

Correlation Between the Presence of Psychopathological Symptoms and Internet Addiction Among College Students in Cyprus

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Συσχέτιση Ανάμεσα στην Παρουσία Συμπτωμάτων Ψυχοπαθολογίας και Εξάρτησης στο Διαδίκτυο σε Φοιτητές Κολεγίου στην Κύπρο

Περίληψη στο τέλος του κειμένου

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Aim: The study is aimed to investigate psychopathological symptoms caused by Internet addiction among Cyprus College Female students in the field of aesthetics at Cyprus College of Cyprus. **Material and Method:** The study was conducted among 125 female undergraduate students of the Aesthetics department at Cyprus College during October 2019. Participants completed a sociodemographic questionnaire, Internet Addiction Test and Symptom Checklist-90-Revision (SCL-90-R). The questionnaires were given in a close envelope and returned in a sealed box, maintaining the principles of confidentiality and the preservation and safeguarding of the personal data of the participants in the research. Research Data were analyzed using the statistical package of Social Sciences (SPSS) version 25.0 Descriptive statistics were used for computer use characteristics. ANOVA test was used to determine the correlations between internet addiction and psychiatric symptoms. **Results:** The results showed that 125 female students participated in the study. The average age of graduate students was 19.24 ± 1.08 . The level of Internet addiction is divided into 4 categories, which are: No, Minimal, Moderate and Excessive levels. The frequency of Internet addiction (excessive) was 5.6% (IAT score: 60–100). The frequency of moderate risk of Internet addiction was 19.4% (IAT score: 40–59). The frequency of minimal risk of Internet addiction was 43.5% (IAT score: 20–39). The frequency of no risk of internet addition was 31.5% (IAT score: 0–19) Moreover, at the same time the percentage of the sample which scored with minimal, moderate and high level of internet addiction were 68.5%. The 68.5% showed coexistence of psychopathological symptoms such as (somatization, obsessive compulsive, interpersonal sen-

sitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism) and Internet addiction. **Conclusions:** There is a consistent and positive correlation between Internet Addiction and psychopathological symptoms such as somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility/aggression, phobic anxiety, paranoid ideation, psychoticism. Internet enter in the middle of their relations, of their family, of their life, of their activities causes' mental distress and psychopathological symptoms that worsen the situation of miscommunication with the outside environment. The society should therefore increase the education and the social rules about the use of Internet by putting limitations in the internet use.

Key-words: Internet addiction, students, University, College, psychopathology.

Introduction

The Internet as a research, communication, and social platform, has many advantages and disadvantages in young peoples' everyday life. Nowadays the internet become a critical communication tool for everybody and especially for the young. More in detail, internet is an easy and immediate way to communicate with others which has brought convenience to today's life.¹ On the other hand, internet represents an educational and recreational activity and at the same time gives the sense of security and distortion because of the anonymity, concerning behavioral responsibility, and all the characteristics that the internet enchases.²

The Internet is a widely recognized channel for information exchange, academic research, entertainment, communication, and commerce.³

In spite of all the above internet advantages, many studies on Internet addiction have grown exponentially in recent years which is mainly attributed to the excessive use of Internet in every part of our daily lives. The researchers emphasize that students are considered a high-risk group for internet addiction.⁴⁻⁷ Although there are differing views on the meaning of "Internet addiction" or "abnormal use of the Internet",¹ the terms refer to the notion that one cannot control Internet use, feeling sad and functional dysfunction.⁵

According to several studies, limited Internet use can be beneficial, but uncontrolled Internet use can cause a variety of problems, such as academic failure, loss of professional performance, social isolation, time distortion,

disruption of daily routine, increased depression, loneliness, anxiety and psychiatric disorders.^{5,8-14}

Internet addiction, pathological Internet use and problematic internet use, are the terms used to describe a possible addiction that may have a negative impact on emotional well-being, social function, daily life activities and academic/professional status

Internet addiction has been related to depression, anxiety, attention deficit hyperactivity disorder (ADHD), obsessive-compulsive symptoms, hostility and aggression.^{15,16}

Internet addiction disorder (IAD) has been excessively studied and has been included in section III as "Internet gaming disorder" in the DSM-V. Meanwhile a variety of assessment tools has been developed and several researches proposed diagnostic criteria and treatments.¹⁷⁻²⁰

There is a difference between specific and generalized pathological Internet use.²¹ It has been hypothesized that two distinctive forms of Internet addiction exist. Internet addiction refers to the problematic use of Internet, covering a broad range of Internet-related activities, while specific forms of Internet addiction target the problematic use of distinct online activities such as excessive online video gaming or chat rooms.^{21,22}

According to the researchers,²³ Internet addiction has four components:

1. Excessive Internet use, often associated with loss of sense of time or neglect of basic movements.
2. Withdrawal, including feelings of anger, tension, or depression, when the computer is inaccessible.

3. Tolerance, including the need for better computer equipment, more software or more hours of use and
4. Adverse effects, including arguments, lies, poor performance, social isolation and fatigue.

Moreover, people that are addicted to the Internet tend to spend all their available time on the Internet and get excited while they are using it.²⁴

The excessive use of the Internet and the inability to control the time spent on it lead to problems with time management.²⁵ Other related studies, have demonstrated interpersonal²⁶ and health problems⁴ associated with Internet addiction. There has been significant research investigating the relationship between Internet use and certain variables, such as loneliness,^{10,13,27,28} psychiatric symptoms^{20,30} symptoms of disintegration,³¹ quality of life.³²

Internet addiction among students in universities is not an unknown area.^{33,34} Among others in a student, study⁸ found a positive relationship between problematic Internet use and life satisfaction. Unlike other studies in which Internet use is negatively correlated with life satisfaction, in other words, Internet addiction is shown to increase a person's satisfaction with his/her life decreases.^{32,35}

Other researchers^{28,36} found that people addicted to the Internet were less satisfied or less satisfied with life. Further studies reported that lonely people had more problems online, such as forced use, withdrawal, tolerance, time management problems, and interpersonal and health problems. In addition, studies have shown that Internet addicts have lower self-esteem.^{21,37} Despite the fact that a number of studies explored Internet addiction among students, few of them have focused on Internet addiction and psychiatric problems in students of various universities.³⁸⁻⁴⁰ Several studies concluded that in some cases students may have unlimited time to play, a continuous access to the Internet and no parental control. Internet use was associated with depressive symptoms, anxiety, phobias and low self-esteem. Studies also showed that internet exerts a negative impact on students' academic accomplishments.^{12,41}

In Cyprus, so far, there is no study focusing on the impact of Internet use on psychopathological symptoms in college students. Studies focused on adolescents between 12 to 18 years old and have found that 11% of them fulfill the criteria for Internet addiction.⁴² The majority of studies concerning Internet addiction in adolescents

were associated with parental practices, parental bonding and academic achievements.^{30,42,43} Only two studies by investigated problematic Internet use among Greek university students and found that 11.6% of participants had internet addiction and 34.7% presented problematic Internet use.^{3,43}

Aim

The aim of the study was:

To determine association between the existence of psychopathological symptoms and Internet addiction in Cyprus college female students from Cyprus College.

Material and Method

Participants, Approval – bioethics, and data collection

The study was performed following approval by the European University of Cyprus bioethics committees and the research regulatory authority. In addition, the data protection regulators were informed and conformation to GDPR standards was confirmed prior to study conduction.

Participants and data collection

This was a voluntary Internet survey. Participants were undergraduate female students at Cyprus College, Department of Aesthetics. Self-administered questionnaire was used in this study. The Ethical Committee of European University of Cyprus Faculty of Aesthetics and Nursing approved the study protocol. The questionnaires were provided to the participants for 1-month time schedule. The study was explained in detail in the front page and permission was requested as a prerequisite to continue to next pages. The questionnaire was given to the participants in a close envelope and after the completion, the participants put the questionnaire in a close box in which only the researcher had access. Through the research process, the researchers maintained the confidentiality and the personal data protection of the participants.

Instruments

The survey consisted of two questionnaire the Internet Addiction Test: Internet Addiction Test (IAT) and the second one the Symptoms Checklist 90: revised (SCL-90-R). The Internet Addiction Test: Internet Addiction Test (IAT)⁴⁴ is a 20-item scale that measures the presence and the severity

of Internet dependency. In the present study, we used a Greek version of IAT. IAT was translated by the main author after a license from Young and standardized to the Greek population, which had a Cronbach's alpha reliability of 0.876, and the p-value of test-retest was 0.72. Users are divided into: No (scores 0–19), minimal (scores 20–39), moderate (scores 40–59) and excessive (scores 60–100).²⁵

The Symptoms Checklist 90 Revised: is a multidimensional self-report symptom inventory developed by Donias S et al,⁴⁵ Derogatis et al⁴⁶ designed to measure psychopathology by quantifying nine dimensions: somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Additionally, there are three global indices of distress, the General Severity Index (GSI), representing the extent or depth of the present psychiatric disturbance, the Positive Symptom Total (PST), representing the number of questions rated above 1 point and the Positive Symptom Distress Index (PSDI), representing the intensity of the symptoms. Higher scores on the SCL-90, indicate greater psychological distress. The SCL-90 was proven to hold excellent test retest reliability, internal consistency and concurrent validity.⁴⁵

Statistical analysis

The Data were analyzed using the Statistical package of Social Sciences (SPSS) version 25.0 Descriptive statistics were used for computer use characteristics. ANOVA test was used to determine the correlations between internet addiction and psychiatric symptoms.

Results

Demographics and users characteristics

One hundred and twenty five female undergraduate students participated in this study. One person did not complete the Internet addiction test and was excluded from the study. The mean age of undergraduate students were found to be 19.24 ± 1.08 .

The level of Internet addiction is divided into 4 categories, which are: No, Minimal, Moderate and Excessive levels. The frequency of Internet addiction (excessive) was 5.6% (IAT score: 60–100). The frequency of moderate risk of Internet addiction was 19.4% (IAT score: 40–59). The frequency of minimal risk of Internet addiction was 43.5% (IAT score: 20–39). The frequency of not risk of internet addiction was 31.5% (IAT score: 0–19) (table 1)

Table 1. Internet addiction.

	N (%)
No	39 (31.5)
Minimal	54 (43.5)
Moderate	24 (19.4)
Excessive	7 (5.6)
Total	124 (100)

Results between SCL – 90 and internet addiction test

The correlation of scores in dimensions and the three global indices on SCL-90 between with and without internet addiction showed that undergraduate students with excessive or moderate internet addiction had higher scores in almost all dimensions. Mental side effects, such as somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, were correlated with excessive Internet addiction (table 2).

Discussion

This was the first study in Cyprus college female students, exploring the association between Internet addiction and the existence of psychopathological symptoms. Accurate estimates of the prevalence of Internet addiction in Cyprus students are lacking.

The IAT test, based in a systemic review concerning Internet use, has been identified as the only validated instrument used in a study that reported prevalence rates.⁴⁷ The prevalence of Internet addiction was 5.6% (IAT score: 60–100, excessive). The frequency of moderate risk of Internet addiction was 19.4% (IAT score: 40–59). The frequency of minimal risk of Internet addiction was 43.5% (IAT score: 20–39). Findings that are compatible to previous studies in college students.^{10,29} On the other hand, a number of studies reported a higher percentage of Internet addicted youths. In another study of a college population, found that 13% of Internet college users meet its criteria for Internet addiction. It is noteworthy that 69% of the participants are at risk for Internet addiction. Whether these students will actually develop an addiction, is difficult to be predicted. Nevertheless, the continuous exposure to Internet and a possible susceptibility to

Table 2. Anova test results of psychiatric symptoms with internet addiction.

	Groups	Internet addiction						
		mean ± sd	P-value					
			1 Vs 2	1 Vs 3	1 Vs 4	2 Vs 3	2 Vs 4	3 Vs 4
Somatization (SOM, 12 items)	1. No	0.79 ± 0.56	0.638	0.02	0.001	0.004	0.002	0.223
	2. Minimal	0.84 ± 0.44						
	3. Moderate	1.22 ± 0.60						
	4. Excessive	1.49 ± 0.53						
Obsessive-compulsive (O-C, 10 items)	1. No	0.62 ± 0.43	0.348	0.028	0.005	0.124	0.015	0.159
	2. Minimal							
	3. Moderate							
	4. Excessive							
Interpersonal sensitivity (INS, 9 items)	1. No	0.81 ± 0.58	0.150	0.035	0.013	0.313	0.073	0.268
	2. Minimal	1.03 ± 0.75						
	3. Moderate	1.20 ± 0.79						
	4. Excessive	1.54 ± 0.59						
Depression (DEP, 13 items)	1. No	0.87 ± 0.54	0.592	0.031	0.011	0.068	0.020	0.251
	2. Minimal	0.94 ± 0.65						
	3. Moderate	1.22 ± 0.69						
	4. Excessive	1.53 ± 0.64						
Anxiety (ANX, 10 items)	1. No	0.76 ± 0.60	0.268	0.063	0.003	0.304	0.015	0.089
	2. Minimal	0.91 ± 0.69						
	3. Moderate	1.08 ± 0.72						
	4. Excessive	1.56 ± 0.35						
Hostility (HOS, 6 items)	1. No	0.79 ± 0.73	0.286	0.024	0.002	0.136	0.009	0.103
	2. Minimal	0.96 ± 0.71						
	3. Moderate	1.24 ± 0.93						
	4. Excessive	1.79 ± 0.89						
Phobic anxiety (PHO, 7 items)	1. No	0.93 ± 0.70	0.713	0.442	0.040	0.260	0.023	0.132
	2. Minimal	0.86 ± 0.68						
	3. Moderate	1.07 ± 0.78						
	4. Excessive	1.53 ± 0.64						
Paranoid ideation (PAR, 6 items)	1. No	0.51 ± 0.57	0.075	0.023	0.002	0.370	0.025	0.110
	2. Minimal	0.81 ± 0.82						
	3. Moderate	0.98 ± 0.96						
	4. Excessive	1.52 ± 0.88						
Psychoticism (PSY, 10 items)	1. No	0.84 ± 0.65	0.621	0.030	0.026	0.061	0.043	0.406
	2. Minimal	0.92 ± 0.72						
	3. Moderate	1.25 ± 0.82						
	4. Excessive	1.51 ± 0.90						

Continued

Table 2. Anova test results of psychiatric symptoms with internet addiction.

	Groups	mean ± sd	Internet addiction					
			P-value					
			1 Vs 2	1 Vs 3	1 Vs 4	2 Vs 3	2 Vs 4	3 Vs 4
Additional items (7 items)	1. No	0.41 ± 0.43	0.081	<0.001	0.002	<0.001	0.018	0.866
	2. Minimal	0.65 ± 0.69						
	3. Moderate	1.24 ± 0.88						
	4. Excessive	1.29 ± 0.62						
Global indices of distress (GSI)	1. No	0.75 ± 0.45	0.280	0.005	0.001	0.037	0.005	0.138
	2. Minimal	0.87 ± 0.56						
	3. Moderate	1.15 ± 0.60						
	4. Excessive	1.49 ± 0.42						
Global indices of distress (PSDI)	1. No	1.74 ± 0.47	0.356	0.039	0.047	0.161	0.121	0.513
	2. Minimal	1.84 ± 0.60						
	3. Moderate	2.03 ± .024						
	4. Excessive	1.86 ± 0.54						
Global indices of distress (PST)	1. No	36.56 ± 16.72	0.154	0.009	0.001	0.116	0.009	0.119
	2. Minimal	42.09 ± 19.56						
	3. Moderate	49.21 ± 18.44						
	4. Excessive	61.57 ± 16.27						

Results shown as mean ± standard deviation, 1= No, 2=Minimal, 3=Moderate, 4=Excessive.

addictive behaviors may represent a possible danger. Previous studies have found similar results concerning moderate Internet addiction.^{34,42}

The results of the study showed that students with Internet addiction have higher psychopathological symptoms in all 10 dimensions of SCL-90 scale, than those without. In this study, Internet addiction affected psychopathological symptoms. This finding is consistent with previous studies.^{15,47,48} The association between psychopathological symptoms and Internet addiction using the SCL-90 scale had also been examined in the past and the results had shown that there was a strong association between psychopathological symptoms and Internet addiction.¹⁵ Students reported the presence of psychopathological problems such as anxiety, depression and psychotism. Many studies reported that excessive use of Internet was correlated with psychiatric problems like depression and anxiety.^{34,48} The association of depression, suicidal ideation and Internet addiction, is well-documented in previous studies especially in adolescents.^{22,30} A number of studies demonstrate the presence of both major depressive disorder and dysthymic disorder as well, to Internet addicts.³³

In this study paranoid ideation was associated with Internet addiction, which is a contradictory result to previous studies.^{15,17}

However, whether paranoid ideation preexists and predisposes Internet addiction in online activity, has not been validated and needs further analysis and clinical assessment. There are few studies reporting an association between Internet addiction and other psychiatric disorders as shown in the review of the literature.³⁰

Aggression is also associated with Internet addiction even though there is a lack of information concerning whether this behavior is expressed in everyday life. Sensitivity, somatization and phobic anxiety was associated with Internet addiction as well. These findings are consistent with other studies.^{34,36} In another article, the majority of surveys conveyed the association between pathological Internet use and depression, anxiety, obsessive-compulsive symptoms and hostility/aggression.⁴¹

Finally, many studies have shown that adolescents with depressive symptoms and social anxiety symptoms are more vulnerable to Internet addiction.^{5,26,29,47}

In this study, it was attempted to demonstrate the correlation between Internet addiction and the existence of psychopathological problems in college students in Cyprus.

In conclusion, Internet addiction needs to be further analyzed in order to determine whether Internet

use causes psychopathological problems or exacerbates symptoms that already exist.

This result highlights the need for more clinical studies focusing on psychiatric or psychological symptoms, based on psychiatric interview diagnosis.

ABSTRACT

Συσχέτιση Ανάμεσα στην Παρουσία Συμπτωμάτων Ψυχοπαθολογίας και Εξάρτησης στο Διαδίκτυο σε Φοιτητές Κολεγίου στην Κύπρο

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Εισαγωγή: Το Διαδίκτυο αποτελεί ένα σημαντικό εργαλείο επικοινωνίας με θετικά και αρνητικά χαρακτηριστικά στη ζωή του σύγχρονου ατόμου, ταυτόχρονα διευκολύνοντας και δυσχεραίνοντας την επικοινωνία. Οι περισσότεροι ερευνητές στο τομέα των εξαρτήσεων αναφέρουν ότι η διαταραχή εξάρτησης από το διαδίκτυο, είναι μια ψυχοφυσιολογική διαταραχή που εμπεριέχει την ανοχή, συμπτώματα απομόνωσης, τις συναισθηματικές διαταραχές και την διακοπή των κοινωνικών σχέσεων. Πρόκειται για ένα υπαρκτό πρόβλημα που γίνεται γνωστό στην κοινωνία όσο αυξάνεται η χρήση του υπολογιστή. **Σκοπός** της παρούσας ήταν η διερεύνηση του βαθμού εξάρτησης από το διαδίκτυο και της συσχέτισής του με την παρουσία ψυχοπαθολογικών συμπτωμάτων σε προπτυχιακές φοιτήτριες στο τμήμα Αισθητικής στο Κολέγιο Κύπρου. **Υλικό και Μέθοδος:** Η έρευνα πραγματοποιήθηκε σε 125 προπτυχιακές φοιτήτριες αισθητικής, του Κολεγίου Κύπρου τον Οκτώβριο του 2019. Οι συμμετέχοντες συμπλήρωσαν δύο ερωτηματολόγια, το ερωτηματολόγιο μέτρησης του βαθμού εξάρτησης στο διαδίκτυο (IAT) και το ερωτηματολόγιο (SCL-90-R) που μετρά την παρουσία ψυχοπαθολογικών συμπτωμάτων. Τα ερωτηματολόγια δόθηκαν σε φάκελο και επιστράφηκαν σε κλειστό κουτί διατηρώντας τις αρχές της εχεμύθειας και της διατήρησης και διαφύλαξης των προσωπικών δεδομένων των συμμετεχόντων στην έρευνα. Τα δεδομένα της έρευνας έχουν αναλυθεί χρησιμοποιώντας το στατιστικό πακέτο (SPSS) version 25.0 Για την ανάλυση των αποτελεσμάτων και για την ανάλυση των χαρακτηριστικών των συμμετεχόντων, χρησιμοποιήθηκε περιγραφική στατιστική μέθοδος. Παράλληλα πραγματοποιήθηκαν ANOVA τεστ για να εντοπιστούν και να διερευνηθούν οι συσχετίσεις ανάμεσα στην εξάρτηση στο διαδίκτυο και στην παρουσία ψυχοπαθολογικών συμπτωμάτων. **Αποτελέσματα:** Ο μέσος όρος ηλικίας των φοιτητριών ήταν $19,24 \pm 1,08$. Ο βαθμός εξάρτησης στο διαδίκτυο κατατάσσεται σε 4 κατηγορίες οι οποίες είναι: καθόλου, λίγος, μέτριος και υψηλός βαθμός εξάρτησης. Η συχνότητα εμφάνισης του υψηλού βαθμού εξάρτησης στο διαδίκτυο είχε το 5,6% του δείγματος (IAT σκορ: 60–100). Η συχνότητα εμφάνισης του μέτριου βαθμού εξάρτησης είχε το 19,4% του δείγματος (IAT σκορ: 40–59). Η συχνότητα εμφάνισης του μικρού βαθμού εξάρτησης είχε το 43,5% του δείγματος (IAT σκορ: 20–39). Η συχνότητα εμφάνισης με καθόλου βαθμό εξάρτησης είχε το 31,5% (IAT σκορ: 0–19). Οι φοιτήτριες που παρουσίασαν υψηλό, μέτριο και μικρό βαθμό εξάρτησης στο διαδίκτυο αποτελούσαν το 68,5% του δείγματος. Το 68,5% παρουσίασε συνύπαρξη συμπτωμάτων ψυχοπαθολογίας, (συμπτώματα σωματοποίησης, παρουσία συμπτωμάτων ψυχαναγκασμού και καταναγκασμού, παρουσία συμπτωμάτων προσωπικής ευαισθησίας, κατάθλιψη, άγχους, φοβικής διαταραχής, παρανοϊκού ιδεασμού) και εξάρτησης στο διαδίκτυο. **Συμπεράσματα:** Τα αποτελέσματα της έρευνας καταδεικνύουν ότι η παρουσία ψυχοπαθολογίας στις υπό διερεύνηση φοιτήτριες κολεγίου έχουν υψηλό βαθμό συσχέτισης με την εξάρτηση στο Διαδίκτυο. Συμπτώματα ψυχοπαθολογίας όπως η σωματοποίηση, ιδεοψυχαναγκαστικά συμπτώματα, η διαπροσωπική ευαισθησία, η κατάθλιψη, το άγχος η παρουσία εχθρότητας/επιθετικότητας, το φοβικό άγχος, η παρουσία παρανοϊκού ιδεασμού και ο ψυχωτισμός. Το Διαδίκτυο βρίσκεται ανάμεσα στη σχέση με την οικογένεια, και τις καθημερινές δραστηριότητες προκαλώντας συχνά ψυχική δυσφορία και παρουσία ψυχοπαθολογικών συμπτωμάτων τα οποία επιδεινώνουν τις δυσμενείς επιπτώσεις και την επικοινωνία με το εξωτερικό

περιβάλλον. Η κοινωνία πρέπει να αυξήσει την εκπαίδευση και τους κανόνες σε ευρύτερο κοινωνικό πλαίσιο σε σχέση με τη χρήση του Διαδικτύου θέτοντας περιορισμούς και όρια στη χρήση του.

Λέξεις-ευρητήριο: Εξάρτηση στο διαδίκτυο, φοιτητές, Πανεπιστήμιο, Κολέγιο, ψυχοπαθολογία.

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