

Determinants of Problematic Internet Use among Secondary School Students at Zagazig City

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Abstract:

Background: The internet has become an important tool for social interaction, information, and entertainment; particularly among adolescents. **Aim of the study :** was to assess determinants of problematic internet use among secondary school students at Zagazig City. **Subjects & Methods: Research design:** A cross-sectional descriptive design was utilized. **Setting:** four secondary schools (El-Zagazig for girls, Sheba, Zagazig Hotellery, and New Commerce) affiliated to Zagazig City. **Subjects:** a sample of 500 randomly selected students **Tools of Data collection:** Tool (1): Questionnaire composed of three parts; general characteristics, questions about internet using and Young Internet addiction test (YIAT). Tool (2): Strengths and Difficulties Questionnaire (SDQ). Tool (3): Personality test. **Results:** The present study revealed that the prevalence of problematic internet use (PIU) and potential PIU were 5% and 95% respectively among the studied subjects. Poor family relations, accessibility of internet, mobiles, and prolonged periods of using internet were the most contributing risk factors of PIU. **Conclusion:** PIU is not rare among secondary school students and there were many adverse consequences of prolonged use of internet as poor academic achievement. **Recommendations:** Strengthen preventive efforts for reducing PIU and related consequences among adolescents through giving health education in schools about disadvantages of prolong duration of internet use.

Keywords: Problematic internet use, Internet addiction, Secondary school students, Zagazig city.

Introduction:

The number of internet users is continuing to increase in both developing and developed countries ⁽¹⁾. The latest International Telecommunication Union (ITU) report in 2014, around 44% of the world's households has internet access ⁽²⁾. According to the Internet World Statistics [IWS] (2015), there were an estimated number of 48,300,000 internet users in Egypt in Dec 31, 2014. The reported penetration rate was 54.6%, and in general, that of the Africa was 14.6 % ⁽³⁾

Adolescents have embraced the internet as a tool providing multiple options and unique opportunities for communication, education, and entertainment. While most adolescents use the internet without significant problems, some report dysfunctional ways of using the internet ⁽⁴⁾.

The internet plays a particularly important role in social relationships among adolescents ⁽⁵⁾, and the negative consequences of internet use are being reported at increasingly early ages ⁽⁶⁾.

Worldwide, particularly among adolescents the prevalence of problematic internet use (PIU) has been observed to range between 0.9% and 38% ⁽⁷⁾. Adolescents are among the internet's most avid users ⁽⁸⁾. Adolescence is a critical period for the development of various health risk behaviors. The emergence of problematic internet use is of particular concern during adolescence ⁽⁹⁾

Problematic internet use (PIU), categorized as a behavioral addiction, is defined as an individual's inability to control his or her internet use, and this addiction may lead to serious impairments in psychological and social functioning and poor school functioning ⁽¹⁰⁾.

Nurses who work in schools and community setting can engage in screening and early nursing intervention with high risk teenagers to promote adaptive responses and prevent the development of future problems and can teach coping skills that can promote

healthy adaptation and integrated adult functioning⁽¹¹⁾.

Significance of the study:

In the 21st century, the Internet has become a 'universal enabler' of everyday life. However, the omnipresence of this phenomenon could have a double-edged sword impact in people's lives. Its excessive use causes various problems. Problematic Internet Use (PIU), which is a kind of technological addiction, is one of these problems. In recent years, PIU has become a fact that becomes widespread very fast and affects the academic, interpersonal, financial and professional lives of people negatively. Adolescents are particularly susceptible to PIU or internet addiction due to characteristics associated with this developmental period, including the need for self-realization and difficulties in interpersonal relationships. Also they usually have poorer self-control, worse self-regulation, and poorer cognition than adults.

In Egypt, The number of adolescents aged from 10 to 19 years old reached nearly 16.156 million in 2013 (19.09 % of the country's population)⁽¹²⁾. On the other hand more than 50% of the internet users are secondary students, either lower secondary level (include preparatory and vocational education), or upper secondary level (include general secondary and technical secondary education beside institutional educational level). Therefore, the current study conducted to assess determinants of problematic internet use among secondary school students at Zagazig City.

Aim of the study:

The present study aimed to assess determinants of problematic internet use among secondary school students at Zagazig City.

Research Questions:

1. What is the prevalence of problematic internet use among secondary school students at Zagazig City?
2. What are the psychosocial and emotional characteristics of secondary school students with

problematic internet use at Zagazig City?

3. What are the risk factors of problematic internet use among secondary school students at Zagazig City?

Subjects and method:

Research Design:

A cross-sectional descriptive design was used to conduct the present study.

Study Setting:

The study was conducted in two general secondary schools (Sheba and El-Zagazig for girls) and two technical secondary schools (Zagazig Hotellery and New Commerce) randomly selected from Zagazig city schools.

Study Subjects:

The study comprised 500 students randomly selected and attending secondary schools in Zagazig city during the time of the study and fulfilled the following inclusion criteria:

- Age ranged from 15 to 17 years old.
- Using the internet.

Tools of data collection:

Tool (1): Interview questionnaire composed of three parts to collect data about:

Part I: Socio-demographic data: such as:

- General characteristics of studied subjects: such as age, sex, school type, grade, residence, birth order and siblings.
- Family data such as: Parent's educational level and occupation.
- Socio-economic data: Crowding index, family income, home utilities and media at home.
- Personal data such as: Sport practicing, favourite hobbies, number of friends, relationships with parents, classmates and teacher.

Part II: Internet use: Developed by the researcher to collect data about internet use such as: duration of daily internet use, purpose of internet use and years of internet use ... etc.

Part III: Young Internet addiction test

(YIAT): Internet Addiction Test is a reliable and valid measure of addictive use of internet, developed by Kimberly⁽¹³⁾. includes 20 items measures mild, moderate and severe level of internet Addiction, each of which is rated on a six point likert scale: does not apply (0), rarely (1), occasionally (2), (3), often (4), and always (5). The YIAT is widely used, and it has a high degree of validity. Reliability test for Young Internet addiction test was done, using Cronbach's alpha that measured degree of reliability. It was 0.92. YIAT was translated into Arabic. The third YIAT item " How often do you prefer the excitement of the Internet to intimacy with your partner? Was translated to " How often do you prefer the excitement of the Internet to meeting friends and loved ones? ". It is noted worthy due to cultural reasons.

Scoring system:

Total up the scores for each item. The higher score, the greater level of addiction is.

- ✓ Normal user: Less than 20 points.
- ✓ Mild: 20 - 49 points.
- ✓ Moderate: 50 - 79 points.
- ✓ Severe or problematic internet use: 80 - 100 points .

In the current study; Potential Problematic Internet Use included: [mild level and moderate level]. Problematic Internet Use [severe level].

Tool (2): Strengths and Difficulties Questionnaire (SDQ): was utilized to assess participant's emotional and psychosocial characteristics. It also has served as a validated tool for evaluating the emotional and psychosocial difficulties of adolescents. It consists of 25 items with three possible responses: not true (0), somewhat true (1) and certainly true (3). The Cronbach's alpha of SDQ was 0.80. SDQ comprised the following 5 subscales: Emotional symptoms, Conduct problems, Hyperactivity, Peer problems and Prosocial behavior.

Scoring of the five components of SDQ: Emotional symptoms score :(Normal: 0-5; Borderline: 6; Abnormal: 7-10). Conduct problems score: (Normal: 0-3; Borderline: 4; Abnormal: 5-10). Hyperactivity score: (Normal: 0-5; Borderline: 6; Abnormal: 7-10). Peer problems score: (Normal: 0-3; Borderline: 4-5; Abnormal: 6-10). Prosocially behavior score: (Normal: 6-10; Borderline: 5; Abnormal: 0-4).

The total difficulties score:

With the exclusion of the prosocial scale, the sum of the remaining SDQ components scores was derived to generate the Total Difficulties Score (Normal: 0-15; Borderline: 16-19; Abnormal: 20-40) .

Tool (3): Personality test: Developed by Goldberg⁽¹⁴⁾. It consists of 50 items to measure the big five personality traits (Extraversion, Agreeableness, Conscientiousness, Emotional stability [Neuroticism] and Intellect [Resourcefulness] or "Openness to Experience") with five possible responses: disagree (1), slightly disagree (2), neutral (3), slightly agree (4) and agree (5) and was translated.

Scoring system:

For + keyed items, the response " disagree " is assigned a value of (1), " slightly disagree " a value of (2), " neutral " a value of (3), " slightly agree " a value of (4) and " agree " a value of (5).

For - keyed items, the response " disagree " is assigned a value of (5), " slightly disagree " a value of (4), " neutral " a value of (3), " slightly agree " a value of (2) and " agree " a value of (1).

- High when the score of every trait is $\geq 60\%$.
- Low when the score of every trait is $< 60\%$.

Content validity & Reliability:

The tools were revised by a three panel of experts. One professor of community health nursing, Professor of public health, Faculty of Medicine and professor of psychology at the Faculty of Education who conducted content validity

of all the items of these tools. All recommended modifications were performed. YIAT and Personality test scales were translated into Arabic using the translate-back-translate technique to ensure their original validity.

Field work:

Once permission was granted to proceed with the study, the researcher explained the study aim and procedures, as well as data collection forms to the directors of the four selected schools then the researcher introduced herself to students in classrooms, and the purpose and the nature of the study were explained. The students were asked to fill in the questionnaire sheet under the guidance of the researcher after taken their oral approval. The student took about 30 to 40 minutes for answering the questions. Work continued for two and sometimes three days per week (Sunday, Tuesday, and Thursday). The field work of this study extended from February 2015 to the end of April 2015.

Pilot study:

A pilot study was conducted on 10% of students to estimate the time required for filling the sheet, and to evaluate the applicability of the tools. The students involved in the pilot study were excluded from the main study sample.

Administrative and Ethical considerations:

Official permissions were obtained from the Education Directorate at Zagazig city based on letters from the post graduate affairs, faculty of nursing explaining the aim of the present study. The General Director referred the researcher to the directors of the selected schools with approval letters. Then the researcher met with each of them and explained the aim of the study and the nature of tool used for data collection. The researcher gave the director of each school a copy of the tool and the formal letters.

Prior to embarking on the study, ethical approval was obtained from the Scientific Research Ethics Committee at the Faculty of Nursing, Zagazig University. At interview, each subject was informed about the purpose of the study and their

participation is voluntary and they have the right to withdraw from the study at any time without giving any reason. In addition, confidentiality and anonymity of the subjects were assured through coding of all the data.

Statistical analysis:

The collected data was organized, categorized, tabulated, and analyzed by using the computer software (Statistical Package for Social Science [SPSS] version 19). Suitable descriptive statistics were used such as number and percentage, while Mont Carlo exact probability was used to detect the relations between variables. The P Value ≤ 0.05 was considered as statistically significant.

Results:

The study sample of students consisted of 59.4% females and 40.6% male with mean age 16.4 ± 0.6 years, as seen in **Table (1)**. Slightly less than two thirds (63.4%) of the students were at general schools, in second grade, from rural areas and belonged to middle social class (61.2%, 61.2% and 57% respectively).

According to **Figure (1)**: the prevalence of problematic internet use among the studied subjects was 5% while the majority (95%) of them was classified as potential problematic internet users.

Table (2): shows a statistically significant relation between Conduct Problems subscale of Strengths and Difficulties Questionnaire and level of Internet addiction among the studied subjects (P value = 0.001), Where 64% of problematic internet users were abnormal compared to 21.1% of students classified as potential problematic internet users. Also, a statistically significant relationship was found between prosocial behavior and level of internet addiction among the studied subjects (P value=0.001), Where 36% of problematic internet users were normal compared to 81.9% of students classified as potential problematic internet users.

Table (3): shows a statistically significant relation between all features of

internet use and levels of internet addiction among the studied subjects.

Table (4): reveals that there was a statistically significant relation between hours of internet daily use, hours of internet use/weekends days and total hours of internet use per week and the problematic internet use (P value = 0.001).

Table (5): indicates a statistically significant relationship between levels of internet addiction and all the students' relations (parent, parent-adolescent, classmates and teachers). Also there was a statistically significant difference between stress related to studying and levels of internet addiction among students (P value = 0.001).

Table (6): shows a statistically significant relation between intellect as a personality trait and levels of internet addiction among the studied subjects (P value = 0.024), where 95.2% of potential problematic internet users compared to 4.8% of problematic internet users had low intellect.

Discussion:

Internet is developing fast and its cost is becoming cheaper which lead to rapid increase in the number of people using such technology. Although internet provides miscellaneous benefits for the users, it also causes them to encounter certain difficulties. Particularly, those young people, who spend most of their time on the internet because of such personal and social problems as having low satisfaction from life, having social anxiety, not being able to communicate or establish relationships and feeling lonely. This could lead to internet addiction in young people Yilmaz⁽¹⁵⁾.

Regarding age and sex, the present study results revealed that the mean age of students was 16.4 ± 0.6 years and more than half of the students were females. This finding may be attributed to that increase the number of female students in the selected schools than male students.

As for prevalence of problematic internet use (PIU), the present study findings indicated that there was not any normal user of internet. The prevalence rate of PIU among adolescents was 5%, which is closely related to that reported by other studies of internet use among students worldwide where PIU was 4% in South Korea Lee et al⁽¹⁶⁾, 4.6% in Australia Thomas et al⁽¹⁷⁾, 4% in USA Liu et al⁽¹⁸⁾, and 4.2% in Lebanon Hawi⁽¹⁹⁾. But the current study is higher than 2.6% in El-Minia, Egypt Kamal et al⁽²⁰⁾. On the other hand, the international prevalence rates of PIU varies widely from 0.9% to 38% among adolescents Weinstein et al⁽²¹⁾.

This finding might be attributed to that internet users are at an enhanced risk for developing PIU due to the increase in computers and the universal application of the internet have brought great convenience to adolescents for recreational and academic use. In addition, Egyptians are importers of technology and not manufacturers, obsessed with its use and all students enrolled in the current study were in the first and second grade, not a certificate. Also, the availability of internet access through mobile phones.

The comparison of prevalence data is complicated due to marked international variances regarding the prevalence rates of PIU which may be also attributed to a measurement bias incurred by a lack of international consistency regarding both the definition and assessment of PIU, Byun et al⁽²²⁾.

Concerning psychosocial and emotional characteristics of secondary school students with problematic internet use, the current study findings revealed that a statistically significant relationship was found between PIU and conduct problems. It is important to note that the likelihood of conduct problems was more than three times greater among adolescents with PIU as compared to those with potential PIU. The present study finding is in the same line with that of Kormas et al.⁽⁷⁾ in Greece, who found

that PIU is associated with an enhanced likelihood of conduct problems.

The concomitant occurrence of conduct problems and PIU might be attributed to that adolescents with PIU tend to adopt more aggressive behaviors as stated by Kim et al. ⁽²³⁾. Moreover, previous findings in Iranian high schools have indicated that conduct problems among youth with PIU may be proximally associated with increased social isolation and impaired communication skills as reported by Ghassemzadeh et al. ⁽²⁴⁾. In addition, adolescents may counteract their possible real world social isolation with increased use of cyber communication and socialization platforms through the internet.

Concerning emotional symptoms, the present study results found that there was not a statistically significant relationship between PIU and emotional symptoms. Congruently Kormas et al. ⁽⁷⁾ in Greece indicated that neither potential PIU nor PIU among adolescents were significantly associated with emotional maladjustment. On the other hand, the finding contrast those established in the literature indicating that emotional symptoms such as depressive and anxiety symptoms have been associated with PIU, Kratzer et al and Petersen et al ^(25,26). This can be attributed to difference in culture between countries. Egyptians (adolescents) have a strong relationship with God, which plays an important role in coping with emotional symptoms and psychological challenges, and they believe that God is the foremost and the ultimate to refer to whenever feel pains.

The current study findings indicate that PIU was associated with notable emotional and psychosocial maladjustment (conduct problems and abnormal prosocial behavior) among adolescents. This finding which was found statistically significant might be explained by that such internet behaviors may constitute an escape mechanism for adolescents to temporarily relieve and/or escape from emotional and behavioral difficulties. This can be supported by Schroevers et al. ⁽²⁷⁾ who stated that difficulties accumulated in real-life might

contribute to IA because internet provides an escape for the individual from stressful life events. Therefore, adolescents may use the internet excessively in order to cope with emotional turmoil. Consequently, PIU may compound pre-existing psychosocial symptomatology present among adolescents Kormas et al ⁽⁷⁾.

As regard risk factors of problematic internet use among secondary school students, number of hours spent on-line per day, the current study results revealed that PIUs spent 9 hours on-line/day. This finding was in the same line with Wang et al. ⁽²⁸⁾ in China who found that school students who spent more than 8 hours a day on-line had a higher probability of developing PIU. The current study results can be explained by that internet addicted users have to spend increasing amounts of time on the internet to achieve the desired effect.

As regards total hours spent online per week, the results of present study showed that the average weekly hours of internet utilization (73 hour) (frequent internet use) has been found to be a significant risk factor of PIU. Likewise, Young ⁽²⁹⁾ publication in USA asserted that those with IA can spend 40 to 80 hours per week on compulsive behaviors. Xu et al. ⁽¹⁾ conducted a study in Shanghai, China and found that adolescents who spent >28 hours, 21 to approximately 28 hours, 14 to 21 hours or 7 to 14 hours online per week were more likely to develop IA than adolescents who spent <7 hours.

The current study finding can be rationalized by Tahiroglou et al. ⁽³⁰⁾ who found, the internet has certain characteristics that promote disinhibition which can encourage greater disclosure, less restraint and greater expressiveness. These characteristics also include easy access, autonomy, timelessness and visual stimulation.

As regards the relation between hours spent online on weekends and PIU, the present study findings revealed that PIUs spent an average of 14 hours on-line per weekend with a statistically significant relationship. Previous studies by Jang et al. ⁽³¹⁾; Flisher ⁽³²⁾ have shown that

spending excessive hours online was strongly related to internet addiction.

In the same context, a study conducted in Shanghai, China by Xu et al.⁽¹⁾ to explore the prevalence of IA and associated symptoms and identify potential predictors related to personal characteristics, found that addiction was associated with more hours online on weekends or on weekdays, more addicts were found to spend 8 hours or more online per weekend than per weekday, suggesting that excessive weekend internet-use was a more important predictor for IA. The current study finding can be explained by that adolescents had plenty of leisure time on weekends, lack of supervision, so they choose to spend their free time online.

In relation to access the internet anywhere, The results of the current study revealed that nearly all students with PIU had the ability to access the internet anywhere, accessed it daily and used mobiles for surfing the internet with a statistically relationship. This finding can be rationalized by Lenhart et al.⁽⁶⁾ who stated that widespread internet accessibility appeared to be a risk factor for being addicted to the internet. In the current ubiquitous media environment, it appears that adolescents make increasing use of the internet on the go, anytime and anywhere. The ever-increasing numbers of adolescents with access to mobile internet technology via smart phones, laptops and tablets appears as potential explanation for the discerned problems related to internet use.

Concerning Family, the current study results indicated a statistically significant relation between PIU and bad family relations. In Egypt, this finding is in agreement with Kamal and Mosallem⁽²⁰⁾ who found that PIU was significantly associated with poor family relations among adolescents. This can be explained by that; adolescent's family dissatisfaction often leads to a lack of obedience to parent's orders. Şenormancı et al.⁽³³⁾ in Turkey who indicated that internet addiction can disturb family functioning or that disturbed family functioning can lead to internet addiction.

With regard to school-related risk factors, the present study showed a statistically significant relationship between students' stress related to studying & bad teacher's relationships and PIU. These findings are partly consistent with Wang et al.⁽²⁸⁾ in China who found that students with study-related stress and poor classmate relationships had a higher probability of PIU. The present study finding can be rationalized by Milani et al.⁽³⁴⁾ who suggested that low quality interpersonal relationships can expose adolescents to an increased risk of developing PIU.

As revealed by the current findings it found that entertainment was one of the most internet activities ranked second after communication might be considered a risk factor of PIU. Similarly Wang et al.⁽³²⁾ in China found that entertainment such as gaming activities increased at the moderate level and reached its peak at the severe level.

As regards relationship between personality traits and PIU, personality traits linked to internet addiction. The present study results clarified a statistically significant relation between PIU and low intellect. Similarly, Kuss et al.⁽³⁵⁾ conducted study in Netherlands and found that low resourcefulness predicted IA in the adolescent. In the contrary the results of the study conducted in Taiwan by Ko et al.⁽³⁶⁾ indicated that increased novelty seeking which is part of openness to experience is linked to internet addiction in students. The present study result might be due to that in our community adolescents are rarely encouraged to be creative, critical thinkers.

The progression from daily internet use to compulsive internet usage is related to low extraversion, agreeableness and emotional stability, van et al.⁽³⁷⁾. Regarding extraversion, previous study in China indicated that adolescent internet addicts score significantly lower on extraversion compared to non-addicted adolescents Huang et al.⁽³⁸⁾. Extraverts appear to use internet especially social networking sites (SNSs) for social

enhancement, Ross et al⁽³⁹⁾. This can be explained by that internet especially social networking sites may appear beneficial for those whose real-life networks are limited because of the possibility of easy access to peers without the demands of real-life proximity and intimacy.

In summary, low emotional stability, low agreeableness, and low extraversion seem convincing candidates for increasing the risk of internet addiction. This finding may be due to that the high degree of being anxious, irritable, touchy, nervous, fearful and high-strung lead to increase the adolescent' need for staying connected and socializing with their communities to cultivate their online and offline contacts.

Conclusion:

The majority of students were having computers and most of them accessed the internet at homes. The prevalence of PIU (experienced significant problems due to the internet usage) was 5% and the rest of the students were potential PIUs. Poor family relations, accessibility of internet, mobiles and prolonged periods of using internet were the most contributing risk

factors of PIU. PIU was significantly associated with conduct problems and prosocial behavior of SDQ and low intellect as a personality trait.

Recommendations:

1. Early detection through applying internet addiction test at schools in line with health appraisal process.
2. Strengthen preventive efforts for reducing PIU and related consequences among adolescents through giving health education in schools about disadvantages of prolong duration of internet use
3. Strengthen emotional and psychosocial characteristics of adolescent through Friendship Training, Human Relations Skills Training and Social Skills Training.
4. Further studies are needed to develop a clearer concept & terminology for PIU and a standard tool or tools to measure PIU.

Table 1: Demographic characteristics of the studied subjects (n=500)

Characteristics	No.	%
Age (years):		
▪ 15-	33	6.6
▪ 16-17	467	93.4
Mean ± SD	16.4 ± 0.6	
Sex:		
▪ Male	203	40.6
▪ Female	297	59.4
Residence:		
▪ Rural	306	61.2
▪ Urban	194	38.8
School:		
▪ General	317	63.4
▪ Technical	183	36.6
Grade:		
▪ First	194	38.8
▪ Second	306	61.2
Social class:		
▪ Low	122	24.4
▪ Middle	285	57
▪ High	93	18.6

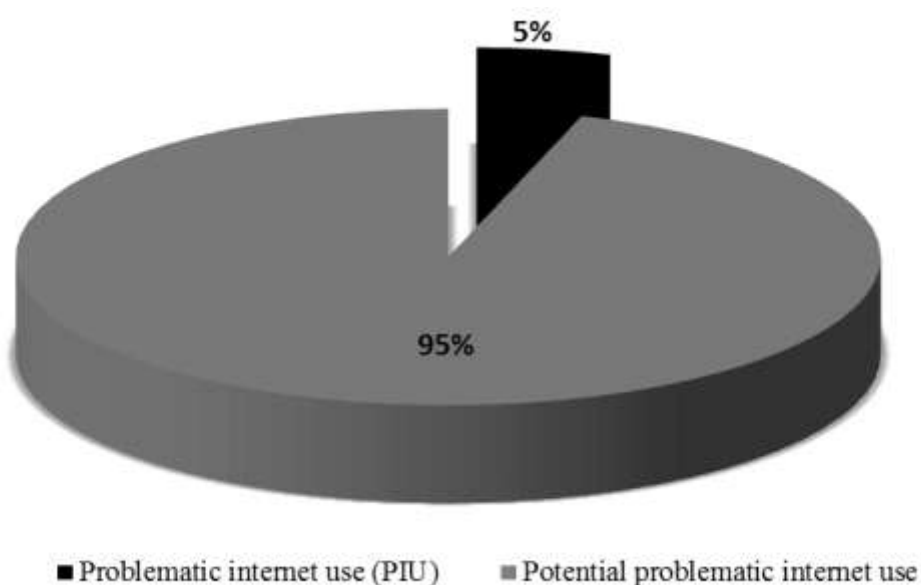
**Figure 1:** Prevalence of Problematic Internet Use among the studied subjects (n=500)

Table 2: Likelihood of Strengths and Difficulties Questionnaire according to the level of internet addiction (n=500)

Strengths and Difficulties	Levels of internet addiction (ID)				MCP
	Potential Problematic Internet Use		Problematic Internet Use		
	No.	%	No.	%	
Emotional Symptoms:					
▪ Normal	258	54.3	13	52	0.499
▪ Borderline	70	14.7	2	8	
▪ Abnormal	147	30.9	10	40	
Conduct Problems:					
▪ Normal	249	52.4	4	16	0.001*
▪ Borderline	126	26.5	5	20	
▪ Abnormal	100	21.1	16	64	
Hyperactivity:					
▪ Normal	242	50.9	11	44	0.319
▪ Borderline	109	22.9	9	36	
▪ Abnormal	124	26.1	5	20	
Peer Problems:					
▪ Normal	109	22.9	2	8	0.069
▪ Borderline	200	42.1	16	64	
▪ Abnormal	166	34.9	7	28	
Prosocial behavior:					
▪ Normal	388	81.9	9	36	0.001*
▪ Borderline	52	11	7	28	
▪ Abnormal	34	7.2	9	36	
Total SDQ:					
▪ Normal	107	22.5	3	12	0.104
▪ Borderline	148	31.2	5	20	
▪ Abnormal	220	46.3	17	68	

MCP: Mont Carlo exact probability

* P ≤ 0.05 (significant)

Table 3: Relation between features of internet use and level of internet addiction among the studied subjects (n=500)

Internet use	Levels of internet addiction (ID)				MCP
	Potential Problematic Internet Use		Problematic Internet Use		
	No.	%	No.	%	
Internet access at home:					
▪ No (n= 95)	94	98.9	1	1.1	0.005*
▪ Yes (n= 405)	381	94.1	24	5.9	
Accessibility of internet anywhere:					
▪ No (n= 285)	114	100	0	0.0	0.005*
▪ Yes (n= 386)	361	93.5	25	6.5	
Using mobile for internet:					
▪ No (n= 78)	78	100	0	0.0	0.001*
▪ Sometimes (n= 272)	268	98.5	4	1.5	
▪ Always (n= 150)	129	86	21	14	
Daily use of internet:					
▪ No (n= 236)	236	100	0	0.0	0.001*
▪ Yes (n= 264)	239	90.5	25	9.5	

MCP: Mont Carlo exact probability

* P ≤ 0.05 (significant)

Table 4: Relation between mean duration of internet use and level of internet addiction among the studied subjects (n=500)

Internet use duration	Levels of internet addiction (ID)						U ^P
	Potential Problematic Internet Use			Problematic Internet Use			
	Mean	SD	Median	Mean	SD	Median	
Daily use of internet /hours	3.2	3.8	2.0	9.4	5.1	10.0	5.7 (0.001)*
Range 1-24 hour							
Hours / weekends days	5.9	5.6	4.0	14.0	6.0	15.0	5.9 (0.001)*
Range 0-24 hour							
Total hours online/ week	25.3	27.8	15.0	73.0	30.3	70.0	12.8 (0.001)*
Range 2-168 hour							
Frequency of internet use/day	3.0	7.2	2.0	4.8	3.7	4.0	2.9 (0.096)
Range 1-150 time							

U^P: Mann-Whitney test

* P ≤ 0.05 (significant)

Table 5: Relationship between studied subjects' relations with others and level of internet addiction (n=500)

Relations	Levels of internet addiction (ID)				MCP
	Potential Problematic Internet Use		Problematic Internet Use		
	No.	%	No.	%	
Parent (father-mother) relationship:					
▪ Good (n= 396)	391	98.7	5	1.3	0.001*
▪ General (n= 92)	78	84.8	14	15.2	
▪ Bad (n= 12)	6	50	6	50	
Mother relationship:					
▪ Good (n= 429)	420	97.9	9	2.1	0.001*
▪ General (n= 61)	51	83.6	10	16.4	
▪ Bad (n= 10)	4	40	6	60	
Father relationship:					
▪ Good (n= 383)	378	98.7	5	1.3	0.001*
▪ General (n= 87)	82	94.3	5	5.7	
▪ Bad (n= 30)	15	50	15	50	
Classmates relations:					
▪ Good (n= 362)	357	98.6	5	1.4	0.001*
▪ General (n= 132)	114	86.4	18	13.6	
▪ Bad (n= 6)	4	66.7	2	33.3	
Teachers relations:					
▪ Good (n= 269)	266	98.9	3	1.1	0.001*
▪ General (n= 195)	188	96.4	7	3.6	
▪ Bad (n= 36)	21	58.3	15	41.7	
Stress related to studying:					
▪ Little (n= 93)	93	100	0	0.0	0.001*
▪ Normal (n= 94)	93	98.9	1	1.1	
▪ Heavy (n= 313)	289	92.3	24	7.7	

MCP: Mont Carlo exact probability

* P ≤ 0.05 (significant)

Table 6: Relationship between personality traits and level of internet addiction among the studied subjects (n=500)

Personality traits	Level of internet addiction (ID)				FEP
	Potential Problematic Internet Use		Problematic Internet Use		
	No.	%	No.	%	
Conscientiousness:					0.818
▪ Low (n=499)	474	95	25	5	
▪ High (n=1)	1	100	0	0.0	
Intellect:					0.024*
▪ Low (n=497)	473	95.2	24	4.8	
▪ High (n=3)	2	66.7	1	33.3	

FEP: Fisher exact probability

* P ≤ 0.05 (significant)

Low < 60

High ≥ 60

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