

Determinants of Problematic Internet use and its Association with Disordered Eating Attitudes among Minia University Students

Abstract

Background: To determine the association between problematic Internet use (PIU) and disordered eating attitudes (DEAs) and to detect the potential risk factors for PIU among University students in Minia, Egypt. **Methods:** A cross-sectional study was carried out among a random sample ($n = 2365$) of Minia University students. PIU was assessed using The Problematic Internet Use Scale (PIUS), and the DEAs were assessed using eating attitudes test-26 questionnaire. **Results:** Of the 2365 students, 424 (17.9%) had DEAs, and it was more in females than males (22.3% and 14.5%, respectively). The mean of the PIUS score also was significantly higher in males than females (120.3 ± 30.5 , and 117.5 ± 30.6 , respectively). A positive moderate correlation ($r = 0.48$, $P < 0.05$) was detected between PIU and DEAs. **Conclusions:** The results of this study indicate that PIU is significantly correlated with DEAs among University students in Minia, Egypt, and further studies are needed to identify the association between DEAs and PIU.

Keywords: Disordered eating attitudes, problematic Internet use, university students

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Introduction

Internet access becomes available for everyone, and most of the world's populations use it.^[1] Fast, easy, and broad access to the Internet makes anyone able to get any desired information in a short time. However, the Internet impairs the physical health.^[2,3] Excessive or inappropriate Internet use has many definitions, including Internet dependence,^[4] pathological Internet use,^[5,6] and also problematic Internet use (PIU).^[7,8] The individual becomes irritable when deprived of the Internet and increasing impairment of his work, and social life.^[9]

PIU may be accompanied by psychiatric problems as alcohol abuse,^[10] and dysthymic disorders such as depression,^[11] and anxiety,^[12] disordered eating attitude (DEA) in adolescents sitting long times online.^[13]

DEAs especially among youth, have become great world's issue. Obesity increased in most countries of the world, and that could be a risk factor for this disorder. Adolescent obesity is a contributing factor in eating disorders; such as binge eating, bulimia, and anorexia.^[14] In developing countries, globalization and mass media affect eating attitudes among young adults.^[15,16]

It was found that PIU was associated with body concerns, such as an overweight preoccupation^[17] or with DEAs,^[18] although, it was rather inconsistent with another previous study.^[19]

There is limited information about the association between PIU and DEAs. Therefore, our aim was to detect the association between PIU and DEAs and to determine the possible risk factors for PIU among Egyptian University students.

Methods

Settings and design

A cross-sectional analytical study was carried out to assess the PIU status and its relation to DEAs among University students at Minia Governorate, Egypt. The study was conducted from December 2016 to July 2017.

Sample size and sampling design

Minia University has 18 faculties, from which five faculties were selected randomly (Faculty of Pharmacy, Faculty of Alsun, Faculty of Agriculture, Faculty of Arts, and Faculty of Nursing) by simple random sampling technique. From each faculty, 2-year levels (2nd and 3rd year) were selected both for males and females.

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The sample size was 2365 calculated by using EPI Info 2000 program, and the average estimates of PIU were 40% based on a pilot study that was carried out on 100 University students “who were not included in the main study” and the total number of students was 45,353 and the confidence level was 99.99%. All the University students of these faculties were invited to participate in this study. Students with any chronic mental or physical disease (such as cancer, diabetes, heart disease, and kidney disease) were excluded from the study.

Study instrument

Data were collected using a self-administered questionnaire that was developed by the authors following several published international studies. Our questionnaire included the sociodemographic data (age, sex, residence...) questions about The problematic Internet use scale (PIUS), and the eating attitudes test (EAT).

Data collection

The questionnaire started with demographic data about each participant, followed by PIUS which was developed by Ceyhan *et al.*^[20] PIUS includes three factors. Factor 1 is the adverse results of the Internet (score interval: 85–17), Factor 2 is the social benefit/social comfort (score interval: 50–10), and Factor 3 is the excessive use (score interval: 30–6). Total scores obtained from the scale ranged between 33 and 165, the high PIUS scores mean that that Internet usage is unhealthy, and lead to bad effects and Internet addiction. In the current study, Cronbach’s alpha coefficient for internal consistency of the test was found to be 0.91.

DEAs were determined using the EAT-26 questionnaire,^[21] which was adapted into Arabic.^[22] It includes 26 questions which were divided into three subscales; dieting, bulimia and food preoccupation and oral control. Each item is answered in six-point on a Likert scale which was ranged from “always” to “never” and the answer was given a score ranged from zero to three. Each item response took zero for “Sometimes,” “Rarely” and “Never,” one for “Often,” two for “Usually” and three for “Always.” However, only question number 26 is scored reversely. A total score of 20 and more was considered as having DEAs, and the internal consistency of the test (Cronbach’s alpha coefficient) was 0.88.

Ethical approval was obtained from the Scientific Research Ethics Committee of Minia University, Faculty of Medicine. Official permissions were obtained from the administration of the University and from the administration of each selected faculty before data collection. In addition, informed consent was given from each participant.

Statistical analysis

Data were analyzed using (SPSS version 20, SPSS Inc., Chicago, IL, USA) software. Descriptive analyses were performed on all variables and the PIU. Chi-square test (χ^2), Fisher’s exact test, independent Student *t*-test, and One-way

ANOVA were used whenever, applicable. Pearson’s product–moment correlation coefficient was used to examine the relationship between PIU and DEAs, multiple linear regression analysis to determine the predictors of PIU. The multicollinearity between the independent variables which included in the regression model was checked, and the correlation is <0.7 . $P < 0.05$ was used as the definition of statistical significance.

Results

The questionnaire was filled out by 2365 faculty students (response rate = 97.6%). In the studied group, 1324 students (55.9%) were male and 1041 (44.1%) were female. The mean age of the students was 21.9 ± 1.6 years. Nearly 64.2% of the students were from urban areas. Nearly half (53.9%) of the studied group had access to the Internet at home and 23.9% in Internet cafes. Nearly 14.3% of the students were smokers, and 58.2% of them spent 2 h or more online per day. Moreover, the majority of the students (59.7%) stated good academic performance [Table 1].

The mean scores of PIU by gender are shown in Table 2. The mean difference of Factor 1 (adverse results of

Table 1: Sociodemographic and internet use characteristics of the students

	n (%)	P
Age (years) (mean±SD)	21.9±1.6	
Gender		
Male	1324 (55.9)	0.09
Female	1041 (44.1)	Z=5.7
Faculty		
Faculty of pharmacy	450 (19.1)	0.9
Faculty of Alsun	478 (20.2)	$\chi^2=1.05$
Faculty of kindergarten	512 (21.6)	
Faculty of fine art	445 (18.8)	
Faculty of tourism and hotels	480 (20.3)	
Residence		
Urban	1518 (64.2)	0.003
Rural	847 (35.8)	Z-test=13.7
Smoking status		
Smoker	338 (14.3)	<0.001
Nonsmoker	2027 (85.7)	Z-test=49.1
Academic performance		
Excellent	667 (28.2)	<0.001
Good	1412 (59.7)	$\chi^2=52.1$
Average	286 (12.1)	
The most used internet access location		
Home	1274 (53.9)	<0.001
Faculty	324 (13.7)	$\chi^2=72.3$
Internet cafe	567 (23.9)	
Others	200 (8.5)	
Time spent online per day		
<2 h	989 (41.8)	<0.001
2 h or more	1376 (58.2)	Z-test=11.3

SD=Standard deviation

the Internet, Factor 2 (social benefit/social comfort) and Factor 3 (excessive use) were found statistically insignificant ($P = 0.05$), but the difference between the total PIUS scores and gender was statistically significant ($P = 0.02$). The mean of the PIUS score was 120.3 ± 30.5 , and 117.5 ± 30.6 among males and females, respectively.

Table 3 shows the percentage of DEAs and the mean of total EAT-26 scores among the students. Of 2365 adolescents, 17.9% of them had DEAs with a mean total EAT score of 14.1 ± 8.9 . Mean total EAT score in females was significantly higher than in males ($t = 7.5, <0.001$). DEAs were significantly higher in females than males (22.3%, and 14.5% respectively, $P < 0.001$).

A positive moderate correlation ($r = 0.48, P < 0.05$) was determined between PIU and DEAs [Table 4]. The mean of PIUS among students with eating disorders was 128.1 ± 29.3 , and it was 114.3 ± 28.9 among students without DEAs, and the difference was statistically significant ($P < 0.001$).

To identify the predictors of PIU among students, stepwise multiple linear regression analyses were performed. The independent significant risk factors were the higher time spent online, DEAs, and male gender, as well as smoking Table 5.

Discussion

Some Internet users may develop problematic behavior.^[23] This study was conducted to assess the association between

PIU and DEAs and to detect the potential risk factors for PIU among University students in Minia. Regarding the Internet usage habits of the students, 53.9% of the students were using the Internet at home for 2 h or more which is slightly higher than a study which was done in Saudi Arabia (53.6%).^[24] However, it is lower than a study which was done among students in Pakistan (70.5%).^[25]

The total PIUS scores and gender was statistically significant ($P = 0.02$). The mean of the PIUS score was higher among males than females (120.3 ± 30.5 , and 117.5 ± 30.6 , respectively). Similar results were noticed in many studies.^[7,26,27] This can be explained that Egyptian families give more supervision for female students than males, preventing them from spending much time on the Internet. However, some other studies show that there is no significant difference between male and female.^[28,29] In another study, it was found that the level of problematic Internet usage was higher in females than males.^[30]

According to the EAT-26, the percentage of DEAs in our study was 17.9%, which is higher than the percentage found in a previous study conducted among Canadian adolescents as it was 9.7%.^[31] Furthermore, it was 15.2% among high school students in Turkey.^[32] However, it was lower than the percentage that was found in a study which was done in Tehran (18.9%).^[33]

In the present study, the percentage of DEAs was higher females than in males (22.3%, and 14.5%, respectively). Several previous studies in different Arab countries, Greece, Turkey noticed that.^[16,34] This is may be due to high body weight dissatisfaction in females, and also the Western standard of beauty that prefers thinness.^[35]

The main aim of this study was to determine the association between PIU and DEAs. Globalization and

Table 2: Problematic internet use scale score according to gender

PIUS score	Mean±SD		P
	Male	Female	
Factor 1 (the negative consequences of the internet)	65.6±15.2	65.1±13.5	0.4 $t=0.8$
Factor 2 (social benefit/social comfort)	31.9±7.8	32.1±8.5	0.05 $t=0.59$
Factor 3 (excessive use)	22.8±7.5	20.3±8.6	0.2 $t=1.07$
Total score	120.3±30.5	117.5±30.6	0.02 $t=2.2$

PIU=Problematic Internet Use Scale, SD=Standard deviation

Table 3: Disordered eating attitudes and mean total eating attitudes test scores among the students

	Male (n=1324)	Female (n=1041)	Total	P
DEAs (%)				
Yes	192 (14.5)	232 (22.3)	424 (17.9)	<0.001 $\chi^2=24.01$
No	1132 (85.5)	809 (77.7)	1941 (82.1)	
Total EAT-26 scores (mean±SD)	12.5±8.7	15.6±9.2	14.1±8.9	<0.001 $t=7.5$

EAT=Eating Attitudes Test, SD=Standard deviation, DEAs=Disordered Eating Attitudes

Table 4: Correlation between problematic internet use and disordered eating attitudes

PIUS	DEAs		t	r
	Yes	No		
Mean±SD	128.1±29.3	114.3±28.9	$t=8.88$ $P<0.001$	$r=0.48^*$

* $P<0.05$. PIUS=Problematic Internet Use Scale, DEAs=Disordered Eating Attitudes, SD=Standard deviation

Table 5: Multiple linear regression analyses for identifying the predictors of problematic internet use among students

	B	SE	β	t	P
Time spent online	0.14	0.004	0.58	10.5	0.001
Disordered eating attitudes	0.07	0.003	0.25	4.09	0.01
Male gender	0.04	0.001	0.09	2.9	0.03
Smoking	0.03	0.001	0.04	0.72	0.04
Physical inactivity	0.01	0.03	0.02	0.36	0.5
Average academic performance	-0.001	-0.004	-0.002	-0.03	0.7

$R^2=0.56$. SE=Standard error

exposures to mass media and Internet have a significant effect on eating attitudes, especially among young adults.^[15] The present data show that there is a significant association between PIU and DEAs. This is matched with a previous study which reported high percentages of disordered eating among adults with PIU compared to controls.^[36] In Egypt, it was reported in a previous study that the greater female exposure to TV fashion programs or fashion magazines, the more they dissatisfied with their body image and shape. Hence, the more media exposure like the Internet was significantly associated with body weight dissatisfaction.^[37]

Several previous studies found that PIU was closely associated with body image concern.^[36,38]

There is a vicious cycle between DEAs and PIU. The Internet may provide a safe place to escape for those dissatisfied about their body shape.^[18] On the other side, frequent exposure to the ideal body shape on the Internet can increase the pressure to have a perfect body, and thus increase the dissatisfaction of one's body shape^[39] and physical activity,^[40] which in turn can put them further away from being in good shape and induce DEAs.

According to the multiple linear regression analysis, the strongest predictor independent PIU risk factor was the time spending online. Several previous studies addressing the relationship between the duration of Internet use by individuals and PUI have been conducted.^[7] This is maybe because individuals with PIU are usually seen alone, and prefer social isolation.

The present study has some limitations. First, it is a cross-sectional study and the association between PIU and DEAs cannot be detected. Second, the utilization of self-rated scales, which may lead to underreporting. Third, this study was conducted among students at faculties in a public University that may be different from students at private Universities. Further studies were suggested with bigger sample sizes and more different faculties. Preferably, a prospective approach should be used to confirm these results as well as to examine the effects of the emotional problems on both PIU and DEAs.

Conclusions

PIU among University students was higher in males than females; the mean of the PIUS score was 120.3 ± 30.5 , and 117.5 ± 30.6 among males and females, respectively, however, DEAs is more in females. There was a positive moderate correlation between PIU and DEAs. The more time spent online, and DEAs were significant risk factors for PIU.

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Conflicts of interest

There are no conflicts of interest.

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