores of the 20 items here reflects the average of the scores against each of the responses and where one can find the highest level of inclination. The highest score that can be pointed out here is that of 3.25 for two items. These two items include the high level of fear that life without the use of the internet would be boring, empty and joyless and the second items represent their inclination towards using the internet over going out with others. The two items with the highest score shows that online presence is making the students joyous and allows them to spend an interesting time bonding with other individuals by going out with them. The lowest mean score stands at 0.082 and it is about selecting the internet over being intimate with their partner. As these are school students, the question is not applicable to the majority of the students and hence a low mean score is generated here. Looking into the second last mean score, it is at 1.16 which represents the lower preference of the students to check their email before any other activity. The analysis of the internet addiction scale shows that the students are inclined towards the use of the internet over a number of things that goes on in their day to day lives.

As the descriptives are analysed, the IAT total score is calculated for each of the 500 responses.

Frequencies of Addiction Level

Addiction Level	Counts	% of Total	Cumulative %
Moderate Level of Internet Addiction	249	49.8 %	49.8 %
Mild Level of Internet Addiction	209	41.8 %	91.6 %
Normal Level of Internet Usage	42	8.4 %	100.0 %



The table and the pie chart above shows that there are 50% students who can be termed as having moderate levels of internet addiction followed by 42% which have mild levels of addiction. There are only 8% students who fall in the normal usage of the internet category. The good part is that there are no students in the category of severely being addicted to the internet. All the students are in the mild or moderate range. However, the conversion from mild and moderate to being a severe internet addict is quite easy. It can happen over a short duration of time and hence it is important that the use of the internet among the students is regulated. Only 8% students in the normal usage category shows that the majority are at a risk of being converted into internet addicts at such a young age.

In order to understand the division of these scores based on the gender and type of school attended by the students, a cross tabulation analysis is conducted followed by a chi-square test.

Contingency Tables

		Gender		
Addiction Level		**Female**	**Male**	**Total**
Moderate Level of Internet Addiction	Observed	125	124	249
	% within row	50.2 %	49.8 %	100.0 %
	% within column	50.0 %	49.6 %	49.8 %
Mild Level of Internet Addiction	Observed	125	84	209
	% within row	59.8 %	40.2 %	100.0 %
	% within column	50.0 %	33.6 %	41.8 %
Normal Level of Internet Usage	Observed	0	42	42
	% within row	0.0 %	100.0 %	100.0 %
	% within column	0.0 %	16.8 %	8.4 %
Total	Observed	250	250	500
	% within row	50.0 %	50.0 %	100.0 %
	% within column	100.0 %	100.0 %	100.0 %

The above table shows some interesting results in the score allocation. It is seen that for the moderate level internet addiction users, the majority are female with 50.2% of the total students in the category. In case of mild level addiction, the percentage of females further increase to 59.8% in comparison to 40.2% males. For the normal level of internet usage, it is interesting to note that 100% respondents here are males. This clearly shows that the number of students who are highly likely to be addicted to the internet are female students. Currently, the number of female students who are either mildly or moderately addicted to the internet are higher than male students and there are no female students who are following a normal usage pattern of the internet. In order to understand if this sequence has a statistically significant association based on gender, the chi-square test is conducted.

χ^2 Tests

	Value	**df**	**p**
χ^2	50.0	2	< .001
N	500		

The p-value standing at a value of less than 0.05 clearly shows that the levels of internet addiction are statistically associated with the gender of the students. In this case, clearly female students pose a higher risk of using the internet at a concerning level. This must be subjected to precautions and measures in the future in order to control the rise of female students as internet addicts.

As the gender is significantly associated, in the next set of tabulations, the type of school that the students are studying in are being subjected with the internet addiction levels.

Contingency Tables

Addiction Level		Private/Government School Student		
		Government	Private	Total
Moderate Level of Internet Addiction	Observed	166	83	249
	% within row	66.7 %	33.3 %	100.0 %
	% within column	66.4 %	33.2 %	49.8 %
Mild Level of Internet Addiction	Observed	84	125	209
	% within row	40.2 %	59.8 %	100.0 %
	% within column	33.6 %	50.0 %	41.8 %
Normal Level of Internet Usage	Observed	0	42	42
	% within row	0.0 %	100.0 %	100.0 %
	% within column	0.0 %	16.8 %	8.4 %
Total	Observed	250	250	500
	% within row	50.0 %	50.0 %	100.0 %
	% within column	100.0 %	100.0 %	100.0 %

The analysis of the type of school and its categorisation in the internet addiction scale shows that for moderate levels of addiction, there are 66.7% government school students in comparison to 33.3% private school students. For mild levels of addiction, there are more private school students with 59.8%. For the normal use of the internet, all the students belong to the private sector schools. This can be stated here that the normal level of internet usage in this study is done by male students who study in private schools. This shows that the inclination towards using more internet and moving towards severe addiction levels are more among the government school students.

χ^2 Tests

	Value	df	p
χ^2	77.7	2	< .001
N	500		

The chi-square test results here as well shows that with a p-value of less than 0.05, there is a statistically significant association among the internet addiction levels and the type of school attended by the students. This means that in order to reduce the internet addiction levels, it is required that proper means of awareness and regulation are spread in both types of schools but mostly in the government schools.

This section has established the internet addiction levels among the students while focusing on the differences across the gender and type of school the students are attending. In the next section, the mental health scale is analysed.

Mental Health Scale

The second scale considered here is the mental health scale which consists of 54 items and scores from 0 to 4. The score of 0 represents never and 4 represents always in the items listed positively. For the items which are in a negative aspect, the score of 0 represents always and 4 represents never. In order to generate the final mental health score of the respondents, the negative items are transformed

and the overall scores are used to calculate the mental well-being of the students.
Before moving into the calculation of the mental health score, the descriptives of the responses are provided below for better understanding for the items.

The 54 items are divided into three variables which represent school related causes, home related causes and peer group related causes. These three aspects are considered here when identifying the mental health of the students. These are important considerations when identifying the mental well-being of a student as all the three areas in which they are highly associated are taken into account.
The first factor of school related causes include a total of 7 positively framed and 11 negatively framed questions. The descriptives are provided below after altering all the responses into the positive scoring method.

Descriptives

	N	Mean	Median	SD	Minimum	Maximum
I am curious to know all things.	500	1.67	2.00	0.748	0	3
I am fully confident.	500	1.08	1.00	0.640	0	2
I answer questions asked by teacher with enthusiasm.	500	1.08	1.00	0.640	0	2
I like to read books.	500	1.92	2.00	0.863	1	4
I finish my work on time which is given to me in school.	500	1.58	2.00	0.493	1	2
I like to go to school.	500	1.50	1.00	0.766	0	3
I like to participate in co-curricular activities.	500	1.25	1.00	0.724	0	2
I get frightened even without a reason.	500	2.25	3.00	0.832	1	3
I get less sleep at night.	500	2.25	3.00	0.923	0	3
My sleep often gets interrupted in night.	500	2.25	3.00	0.832	1	3
I feel stressed when my sleep breaks at nights.	500	2.58	3.00	0.642	1	3
I get headache when I continuously think of something.	500	2.33	3.00	0.853	1	3
I am not able to concentrate while studying.	500	2.58	3.00	0.642	1	3
I forget fast what I learn.	500	2.33	3.00	0.853	1	3
I get scary dreams.	500	2.16	3.00	1.069	0	3
I get dreams of performing badly in examination.	500	1.92	3.00	1.188	0	3
I forget what is studied during examination.	500	1.74	2.00	1.091	0	3
My capacity to work is reducing.	500	2.33	3.00	0.853	1	3

For the school related factors, it is seen that the highest mean score is at 2.58 and is with respect to the agreement that the students feel stressed when their sleep breaks at night and they are not able to concentrate while studying. The lowest score is in terms of agreeing about them being fully confident at a score of 1.08 and answering questions asked by the teachers. There are lower scores exhibited in terms of interest to participate in co-curricular activities. The mean score pattern shown here states that while the students are struggling the most to concentrate on studies and sleep related issues, their levels of confidence are also found to be quite low. They are not active in class and other activities which shows their lack of confidence in school.

The factor of home related causes include 13 positive sets of items and 9 negative questions.

Descriptives

	N	Mean	Median	SD	Minimum	Maximum
I wish to talk to my relatives.	500	1.334	1.00	0.472	1	2
I freely communicate with my family members.	500	1.334	1.00	0.472	1	2
I like to go out for excursions.	500	2.330	2.00	0.624	1	3
I like to take part in any activity at my home.	500	1.334	1.00	0.472	1	2
I get sufficient love and affection from my family.	500	1.080	1.00	0.761	0	2
I am well organized.	500	2.084	2.00	0.760	1	3
I like to look smart.	500	2.752	3.00	0.724	2	4
I feel excited to do new things.	500	2.252	2.00	0.831	1	4
I wish to celebrate my birthday with lot of fun.	500	2.588	2.00	0.955	1	4
Festivals make me happy.	500	2.252	2.00	0.831	1	4
I work wholeheartedly.	500	1.248	1.00	0.724	0	2
My parents respect my thoughts & feelings.	500	1.080	1.00	0.761	0	2
I think I am fortunate/lucky.	500	0.998	1.00	0.579	0	2
I am nagged for my studies again & again.	500	1.000	1.00	0.999	0	3
My parents give more love and affection to my brother/sister.	500	2.334	2.50	0.745	1	3
I feel suffocated.	500	1.996	2.50	1.159	0	3
My relatives keep questioning me when I go out of home.	500	1.916	1.50	0.954	1	3
I often feel tensed and worried.	500	2.250	3.00	0.832	1	3
I faced many difficulties in childhood.	500	2.334	2.50	0.745	1	3
I feel that I am sick.	500	2.250	3.00	0.832	1	3
My family accuses me for the wrong even when it is not my mistake.	500	2.250	3.00	0.832	1	3
I face hindrances in all my work.	500	2.250	3.00	0.832	1	3

For the home related instances, the highest mean score is at 2.58 where they highly agree on their desire to celebrate their birthday with fun followed by a score of 2.75 about them wanting to look smart. The lower scores are with respect to the students thinking that they are lucky at a score of 0.098. With a score of 1.08, the students do not highly agree that they get sufficient love from their family. This is a good indication as the students feel they are loved by their families. The highest score for birthday celebrations represent that the students do have an inclination towards their home and family members.

Lastly, the peer related questions include 5 positively framed and 9 negatively framed questions.

Descriptives

	N	Mean	Median	SD	Minimum	Maximum
I like watching films.	500	2.330	2.00	0.624	1	3
I like humour and have fun.	500	2.330	2.00	0.624	1	3
I have many friends.	500	1.668	2.00	0.625	1	3
If something hurts me, I immediately clarify it with that persons.	500	0.998	1.00	0.579	0	2
My friends love me a lot.	500	1.666	1.00	0.748	1	3
Everyone criticizes me.	500	2.334	2.50	0.745	1	3
I like being silent.	500	2.584	3.00	0.642	1	3
When my friends are laughing I feel they are making fun of me.	500	2.414	2.00	1.042	1	4
Some children tease me.	500	2.584	3.00	0.642	1	3
My friends talk about disappointing things.	500	2.332	3.00	0.853	1	3
I am lost in myself.	500	2.584	3.00	0.642	1	3
People want to harm me.	500	2.748	3.00	1.301	1	4
Life is dull/boring.	500	2.584	3.00	0.642	1	3
I like to stay alone.	500	2.500	3.00	0.959	1	4

This scale shows that the highest mean score is at 2.748 where majority students believe that people want to harm them. The next highest score is at 2.58 and it is for a number of different items. It shows that the students agree on their lives being boring, they are lost in themselves, they like being silent and agree that some children do tease them. The lowest scores are at 0.998 which represent that the students do not immediately clarify when something occurs. The next lowest level of scores are around 1.6 which shows that the majority of students have less number of friends and least number of them think that their friends love them.

Out of the three categories in the mental health scale, it is evident that for the students considered here as respondents, the area where higher chances of lower mental health scores expected is in terms of peers. It is the relation with their friends that is concerning as compared to the school and home related issues. To investigate more on it, the final scores in the scale for each respondent is calculated. The following cut-off points would be used for interpreting the levels of mental health among the students.

Range of Score for Overall Scale	Level of Mental Health
170 & above	Extremely Good
155 to 169	Very Good
140 to 154	Good
120 to 139	Moderate
105 to 119	Poor
91 to 104	Very Poor
90 & Below	Extremely poor

The frequencies based on the overall scores in the scale are provided below.

Frequencies of Mental Health Score

Mental Health Score	Counts	% of Total	Cumulative %
Moderate Mental Health	167	33.4 %	33.4 %
Poor Mental Health	124	24.8 %	58.2 %
Very Poor Mental Health	167	33.4 %	91.6 %
Extremely Poor Mental Health	42	8.4 %	100.0 %

Based on the overall mental health scale, there are four categories of mental health found among the students. These range from having extremely poor mental health to moderate levels of mental health. There is a tie between the highest number of respondents. With 33.4%, there are an equal number of respondents observed in the moderate mental health category and very poor mental health category. There are 24.8% who are in a poor mental health level and the remaining 8.4% are in extremely poor mental health conditions. The results show that students considered here are very rarely in a moderate level of mental health. Majority are suffering from poor mental health and overall the situation is not good. There needs to be measures identified and taken to convert the students in the poor to extremely poor categories into at least the moderate levels. The moderate level students on the other hand should be attempted to be pushed across the good mental health levels with proper precautions.

Following a similar pattern, the cross tabulation and chi-square tests of these scores with respect to the gender and type of school of the students are put forward.

Contingency Tables

		Gender		
Mental Health Score		**F**	**M**	**Total**
Moderate Mental Health	Observed	83	84	167
	% within row	49.7 %	50.3 %	100.0 %
Poor Mental Health	Observed	83	41	124
	% within row	66.9 %	33.1 %	100.0 %
Very Poor Mental Health	Observed	83	84	167
	% within row	49.7 %	50.3 %	100.0 %
Extremely Poor Mental Health	Observed	1	41	42
	% within row	2.4 %	97.6 %	100.0 %
Total	Observed	250	250	500
	% within row	50.0 %	50.0 %	100.0 %

χ^2 Tests

	Value	df	p
χ^2	52.3	3	< .001
N	500		

For the gender of the respondents, the pattern observed here shows that in case of moderate mental health level there are almost equivalent numbers of respondents who are male and female. For poor mental health, with 66.9%, the number of female students belonging to this category are significantly more. In the next category, an equivalent number of male and female students found to be suffering from very poor mental health levels. But interestingly, for the extremely poor mental health category, there are 97.6% males observed. This shows that the number of students who are having the lowest level of mental health condition are majorly male students. The chi-square test results generating a value of less than 0.05 also indicates that the pattern shown here where male students are found to be majorly in the extremely poor mental health category is statistically significant. Similarly, there are chances that female students who are majorly found in the poor mental health category have higher chances of being converted into moderate levels of mental health through proper guidance.

Contingency Tables

		School Type		
Mental Health Score		**Private**	**Gov**	**Total**
Moderate Mental Health	Observed	85	82	167
	% within row	50.9 %	49.1 %	100.0 %
Poor Mental Health	Observed	82	42	124
	% within row	66.1 %	33.9 %	100.0 %
Very Poor Mental Health	Observed	83	84	167
	% within row	49.7 %	50.3 %	100.0 %
Extremely Poor Mental Health	Observed	0	42	42
	% within row	0.0 %	100.0 %	100.0 %
Total	Observed	250	250	500
	% within row	50.0 %	50.0 %	100.0 %

χ^2 Tests

	Value	**df**	**p**
χ^2	55.0	3	< .001
N	500		

In the case of the school type, it is seen that for the category of extremely poor mental health, there are hundred percent students who belong to government schools. Why for the categories of very poor and moderate mental health, the distribution among private and government school students are almost equal, for the category of poor mental health, the score is significantly high for private school students. There are high chances that this section of major private school students can be taken to the stage of moderate mental health. But the concern is high for the government school students who are showing extremely poor levels of mental health. With a significant association established through the chi-square tests, the need to implement reformation programs and awareness on mental health in government schools become very crucial.

4.4 Impact of Internet Addiction on Mental Health of the Adolescents

A multiple linear regression is conducted to identify the impact of internet addiction on mental health of the respondents. For this purpose, the internet addiction scores are used as the independent variable and regression models are generated with mental health score of the respondents as the dependent variable. The regression models are shown and interpreted below.

Model Fit Measures

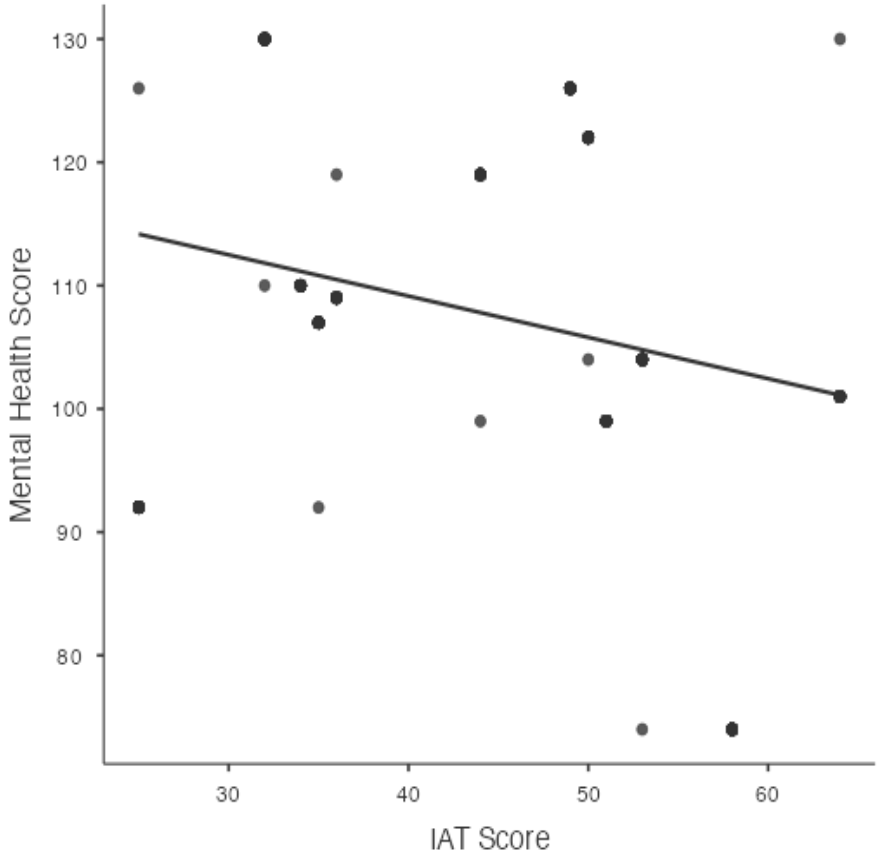
				Overall Model Test			
Model	**R**	**R^2**	**Adjusted R^2**	**F**	**df1**	**df2**	**p**
1	0.253	0.0639	0.0620	34.0	1	498	< .001

Model Coefficients - Mental Health Score

Predictor	**Estimate**	**SE**	**t**	**p**
Intercept	122.546	2.6225	46.73	< .001
IAT Score	-0.335	0.0575	-5.83	< .001

IAT represent the Internet Addiction Test scores

The first regression model shows that with a p-value of less than 0.05 it is statically significant. The adjusted R^2 shows that with a value of 0.0620, there is a change of 6.20% in mental health levels of the respondents with an unit change in the internet addiction levels. The model co-efficient table shows that this variance caused on mental health of the respondents by internet addiction scores is negative. This means that with an generated estimate of 0.335, there is a significant negative impact on mental health levels of the respondents based on the increase of internet addiction levels. The scatter plot for the two variables are shown below.



The results of the study here clearly shows that there is an association observed among the internet addiction levels of the adolescents on the mental health that they are undergoing at present. A detailed discussion on the same is shown below

Discussion

The investigation conducted in this particular study has led to highlighting certain areas of Internet addiction that are most crucial in case of adolescents. Firstly, the study reveals that there are 50% students who can be termed as having moderate levels of internet addiction followed by 42% which have mild levels of addiction. There are only 8% students who fall in the normal usage of the internet category. The number of students in each of the categories is able to portray the picture that adolescents do show mild to moderate addiction levels. This is in concordance with the results provided by (Yusuf et al., 2022) who also is able to show a similar pattern in this category of children. It is seen that for the moderate level internet addiction users, the majority are female with 50.2% of the total students in the category. In case of mild level addiction, the percentage of females further increase to 59.8% in comparison to 40.2% males. For the normal level of internet usage, it is interesting to note that 100% respondents here are males. This clearly shows that the number of students who are highly likely to be addicted to the internet are female students. The gender based differences are quite evident in the results here and these are in line with the findings by (Ha & Hwang, 2014; Li et al., 2019; Yen et al., 2009) who mentioned that internet addiction levels in adolescents are based on their gender. The analysis of the type of school and its categorisation in the internet addiction scale shows that for moderate levels of addiction, there are 66.7% government school students in comparison to 33.3% private school students. For mild levels of addiction, there are more private school students with 59.8%. For the normal use of the internet, all the students belong to the private sector schools. This is also similar to the suggestions by (Ying Ying et al., 2020) and confirms the following of a similar approach.

For the mental health scale, it is seen that there is a tie between the highest number of respondents. With 33.4%, there are an equal number of respondents observed in the moderate mental health category and very poor mental health category. There are 24.8% who are in a poor mental health level and the remaining 8.4% are in extremely poor mental health conditions. The results show that students considered here are very rarely in a moderate level of mental health. Majority are suffering from poor mental health and overall the situation is not good. For poor mental health, with 66.9%, the number of female students belonging to this category are significantly more. In the next category, an equivalent number of male and female students found to be suffering from very poor mental health levels. But interestingly, for the extremely poor mental health category, there are 97.6% males observed. In this case as well gender based differences are observed which are similar to the results of the study by (Priess et al., 2009). In the case of the school type, it is seen that for the category of extremely poor mental health, there are hundred percent students who belong to government schools. While for the categories of very poor and moderate mental health, the distribution among private and government school students are almost equal, for the category of poor mental health, the score is significantly high for private school students.

The impact of internet addiction on mental health of the children is found to be significant but negative which coincides with the findings by (Trumello et al., 2021; Xiuqin et al., 2010; Zewude et al., 2024) and reveals the bad influence of the same on the shaping of the mental health. Overall it can be stated the results being generated are similar to previous studies and confirms the presence of these aspects when talking about internet addiction impacting on the mental health of adolescents.

Conclusion

The importance of mental health awareness and especially in the age group such as adolescence, is quite essential in the present times. It is due to the increased level of Internet usage that children in this age group are continuously exposed to different content which can have a significant impact on their mental well-being. It is hereby necessary to understand the problematic areas related to the same and investigate the ways in which the best aspects for these children can be achieved. The study here has been able to highlight a number of areas where the impact is found to be more than the other and the level of impact that addiction can lead to. It is due to the increased awareness among the parents that this issue can be resolved by identifying the symptoms at an initial stage and undertaking the best practices. The dynamic nature of this study has been able to portray a holistic picture about the situation in hand.

There are several future research implications that can be drawn from this study. It includes conducting qualitative analysis of similar kind to be able to pin point the exact areas of difficulties. To elaborate the span of internet addiction and specifying each type of addiction with the mental health level. Moreover, the understanding about the overall well-being while battling internet addiction among the adolescents could generate interesting results.

References

1. Bagheri Sheykhangafshe, F., Alizadeh, D., Savabi Niri, V., Asgari, F., & Ghodrat, G. (2021). The role of internet addiction, mindfulness and resilience in predicting students' mental health during the

coronavirus 2019 pandemic. *Quarterly Journal of Child Mental Health*, *8*(3), 1-14.

2. Berte, D. Z., Mahamid, F. A., & Affouneh, S. (2021). Internet addiction and perceived self-efficacy among university students. International Journal of Mental Health and Addiction, 19(1), 162-176.
3. Duan, L., Shao, X., Wang, Y., Huang, Y., Miao, J., Yang, X., & Zhu, G. (2020). An investigation of mental health status of children and adolescents in china during the outbreak of COVID-19. Journal of affective disorders, 275, 112-118.
4. El Asam, A., Samara, M., & Terry, P. (2019). Problematic internet use and mental health among British children and adolescents. Addictive behaviors, 90, 428-436.
5. Gorgich, E. A. C., Moftakhar, L., Barfroshan, S., & Arbabisarjou, A. (2018). Evaluation of internet addiction and mental health among medical sciences students in the southeast of Iran. Shiraz E Medical Journal, 19(1).
6. Ha, Y.-M., & Hwang, W. J. (2014). Gender Differences in Internet Addiction Associated with Psychological Health Indicators Among Adolescents Using a National Web-based Survey. *International Journal of Mental Health and Addiction*, *12*(5), 660–669. https://doi.org/10.1007/s11469-014-9500-7
7. Hu, Y. Y., Wang, P., Wang, X. Q., & Hu, T. Q. (2021). Relationship between psychological suzhi and internet addiction among chinese college students. Journal of Systems and Information Technology.
8. Hassan, T., Alam, M. M., Wahab, A., & Hawlader, M. D. (2020). Prevalence and associated factors of internet addiction among young adults in Bangladesh. Journal of the Egyptian Public Health Association, 95(1), 1-8.
9. Ibrahim, R. H., Ghanim, A. K., & Alkhaderjameel, H. A. (2020). Impact of electronic games on the behavior of children and their academic achievement upon schools in Mosul city. *Indian J. Foren. Med. Toxicol*, *14*(1), 375.
10. Karaca, S., Karakoc, A., Can Gurkan, O., Onan, N., & Unsal Barlas, G. (2020). Investigation of the online game addiction level, sociodemographic characteristics and social anxiety as risk factors for online game addiction in middle school students. Community Mental Health Journal, 56(5), 830-838.
11. Lebni, J. Y., Toghroli, R., Abbas, J., NeJhaddadgar, N., Salahshoor, M. R., Mansourian, M., ... & Ziapour, A. (2020). A study of internet addiction and its effects on mental health: A study based on Iranian University Students. Journal of Education and Health Promotion, 9.
12. Li, Q., Dai, W., Zhong, Y., Wang, L., Dai, B., & Liu, X. (2019). The Mediating Role of Coping Styles on Impulsivity, Behavioral Inhibition/Approach System, and Internet Addiction in Adolescents From a Gender Perspective. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.02402
13. Lin, M. P. (2020). Prevalence of internet addiction during the COVID-19 outbreak and its risk factors among junior high school students in Taiwan. International journal of environmental research and public health, 17(22), 8547.
14. Priess, H. A., Lindberg, S. M., & Hyde, J. S. (2009). Adolescent Gender-Role Identity and Mental Health: Gender Intensification Revisited. *Child Development*, *80*(5), 1531–1544. https://doi.org/10.1111/j.1467-8624.2009.01349.x
15. Prochnow, T., Patterson, M. S., & Hartnell, L. (2020). Social support, depressive symptoms, and online gaming network communication. Mental Health and Social Inclusion.
16. Romero-Rodríguez, J. M., Marín-Marín, J. A., Hinojo-Lucena, F. J., & Gómez-García, G. (2022). An explanatory model of problematic Internet use of Southern Spanish university students. Social Science Computer Review, 40(5), 1171-1185.
17. Trumello, C., Vismara, L., Sechi, C., Ricciardi, P., Marino, V., & Babore, A. (2021). Internet Addiction: The Role of Parental Care and Mental Health in Adolescence. *International Journal of Environmental Research and Public Health*, *18*(24), 12876. https://doi.org/10.3390/ijerph182412876
18. Xiuqin, H., Huimin, Z., Mengchen, L., Jinan, W., Ying, Z., & Ran, T. (2010). Mental health, personality, and parental rearing styles of adolescents with Internet addiction disorder. Cyberpsychology, Behavior, and Social Networking, 13(4), 401-406.
19. Xiuqin, H., Huimin, Z., Mengchen, L., Jinan, W., Ying, Z., & Ran, T. (2010). Mental Health, Personality, and Parental Rearing Styles of Adolescents with Internet Addiction Disorder. *Cyberpsychology, Behavior, and Social Networking*, *13*(4), 401–406. https://doi.org/10.1089/cyber.2009.0222
20. Yen, C., Ko, C., Yen, J., Chang, Y., & Cheng, C. (2009). Multi-dimensional discriminative factors for Internet addiction among adolescents regarding gender and age. *Psychiatry and Clinical Neurosciences*, *63*(3), 357–364. https://doi.org/10.1111/j.1440-1819.2009.01969.x
21. Ying Ying, C., Awaluddin, S. M., Kuang Kuay, L., Siew Man, C., Baharudin, A., Miaw Yn, L., Sahril, N., Omar, M. A., Ahmad, N. A., & Ibrahim, N. (2020). Association of Internet Addiction with Adolescents' Lifestyle: A National School-Based Survey. *International Journal of Environmental Research and Public Health*, *18*(1), 168. https://doi.org/10.3390/ijerph18010168

22. Yusuf, Ah., Rachmawati, P. D., & Rachmawati, D. (2022). The correlation of Internet addiction towards adolescents' social interaction. *International Journal of Adolescent Medicine and Health*, *34*(5), 351–355. https://doi.org/10.1515/ijamh-2020-0110
23. Zewude, G. T., Bereded, D. G., Abera, E., Tegegne, G., Goraw, S., & Segon, T. (2024). The Impact of Internet Addiction on Mental Health: Exploring the Mediating Effects of Positive Psychological Capital in University Students. *Adolescents*, *4*(2), 200–221. https://doi.org/10.3390/adolescents4020014
24. Zhou, M., Zhu, W., Sun, X., & Huang, L. (2022). Internet addiction and child physical and mental health: Evidence from panel dataset in China. Journal of Affective Disorders, 309, 52-62.