

Internet Addiction and Psychological Morbidity among Menoufia University Students, Egypt

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Abstract Problematic Internet Use (PIU) is a growing problem among university students worldwide. There is lack of Egyptian national studies addressing this problem. The aim of the study was to assess the prevalence of PIU and its relation to psychological morbidity among Egyptian university students. A cross sectional study was carried out on 1656 university students from two Egyptian faculties randomly chosen following multistage random sampling methodology. Students were asked to fill a questionnaire including data about demographic factors, family and school-related factors and internet using activities. Young internet addiction test (YIAT) and the General health questionnaire (GHQ -12) were used to assess internet addiction and psychological morbidity. About 13% of the participants were problematic internet users. Prevalence of PIU was significantly higher among males, students from the theoretical college, students with higher parents education, students who use internet for more hours daily, more frequently, and who use it for socialization and entertainment purposes. A significantly positive correlation was found between YIAT scores and GHQ scores. This study showed a high prevalence of PIU among Egyptian university students which affects their psychological wellbeing. An intervention program focusing on related factors should be implemented to reduce this problem. Future researches addressing the relationship between PIU and psychological disorders should be carried out.

Keywords: *problematic, internet, health, Egyptian, university students*

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1. Introduction

Behavioral problems related to internet use was defined as internet addiction or "problematic Internet use" (PIU) [1]. PIU is the uncontrollable use of the internet which is markedly distressing, time consuming or resulting in social, occupational or financial difficulties [2]. Studies have shown that young people are the most vulnerable group for internet addiction [3]. As they prefer to communicate with others on social networking sites rather than the actual contact in the real world [4]. College students are believed to be at a high risk with a marked increase in their internet usage worldwide [5]. Internet addiction among those students was found to be correlated with psychological disorders as depression, anxiety, stress [5,6], low self-esteem [7], and low psychological well-being [8].

According to the internet usage statistics, internet users are increasing in Egypt. There was about 29 million users (35.6% of the population) in 2012 [9], compared to 12.8 million in 2008 [10]. More than 80% of the Egyptian internet café clients are young people [11]. Very few studies were carried out in Egypt to address PIU problem. One of them was a study done on adolescents and found a prevalence of 2.6% and 18.2% of PIU and potential PIU

respectively [12]. Another one showed a prevalence of 0.8% [13].

Despite the abundance of literature related to internet addiction among university students worldwide, to our knowledge, no study was carried out in Egypt. The aim of the present study was to assess the prevalence of PIU and its association with psychological morbidity and other factors among Egyptian university students.

2. Materials and Methods

2.1. Study Design and Time Frame

This study was a cross-sectional study carried out on the university students of Menoufyia University in the time frame from the beginning of October to the end of December 2014.

2.2. Sampling

Sample size calculation: This study was carried out on Menoufia university students, Menoufia Governorate, Egypt from the beginning of October to the end of December 2014.

There were a total of 125545 students registered in the university in 2014/2015 academic year.

On the basis of previous studies that document a prevalence of 2.6% rate of problematic internet use with 95% confidence interval (CI) and 90% power for sample size calculation. The calculated sample size was 1621 students.

Sampling technique: Using a multistage clustering sampling method, we selected 1656 students for our study as follows.

The first stage: Menuofiya University includes 20 faculties which were divided into 2 groups, practical group (11 faculties) and theoretical group (9 faculties). One faculty from each group was chosen following simple random sampling technique.

The second stage: The total number of students were (2996 students from the faculty of medicine) and (5564 students from the faculty of education) with a total number of 8560). The sample size divided on both practical and theoretical group with a ratio (3.5/6.5) according to stratified random sampling technique. The same technique was used to distribute the sample on each colleague grades.

The third stage: One clinical section from each grade in the faculty of medicine was chosen randomly with a total student's number of 678, and 4 departments from faculty of education with total number of 1228 students. Thus, the total was 1906 students from both faculties. With a response rate 96.1% we collect 1832 papers. After exclusion of 176 students on the basis of invalid questionnaires, the total studied sample was 1656 students (591 students from faculty of medicine and 1065 students from theoretical faculty).

2.3. Study Instrument

A self-administered questionnaire was used to collect (a) *demographic* characteristics: age, sex, college, educational grade, educational level of parents, residence, marital status, smoking and alcohol intake. (b) *Social relations*: with family member, satisfaction of parents about the participant, student's relationship with (his/her) friends. (c) *Pattern of internet usage*: time ago of using the internet, time spent on-line per day, frequency of internet use per week and the purpose and place of internet use.

Internet addiction was measured using the Arabic version of Young internet addiction test (YIAT) that was validated in a previous study carried out in Lebanon [14].

It is a 20-item questionnaire which measures different levels of internet addiction. The questions range from personal daily life, social life, life performance, emotional feelings and so forth, and the test defines internet addiction predominantly by withdrawal; social problems; time management and performance; and reality substitute [15]. Students were asked to indicate their answer for each item of the test on a Likert scale ranging from 1 to 5, with 1 indicating "not at all" and 5 indicating "always". The total scores ranged from 20 to 100. Students were classified according to their score into: internet addicts (those who got a score from 70 to 100), potential internet addicts (with score from 40 to 69), and non-addicts with a score less than 40.

Students' psychological morbidity was assessed using the Arabic version of General Health Questionnaire-12 (GHQ-12). This questionnaire is the most widely used screening instrument for of psychiatric well-being [16]. It has reliability coefficients ranging from 0.78 to 0.95 in various studies with a well-established international validity [17]. It was designed to cover four identifiable elements of distress: depression, anxiety, social impairment and hypochondria. The questionnaire was originally created as a 60-item instrument, and shortened to 12 items, where the 12-item version is the most widely-used screening instrument for common mental disorders [18,19]. Students were asked to indicate their answer on the GHQ-12 on a Likert scale ranging from 0 to 3 giving a score ranging of 0-36. According to their score, students were classified into: normal (those having a score less than 15), students suffering from distress (15-20), and students having severe problems and psychological distress (with a score >20) [17].

2.4. Statistical Analysis

The data were coded, tabulated and analyzed using [SPSS] version 20 (Armonk, NY: IBM Corp.). Qualitative data was expressed as numbers and percentages, and the Chi-square test was applied to test the relationship between variables. Quantitative data was expressed as mean and standard deviation (Mean \pm SD) and t-test was used to compare means for groups. Pearson correlation test was applied to test the relationship between quantitative variables. A p-value of < 0.05 was considered as statistically significant.

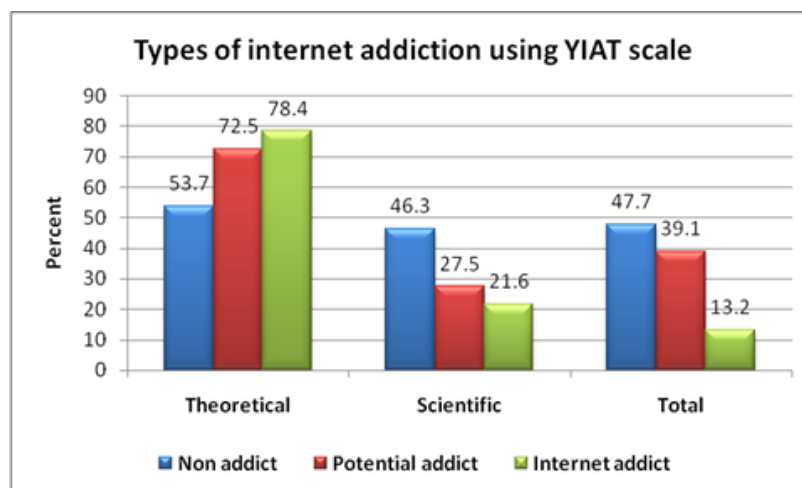


Figure 1. Distribution of university students according to the types of internet addiction using YIAT scale (N. B. Mean score of YIAT \pm SD: (47.78 \pm 17.26))

3. Results

Total number of the participants was 1656 students, of them 35.7% were from scientific college and 64.3% from the theoretical college. In (Table 1) the mean age of the participants was 20.81 ± 1.39 years, 52.5% were females,

66.2% were rural residents, 23.5% were current smokers and only 4% were married.

Figure 1 shows that according to internet addiction, 13.2% of the students were PIUs and 39.1% were potential PIUs.

Table 1. Socio-demographic characters of the studied group

	The studied groups						X ²	p- value
	Theoretical N = 1065		Scientific N = 591		Total N = 1656			
	No	%	No	%	No	%		
Gender								
Male	488	45.8	299	50.6	787	47.5	3.47	0.06
Female	577	54.2	292	49.4	869	52.5		
Residence								
Rural	721	67.7	375	63.5	1096	66.2	3.06	0.08
Urban	344	32.3	216	36.5	560	33.8		
Marriage								
Married	56	5.3	10	1.7	66	4.0	12.6	<0.001
Single	1009	94.7	581	98.3	1590	96.0		
Smoking								
Smokers	291	27.3	98	16.6	389	23.5	24.4	<0.001
Non-smokers	774	72.7	493	84.4	1267	26.5		
Mothers' education								
Illiterate	81	7.6	36	6.1	117	7.1	77.9	<0.001
Basic	231	21.7	82	13.9	313	18.9		
Secondary	487	45.7	201	34.0	688	41.5		
High education	266	25.0	272	46.0	538	32.5		
Fathers' education								
Illiterate	95	8.9	22	3.72	117	7.1	67.3	<0.001
Basic	227	21.3	92	15.6	319	18.9		
Secondary	411	38.6	177	29.9	588	41.5		
High education	332	31.2	300	50.8	632	32.5		
Age of the participants/Years	20.80±1.36		20.81±1.44		20.81±1.39		t-test	
Mean ± SD	17 – 23		17 – 24		17 – 24		0.11	0.92

Table 2 shows that the prevalence of PIU was significantly higher among male students (p<0.001), students from the theoretical college (p=0.02), and students with higher parents education (p=0.001 & p<0.001).

Table 2. Internet addiction prevalence based on age, gender, college type, educational grade, parents' education and smoking

Variable	Normal internet use (791)	Potential Problematic internet use (647)	Problematic internet use (218)	Test	p-value
Age (Mean ± SD)	20.91±2.02	21.10 ± 1.97	20.82 ± 2.13	t1= 1.79 t2=0.58 t3=1.78*	p1=0.07 p2=0.57 p3=0.08
Gender					
Male	298 (37.7%)	340 (52.6)	149 (68.3)	75.2**	<0.001
Female	493 (62.3%)	307 (47.4)	69 (31.7)		
College type					
Theoretical	492 (62.2)	415(64.1)	158(72.5)	7.9**	0.02
Scientific	299 (37.8)	222 (35.9)	60 (27.5)		
Smoking					
Smokers	174 (22.0)	155 (24.0)	60 (27.5)	3.03	0.22
Non-smokers	617 (78.0)	492 (76.0)	158 (72.5)		
Mothers' education					
Illiterate	62(7.8%)	44(6.8%)	11(5%)	23.7	0.001
Basic	165(20.8%)	122(18.8%)	26(11.9%)		
Secondary	336(42.4%)	269(41.5%)	83(38%)		
High education	228(29%)	212(32.9%)	98(45.1%)		
Fathers' education					
Illiterate	60(7.5%)	40(6.1%)	12(5.5%)	38.5	<0.001
Basic	179(22.6%)	110(17%)	30(13.7%)		
Secondary	303(38.3%)	215(32.2%)	70(32.1%)		
High education	244(31.6%)	282(44.7%)	106(48.7%)		

T= t- test ** χ^2 test

P1: Normal internet use # Potential Problematic internet use

P2: Normal internet use # Problematic internet use

P3 = Potential Problematic internet use# Problematic internet use.

In Table 3, PIU was significantly higher among students with more hours of daily internet use ($P < 0.001$), who use the internet more frequently each week ($p = < 0.001$), and among those who use the internet for socialization and entertainment (Chatting, making new friend, contact friends) ($p = < 0.001$).

Table 3. Internet addiction prevalence based on students' internet usage experience

Variable	Normal internet use (791)	Potential Problematic internet use (647)	Problematic internet use (218)	Test χ^2	p-value
Duration since starting use internet					
- <1 year	101(12.7%)	87(13.4%)	28(12.8%)	3.89	0.42
- 2 – 3 years	199(25.1%)	167(25.8%)	43(19.7%)		
- > 3 years	491(62.2%)	393(60.8%)	147(67.5%)		
Duration of daily internet usage					
< 2 h	433(54.7%)	239(36.9%)	10(4.5%)	195.1	<0.001
2-<4 h	207(26.1%)	212(32.7%)	95(43.5%)		
> 4	151(19.2%)	196(30.4%)	113(52%)		
Frequency of internet use/week					
< 3 times	395(49.9%)	222(34.3%)	40(18.3%)	134	<0.001
3 – 6 times	221(27.9%)	278(42.9%)	67(30.7%)		
> 6	175(22.2%)	147(22.8%)	111(51%)		
Most common purpose of internet use					
Relieving loneliness (socialization)	246(31%)	206(31.8%)	123(56.4%)	73.9	<0.001
Entertainment	211(26.6%)	143(22.1%)	54(24.7%)		
Research	278(35.1%)	265(40.9%)	39(17.8%)		
Others	56(7.3%)	33(5.2%)	2(1.1%)		

Table 4. Internet addiction prevalence based on students' social relations

Internet usage experience	Normal internet use (791)	Potential Problematic internet use (647)	Problematic internet use (218)	Test χ^2	p-value
Relation with family members					
Not good	80 (10.1%)	73 (11.3%)	41 (18.8%)	13.03	0.01
Usual	155 (19.6%)	121 (18.7%)	35 (16.1%)		
Good	556 (70.3%)	453 (70.0%)	142 (65.1%)		
Relationship with parents					
Not good	68 (8.6%)	70 (10.8%)	31 (14.2%)	9.78	0.04
Usual	151 (19.1%)	131 (20.2%)	51 (23.4%)		
Good	572 (72.3%)	446 (68.9%)	136 (62.4%)		
Parent satisfaction					
not satisfied	78(9.9%)	74 (11.4%)	38 (17.4%)	25.2	<0.001
usual	118 (14.9%)	123 (19.0%)	53 (24.3%)		
satisfied	595 (75.2%)	450 (69.6%)	127 (58.3%)		
Relation with classmate friends					
Not good	89 (11.3%)	81 (12.5%)	44 (20.2%)	23.7	<0.001
Usual	176 (22.3%)	146 (22.6%)	66 (30.3%)		
Good	526 (66.5%)	420 (64.9%)	108 (49.5%)		

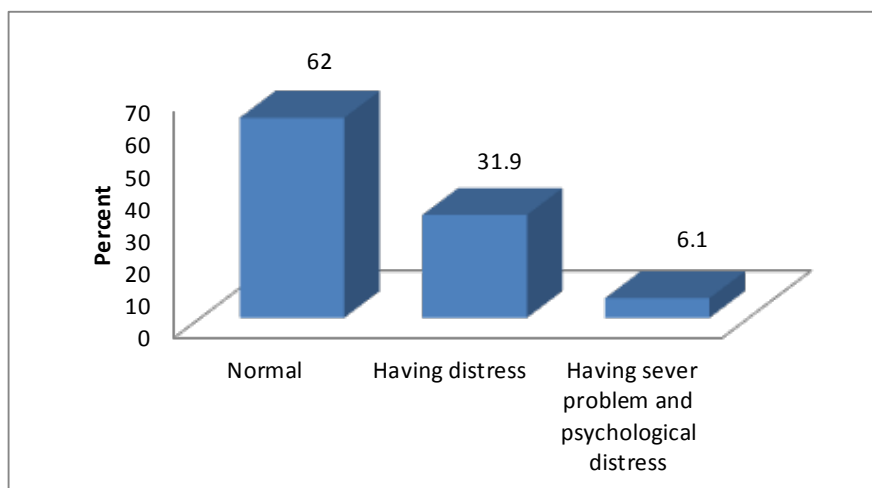


Figure 2. Distribution of university students according to the types of distress as measured by GHQ-12 (N. B. Mean score of GHQ \pm SD: (13.67 \pm 3.56))

Good social relationships and parent's satisfaction about the participant were significantly higher among non addicts and potential addicts compared to PIUs (Table 4).

According to the GHQ scores, (Figure 2) shows that 6.1% of students suffered severe problems and psychological

distress, 31.9% suffered from distress, while 62% had normal scores.

A weak significantly positive correlation was found between YIAT scores and GHQ scores (Figure 3).

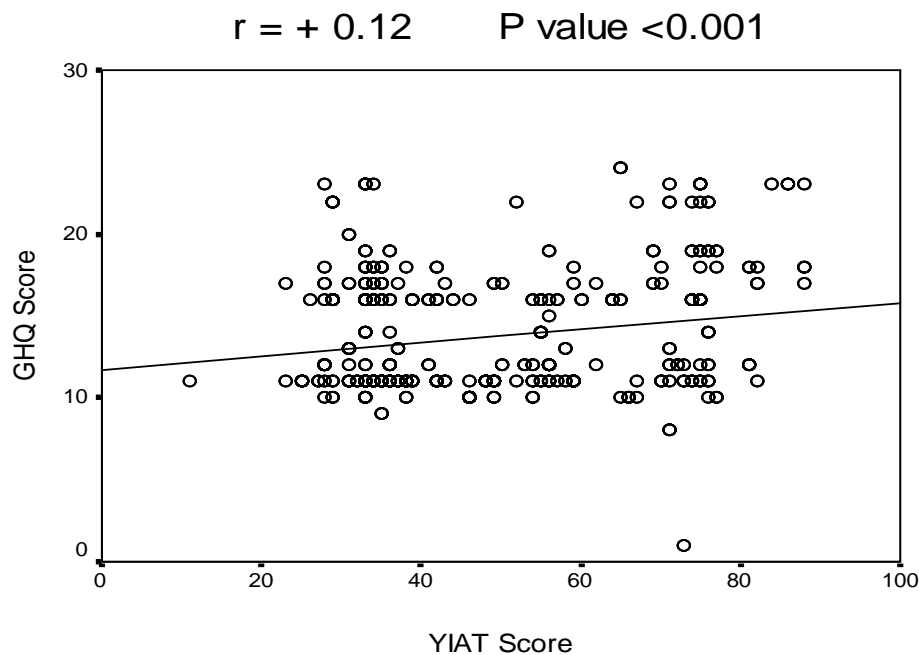


Figure 3. Scatter plot of YIAT scores against GHQ-12 scores (N.B. Correlation coefficient: + 0.12, Correlation is significant at p-value: < 0.001)

4. Discussion

With the absence of national Egyptian studies on university students to compare, prevalence of PIU in the present study is in line with results from a systematic review carried out in USA on college students which showed a prevalence ranging from 0 to 26.3% [20]. It is also in line with results revealed from Turkish studies done on college students which showed a prevalence ranging from 9.1%-19.6% [21,22].

PIU prevalence in the present study is more or less compatible with that reported from studies done on university students from, Taiwan [23], Iran [24] and Greece [25].

Higher results were revealed from other regional and international studies as those done in Palestine and Greece which showed a prevalence of 30.1% and 34.7% respectively [26,27]. However studies done on university students in other countries showed lower results as those done in Iran (5.2%) [28].

The observed diversity of PIU prevalence in these studies, even in studies done in the same country could be attributed to the usage of different assessment tools, cut-offs, and the difference in the social and cultural contexts.

The high prevalence of PIU observed in the present study (Figure 1) was explained previously by (Young, 2004) who stated that university students have a lot of unstructured time. They always seek for companionship through the internet and use the internet to escape the university sources of stress from studying and exams [29].

In Egypt, added to these stresses are the great challenges faced by the Egyptian students after the 25th January revolution. One of those challenges is the

mismatch between the outputs of the education system and the job market needs which leads to a high level of unemployment among university graduates [30]. Other stressors are the economic, social and political problems facing the whole Egyptian community leading to an increase in poverty [31], low standard of living [32], and the social and political marginalization [31].

The present study showed a significant difference between normal, potential and PIUs according to their gender (Table 2). As 68.3% of PIUs were males. This finding is in agreement with those revealed from other studies done on university students [3,25,28,33].

An explanation of this gender difference is the more ability of girls to make successful friendships in social field than boys [34]. That is why boys may have more time for using the internet [34,35]. Another explanation is that female university students usually receive more parental supervision than males in eastern cultures, which may be a barrier towards spending too much time on the internet [35].

The present study showed that 72.5% of PIUs were from the theoretical college (Table 2). This marked difference could be explained by the academic overload and the high pressure of study demands of medical students [36]. In addition to the nature of education in medical college [37]. This may be a barrier towards having enough free time to overuse of the internet to a degree of addiction.

More than fifty percent (48.7%) of PIUs had a highly educated father and (45.1%) had a highly educated mother, with a significant difference between the three types of net users (addicts, potential addicts and non-addicts) according to the parents' education (Table 2). This result was revealed from a recent Iranian study [38]. This result could be attributed to the tendency of highly educated

parents to socialize their children into the world of modern information technology [39].

In the present study, smoking was higher among internet addicts, however a non-significant difference was found between non-addicts, potential addicts and PIUs according to smoking (14.9% vs 11.7%, 9.5%) (Table 2), a result that was observed in a previous Iranian study [40].

In the present study, a significant difference was found between non-addicts, potential addicts and PIUs according to the time spent using the internet daily, as those who spent more than 4 hours daily were (19.2%, 30.4% and 52% respectively) (Table 3). The same result was revealed from previous studies where PIUs spent longer hours using the internet [25,28,33,40]. An explanation of this relation could be that individuals who lack social skills for face-to-face interaction use the internet excessively to maintain a social environment, a matter that drives them to spend longer time on internet [4]. A significant difference was found between non-addicts, potential addicts and PIUs according to frequency of using the internet per week, as those who use the internet for more than 6 times weekly were (22.2%, 22.8% and 51% respectively) (Table 3). This result was revealed from other studies [28,33].

Previous studies have shown that PIUs tend to use the internet more for entertainment purposes and social activities [41]. In the present work, PIUs used the internet more for Relieving loneliness and entertainment purposes than non-addicts and potential addicts (Table 3), a result that was revealed from other studies [25,28].

The significant difference observed between normal, potential and PIUs according to their social relations (Table 4) was observed in previous studies where internet addiction was associated with disturbed social relationships and increase conflicts with friends and parents [5].

According to GHQ scores, 6.1% of students experienced severe problems and psychological distress and 31.9% experienced distress (Figure 2). This could be explained by the vulnerability of students to experience mental, emotional and psychological problems due to their inability to cope with the academic workload and pressures of studying and success [42]. Added to the academic stressors are the social, economic and political stresses facing the Egyptian community [30,31,32].

The significant weak positive correlation found between YIAT scores and GHQ scores was also revealed from another study done on college students from Palestine (26) (Figure 3). This association could be attributed to the continuous trials of the internet addicts to make lifestyle changes to spend more time on the internet and reduces the social relationships with family and friends [43]. Besides, the more the one become addicted the more he/she becomes psychologically depressed [44].

5. Conclusion

The present study provided useful information about internet addiction among Egyptian university students with lack of national studies addressing this problem. The significant correlation between YIAT and GHQ scores reveals the importance of providing supportive environment and implementing interventions to deal with

this problem and address its relation to psychological morbidity.

6. Limitations

One of the limitations of this study is that data collection was based on self-reported questionnaires which are prone to recall bias. Another limitation is being a cross-sectional study which showed the relation between PIU and some potential risk factors without being able to conclude a cause-effect relationship. That is why longitudinal studies should be carried out to determine the causality among those variables.

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Ethical Approval

Official approvals were obtained from the ethics committee of the faculty of medicine of Menoufiya University and from the deanship of the Colleges where the study was carried out. All the students were informed about the aim of the study and the way of answering the questionnaire and verbal consents were obtained from all participants.

Competing Interests

None declared.

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