



Araştırma

2022; 31 (3): 316-321

PROBLEM INTERNET USE IN NURSING STUDENTS AND ITS IMPACT ON HEALTH-RELATED
QUALITY OF LIFE
HEMŞİRELİK ÖĞRENCİLERİNDE PROBLEMLİ İNTERNET KULLANIMI VE SAĞLIKLA İLİŞKİLİ YAŞAM KALİTESİ
ÜZERİNDEKİ ETKİSİ

¹Hasan Hüseyin ÇAM, ¹Fatma KARASU

¹Kilis 7 Aralık University, Yusuf Serefoglu Faculty of Health Sciences, Department of Nursing, Kilis, Turkey

ABSTRACT

Problematic internet use (PIU) has been evaluated as an important factor that negatively affects people's lives, and it is increasing at an alarming rate. Although growing interest in Internet Addiction Disorder (IAD) in the high school population, very little is known about the potential risks of the use of the internet for university students. The aim of the study was to evaluate the prevalence of PIU and its relationship to health-related quality of life (HRQOL) among nursing students. This cross-sectional study surveyed 269 (104 male and 165 female) students at a university, using a self-administered questionnaire with sections on socio-demographics, score for internet use/addiction (IA), and an assessment of HRQOL. The statistical analysis was done with SPSS Version 23 using Independent-Samples t Test, Fisher's Exact Test, and Chi-Square Test. The ages of students in the research group ranged from 17 to 29 with a mean age of 20.86±1.79. The prevalence of problematic internet use was 9.3% (total of 25 students). Participants with PIU are more likely to experience poor physical and mental health. PIU is widespread among university students, and PIU was significantly associated with poor HRQOL. Effective precautions are necessary to prevent the spread of this problem and interventions to prevent the effects of PIU on HRQOL should be conducted as early as probable.

Keywords: Problematic internet use, quality of life, nursing students

ÖZ

Problematic internet kullanımı (PİK) insanların yaşamlarını olumsuz yönde etkileyen önemli bir faktör olup, endişe verici oranda artmaktadır. Her ne kadar lise popülasyonunda İnternet Bağımlılığı Bozukluğuna karşı ilginin artmasına rağmen, üniversite öğrencilerinde internet kullanımının potansiyel riskleri hakkında çok az şey bilinmektedir. Bu çalışmanın amacı, üniversite öğrencileri arasında problematik internet kullanımı yaygınlığını belirlemek ve sağlıkla ilişkili yaşam kalitesi ile olan ilişkisini değerlendirmektir. Kesitsel araştırma tasarımı kullanılarak yapılan bu çalışma, bir üniversite de 269 (104 erkek ve 165 kız) öğrenciyle sosyodemografik özellikler bilgi formu, internet bağımlılığı ve sağlıkla ilişkili yaşam kalitesi değerlendirme ölçeği kullanılarak gerçekleştirildi. İstatistiksel analiz, SPSS Versiyon 23 ile Bağımsız Örneklem t Testi, Fisher'in Kesin Testi ve Ki-Kare Testi kullanılarak yapıldı. Araştırma grubundaki öğrencilerin yaşları 17 ile 29 arasında değişmekte olup, yaş ortalaması 20.86±1.79'dır. PİK yaygınlığı %9.3 (toplam 25 öğrenci) idi. Problematic internet kullanıcılarının, kötü düzeyde fiziksel ve zihinsel sağlık deneyimleme olasılıkları daha yüksekti. PİK üniversite öğrencileri arasında yaygın olup, kötü sağlık durumu ile anlamlı derecede ilişkilidir. Bu sorunun yayılmasını önlemek için etkili önlemler alınmalı ve PİK'nın sağlıkla ilişkili yaşam kalitesi üzerindeki etkilerini önlemeye yönelik müdahaleler mümkün olduğunca erken yapılmalıdır.

Anahtar kelimeler: Problemler internet kullanımı, yaşam kalitesi, hemşirelik öğrencileri

Corresponding Author: Fatma KARASU, Kilis 7 Aralık University, Yusuf Şerefoglu Faculty of Health Sciences, Department of Nursing, Kilis, Turkey, fatmakarasu@kilis.edu.tr, ORCID: 0000-0002-7347-0981
Hasan Hüseyin ÇAM, cam_hasanhuseyin@hotmail.com, 0000-0002-1722-4727

Makale Geliş Tarihi : 22.04.2021
Makale Kabul Tarihi: 25.05.2022

INTRODUCTION

In the last decade, internet utilization has grown enormous on the global scale. There is increase in popularity and frequency of the internet use (1). Prevalent internet access has benefited people by improving access to online knowledge and providing new opportunities for entertainment and social communication. Although the internet has presented benefits, extreme usage of the internet is related with a psychiatric status known as internet addiction (IA). Addictive/pathological use of the internet is a new and quickly growing phenomenon (2). The terms "pathological internet use", "problematic internet use" and "internet addiction" are mostly considered synonyms of internet dependence. Young et al. recommended diagnostic criteria for internet addiction (IA) in which tolerance, withdrawal, preoccupation, poor planning abilities, excessive online time, and impairment of control were defined as core signs(3). IA mimics other forms of addiction and is characterized by an inadequacy to prevent internet use despite negative effect on psychosocial functioning and physical health (2). Problematic internet use (PIU) has been found to be related with several psychological and social issues in previous studies, including academic failure, poor psychological well-being, reduced work performance, poor self-confidence, social withdrawal, marital breakdown, family problems, sleep deprivation, poor diet, and cardiopulmonary-related death (4). Young people are among the age groups that are most affected by and use technological changes. Today, social concepts such as internet youth have begun to be used for young people who mostly play internet games, participate in virtual communities, communicate and socialize on the internet (5).

Compared to overall demographic groups of internet users, the university student population has been regarded as one of the most sensitive to developing problematic or excessive internet usage (6). University students are considered a high risk group for PIU; potential causes for this are that (a) students have huge blocks of unstructured time, (b) universities and schools ensure limitless and free access to the internet, (c) students between 18 and 22 years are for the first time far from parental check without no body censoring or monitoring what they say or do online, (d) young students experience new issues of adapting to university life and finding new friends, (e) students receive full encouragement from faculty and administrators in using the different applications of the internet, (f) adolescents are more trained to use the different applications of technological inventions and particularly the internet, (g) students desire to run away university sources of stress resulting from their obligations to pass the examinations, to deliver essays and to fulfill their purpose of getting their degrees in the prescribed time with reasonable marks, and finally, (h) students sense that university life is alienated from social activities and when they finish their studies, the job market, with all its uncertainties is a field where they must attend and achieve in getting a job (7).

International predictions of university student PIU vary widely. The prevalence rate of PIU in university students has been reported to be 4% in US, 13% in Egypt, 21% in the Iran, 24% in Bangladesh, and 34.7% in

Greece (7-11). In a study conducted in Turkey with 720 university students, the prevalence of PIU was found to be 7.2% (12). Another recent national study reported the prevalence of PIU equal to 13.5% among university students in Turkey (13). However, the extensive range of prevalence predictions indicates that the diversity of psychometric instruments utilized does not allow for a clear determination of actual prevalence rates for PIU (14). Although the Internet makes our lives easier in many areas, it also has negative effects along with the convenience it offers. One of the effects that cause concern on internet users is the health problems caused by addictive behaviors due to excessive use (15).

Health-related quality of life (HRQOL) is a beneficial indicator of overall health because it captures knowledge on the mental and physical health condition of individuals and on the impact of health status on quality of life. HRQOL is mostly assessed by way of multiple indicators of self-perceived health status and emotional and physical functioning. Together, these measures provide a comprehensive evaluation of the burden of preventable injuries, disabilities, and diseases (16). Addictions, similar to chronic diseases, have features that can affect various aspects of people's quality of life. It has been shown in studies that internet addiction affects quality of life. (17-19).

PIU is a worldwide mental health problem in university students and have negative psychosocial and physical effects and the overall HRQOL (20). Despite the widespread use of internet in Turkey, there is not enough data on the relationship between PIU or internet addiction in adolescents and young adults and its effects on the HRQOL. Since PIU can reason academic failure and has critical risks for physical, mental, and social health of students, the results of this study could be useful for those concerned with the administration and prevention of this problem in universities (21).

The aim of this study was to determine the prevalence of problematic internet use among nursing students and to assess the associations between problematic internet use and the health-related quality of life.

MATERIALS AND METHODS

Study design and population

This cross-sectional study was carried out in nursing students of a university, who were studying in the spring semester of the academic year 2018. Data were collected between September 2018 and October 2018. The total number of students in the part was 350. It was aimed to reach the entire universe by not choosing a sample. Of these, a total of 269 completed the survey, translating to a participation rate of 76.8%.

The criteria for inclusion in the study were to be educated at the university where the study was conducted, to be over the age of 18, not to have any psychiatric problems that prevented participation in the study, to speak Turkish and to volunteer to participate in the study.

Data collection tools

Self-completed questionnaires were distributed to all of the study participants in their classrooms of the respective schools. The participants were asked to complete the questionnaire anonymously. The questionnaire in-

cluded three components: (i) demographic information and Internet usage profile; (ii) Internet Addiction Test (IAT); and (iii) The 12-Item Short Form Health Survey (SF-12).

Demographic factors consisted of age, gender, residential status, living circumstance, number of siblings, educational level of mother and father, academic success, sleep duration, smoking tobacco and alcohol use. Self-rated academic success was categorized into three levels: poor, average, and good. Internet usage pattern was assessed by examining the frequency of internet use per week and the purpose of internet use.

Internet Addiction Test (IAT): The Young's 20-item Internet Addiction Test (IAT) was applied in order to assess problematic internet use. Each item is scored from 1 to 5, with 1 representing "not at all" and 5 representing "always". Hence, possible total scores range from 20 to 100. The following cut-off points were applied to the total IAT score 1) Normal internet use (NIU): scores 20~49; 2) The Turkish version of the validity and reliability study was prepared by Bayraktar et al. and the validity coefficient was determined as 0.91 (22). In this study, the Cronbach's Alpha coefficient for the total scale was calculated as 0.93.

12-Item Short Form Health Survey (SF-12): The SF-12 is a health-related quality-of-life questionnaire consisting of twelve questions that measure eight health domains to assess mental and physical health. Physical health-related domains contain Physical Functioning (PF), Role-Physical (RP), Body Pain (BP), and General Health (GH). Mental health-related scales include Vitality (VT), Social Functioning (SF), Role Emotional (RE), and Mental Health (MH). The SF-12 is weighted and summed to provide easily interpretable scales for mental and physical health. Mental and Physical Health Composite Scores (MCS&PCS) are computed using the scores of twelve questions and range from 0 to 100, where a zero score shows the lowest level of health measured by the scales and 100 shows the highest level of health (23). The Turkish validity study was prepared by Kocyigit et al. The Cronbach's alpha reliability of the scale was 0.73-0.76 (24). In this study, the Cronbach Alpha coefficient was calculated as 0.81.

Ethical considerations

Ethical approval for this study was obtained from the Gaziantep University Medical Faculty Medical Ethical Committee (2018/167) and the institution where the study will be conducted. The participants provided informed consent to participate in this study by signing a consent form following reading the information sheet provided for them, and the Ethics Committee approved this consent procedure.

Statistical analyses

All data were statistically analyzed using the IBM SPSS Version 23 computer package and statistical significance. With the Kolmogorov-Smirnov test, the conformity of the data to the normal distribution was checked and it was determined that the data showed normal distribution. Descriptive analyses were performed on all variables and the prevalence of PIU. Chi-square test,

Fisher's Exact Test, and Independent-Samples t Test were used to compare the proportions and means of the independent variables versus dependent variables. A p-value of <0.05 was considered statistically significant.

RESULTS

Table I shows the distribution of the sample as well as the prevalence of PIU by socio-demographic and behavioral factors. A total of 269 students (104 male and 165 female) participated in the study. The mean age of the students was 20.86 ± 1.79 years, with the following profile: ages ranged between 17 and 29 years, with a majority between 21 and over years (55.8%); males and females were 38.7% and 61.3%, respectively; more than half (59.9%) of the students came from urban; 35.3% lived with family members; 72.1% have four or more siblings; maternal and paternal education secondary or less with %91.1 and 68.4%, respectively; 61.0% were average and poor academic success degree; almost half of them had a short duration of sleep (≤ 6 h); 17.8% were current smokers and only 7.8% were alcohol users.

Nearly 9.3% of the total sample was fall under the category of PIU. No significant difference was found in socio-demographic and behavioral factors (age, gender, residence, living with parents or not, number of siblings, mothers' education, fathers' education, academic success, sleep duration, smoking and alcohol use) between the PIU (Table I).

In Table II, PIU was significantly higher among students with more hours of daily internet use ($P < 0.05$), who use the internet more frequently each week ($p < 0.05$), and among those who use the internet for socialization ($p < 0.05$). Significantly, most of the problematic internet users used the internet mostly in the nights as compared to other users who used it in the mornings, afternoons and evening as well ($p < 0.05$).

Table III showed the health-related quality of life (HRQOL) among university students with PIU and normal internet use. We found a significant statistical association between PIU and normal internet use groups and SF-12 Composite Scores. Students with PIU had poor mental and physical well-being, as indicated by significantly lower scores for SF-12 mental and physical components ($p < 0.05$) (Table III).

DISCUSSION

The aim of this research was to determine the prevalence rate of PIU and its relation with socio-demographic attributes and behavioral covariates among university students from in a city. In addition, the research investigated the relationship between PIU and HRQOL.

In this study, the prevalence of PIU was 9.3 percent. The prevalence rates of PIU appear to vary among different research populations. Even though, because of applying various instruments in the studies, compare of their consequences is not wise. In university student populations, PIU rate of range from 4% in US, 13% in Egypt, 7.2% and 13.5% in Turkey, 21% in the Iran, 24% in Bangladesh, and 34.7% in Greece (7-11,13). The observed variety of PIU prevalence in these studies, even in studies done in the identical country could be

Table I. Sample distribution and the prevalence of problematic internet use by socio-demographic and behavioral factors

Variables	Internet use patterns						p-value
	NIU		PIU		Total		
	n	%	n	%	N	%	
Age, years (Mean±SD=20.86±1.79)							
≤ 20 age	107	89.9	12	10.1	119	44.2	^a 0.691
≥ 21 age	137	91.3	13	8.7	150	55.8	
Gender							
Male	95	91.3	9	8.7	104	38.7	^a 0.774
Female	149	90.3	16	9.7	165	61.3	
Residence							
Urban	146	90.7	15	9.3	161	59.9	^a 0.987
Rural	98	90.7	10	9.3	108	40.1	
Living with parents or not							
Yes	88	92.6	7	7.4	95	35.3	^a 0.422
No	156	89.7	18	10.3	174	64.7	
Number of siblings (Including himself)							
≤ 3	67	89.3	8	10.7	75	27.9	^a 0.630
≥ 4	177	91.2	17	8.8	194	72.1	
Mothers' education							
Secondary or less	223	91.0	22	9.0	245	91.1	^b 0.476
High education	21	87.5	3	12.5	24	8.9	
Fathers' education							
Secondary or less	169	91.8	15	8.2	184	68.4	^a 0.343
High education	75	88.2	10	11.8	85	31.6	
Academic success							
Good	98	93.3	7	6.7	105	39.0	^a 0.235
Average and poor	146	89.0	18	11.0	164	61.0	
Sleep duration							
≤ 6 hours	123	89.8	14	10.2	137	50.9	^a 0.594
≥ 7 hours	121	91.7	11	8.3	132	49.1	
Smoking							
Yes	43	89.6	5	10.4	48	17.8	^a 0.768
No	201	91.0	20	9.0	221	82.2	
Alcohol use							
Yes	18	85.7	3	14.3	21	7.8	^a 0.412
No	226	91.1	22	8.9	248	92.2	
Total	244	90.7	25	9.3	269	100	

^a Pearson Chi-Square, ^b Fisher's Exact Test**Table II.** PIU prevalence based on students' Internet usage profile

Variables	Internet use patterns						*p-value
	NIU		PIU		Total		
	n	%	n	%	N	%	
Most common purpose of internet use							
Social networking	163	88.1	22	11.9	185	68.8	0.029
Others	81	96.4	3	3.6	84	31.2	
Internet access time							
Others	158	93.5	11	6.5	169	62.8	0.041
Night	86	86.0	14	14.0	100	37.2	
Frequency of internet use/week							
≤ 5 day	93	97.9	2	2.1	95	35.3	0.002
6-7 day	151	86.8	23	13.2	174	64.7	
Duration of average daily use of internet (in hours)							
≤ 3 hours	154	96.2	6	3.8	160	59.5	0.004
≥ 4 hours	90	82.6	19	17.4	109	40.5	
Total	244	90.7	25	9.3	269	100	

*Pearson Chi-Square.

Table III. Comparison of mental component summary and physical component summary of health related quality of life of PIU and normal internet use groups

Variables	Internet use patterns		p-value
	NIU	PIU	
SF-12 Composite Scores			
	(n=244, 90.7%) Mean ± SD	(n=25, 9.3%) Mean ± SD	
Mental Health Composite Scores	52.97 ± 16.55	43.86 ± 15.08	t=2.898 °0.004
Physical Health Composite Scores	70.38 ± 21.15	57.00 ± 23.31	t=2.641 °0.006

°Independent-Samples t Test

attributed to the difference in the social and cultural contexts, and the utilization of different evaluation tools, cutoffs. By using the internet, young people can learn up-to-date information very quickly, do their homework and various researches, meet and communicate with new people through social media platforms. It can meet entertainment needs such as listening to music, playing games and watching movies together.

Of all the online applications examined in this study, it was the use of social networking sites that most increased the risk of being addicted to the internet. In the present study, NIUs and PIUs used more the social networking, a result that was clarified from other studies (10,14). Previous researches has shown that communication pleasure is the strongest determinant of PIU (14), which is supportive of the current hypothesis indicating that extensive use of social online applications is a risk factor for PIU. This shows that individuals with PIU spend more time on the Internet.

The present research demonstrated that problematic internet users spend more hours on the internet. The same result was clarified from last studies where PIUs spent prolonged hours using the internet (10, 11, 25). Researchers have proposed that problematic internet users have to by stages increase the hours of internet use in order to achieve the desired effect (25). An explanation of this relationship could be that individuals who deficiency social skills for face-to-face interaction use the internet excessively to continue a social environment, an issue that drives them to spend longer time on internet (10). The in activity observed with the increase in the time spent on the Internet is likely to affect the quality of life and general physical health of university students who are internet users.

PIU has been found to affect the overall HRQOL and cause detrimental physical and psychosocial effects. We found that HRQOL was significantly associated with PIU for university students. In our current study, the higher the IAT score (scores over 50), the lower both the PCS and MCS. This result is consistent with studies by Kelley and Gruber (2013) in the USA and Kim et al. (2013) in China, Barayan et al. (2018) in Saudi Arabia, who investigated the relationship between HRQOL and PIU (20,26,27).

The study has also several limitations. First, given that

the data were collected from university students in one province in Turkey, the results may not be representative of the general population. Second, the data were provided by the students themselves, which may have introduced self-report bias, and the validity of some data could not be easily quantified. Third, this was a cross-sectional study; longitudinal studies are required to resolve the causal direction of relationships between PIU, health-related quality of life, and other potential risk factors.

CONCLUSIONS

The results of this study indicated that PIU was widespread among Turkish university students, and PIU was significantly related with physical and mental health problems. PIU is a growing problem that requires preventive strategies and interventions. From the study findings of HRQOL in university students, and its related factors, it is recommended that more studies are done to explore factors affecting the quality of life of university students, especially as related to internet use and its negative effect on health. Early identification and intervention of those demonstrating symptoms of PIU may prevent the development of addictive behavior and maladaptive coping responses, thus preventing future negative psychosocial consequences.

Conflicts of Interest

No conflict of interest has been declared by the authors.

REFERENCES

1. Shaheen H M, Farahat T M, Gaber H M. Problematic Internet Use among Medical School Students in Menoufia University Egypt. *Journal of Child and Adolescent Behavior*.2016June; 4:298.
2. Zhang M W B, Lim R B C, Lee C, Ho R C M. Prevalence of Internet Addiction in Medical Students: A Meta-analysis. *Academic Psychiatry: the journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry*.2018 Feb; 42(1):88-93.
3. Younes F, Halawi G, Jabbour H, El Osta N, Karam L, Hajj A, Rabbaa Khabbaz L. Internet Addiction and Relationships with Insomnia, Anxiety, Depression, Stress and Self-Esteem in University Students: A

- Cross-Sectional Designed Study. *PLoS One*.2016 Sep; 11(9):e0161126.
4. Balhara Y P, Gupta R, Atilola O, Knez R, Mohorović T, Gajdhar W, Javed A O, Lal R. Problematic Internet Use and Its Correlates Among Students from Three Medical Schools Across Three Countries. *Academic Psychiatry: The Journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry*.2015 Dec; 39(6):634-638.
 5. Karaca M. İnternet gençliği: yeni bir gençlik tiplmesi denemesi. *e-Journal of New World Sciences Academy Social Sciences: Humanities*. 2007;2 (4):419-438.
 6. Yeap J A L, Ramayah T, Kurnia S, Halim H L, Ahmad N H. The assessment of internet addiction among university students: some findings from a focus group study. *TehničkiVjesnik*. 2015Jan-Feb; 22(1): 105-111.
 7. Frangos C C, Frangos C C, Sotiropoulos I. Problematic Internet Use among Greek university students: an ordinal logistic regression with risk factors of negative psychological beliefs, pornographic sites, and online games. *Cyber psychology, Behavior and Social Networking*. 2011Jan-Feb; 14(1-2):51-58.
 8. Christakis D A, Moreno M M, Jelenchick L, Myaing M T, Zhou C. Problematic internet usage in US college students: a pilot study. *BMC Medicine*.2011Jun; 9:77.
 9. Islam M A, Hossin M Z. Prevalence and risk factors of problematic internet use and the associated psychological distress among graduate students of Bangladesh. *Asian Journal of Gambling Issues and Public Health*. 2016 Nov; 6(1):11.
 10. Desouky D E, Ibrahim R A. Internet Addiction and Psychological Morbidity among Menoufia University Students, Egypt. *American Journal of Public Health Research*. 2015Oct; 3(5):192-198.
 11. Mazhari S. Association between problematic Internet use and impulse control disorders among Iranian university students. *Cyber psychology, Behavior and Social Networking*.2012 May; 15(5):270-273.
 12. Senormancı O, Saraçlı O, Atasoy N, Senormancı G, Koptürk F, Atik L. Relationship of Internet addiction with cognitive style, personality, and depression in university students. *Comprehensive Psychiatry*.2014Aug; 55(6):1385-1390.
 13. Baysan-Arslan S, Cebeci S, Kaya M, Canbal M. Relationship between internet addiction and alexithymia among university students. *Clinical and Investigative Medicine*.2016Dec; 39(6):27513.
 14. Kuss D J, Griffiths M D, Binder J F. Internet addiction in students: Prevalence and risk factors. *Computers in Human Behavior*. 2013May; 29 (3): 959-966.
 15. Shahnaz I, Karim R. TheImpact of internet addiction on life satisfaction and life engagement in young adults. *Universal Journal of Psychology*. 2014;2:273 - 84.
 16. Yin S, Njai R, Barker L, Siegel P Z, Liao Y. Summarizing health-related quality of life (HRQOL): development and testing of a one-factor model. *Population Health Metrics*. 2016Jul; 14:22.
 17. Fatehi F, Monajemi A, Sadeghi A, et al. Quality of life in medical students with internet addiction. *Acta Med Iran*. 2016; 54: 662-666..
 18. Kalkan B, Bhat CS. Relations hips of problematic internet use, online gaming, and online gambling with depression and quality of life among college students. *International Journal of Contemporary Educational Research*. 2020; 7: 18-28.
 19. Chern KC, Huang JH. Internet addiction: Associated with lower health-related quality of life among college students in Taiwan, and in whataspects? *Comput Hum Behav*. 2018; 84: 460-456.
 20. Barayan S S, Al Dabal B K, Abdelwahab M M, Shafey M M, Al Omar R S. Health-related quality of life among female university students in Dammam district: Is Internet use related? *Journal of Family & Community Medicine*.2018Jan-Apr; 25(1):20-28.
 21. Young K S. Internet Addiction: The emergence of a new clinical disorder. *Cyber Psychology and Behavior*. 1998 Jan; 3: 237-244.
 22. Bayraktar F. İnternet kullanımının ergen gelişimindeki rolü. Master Thesis, İzmir, Ege University, Social Sciences Institute, 2001.
 23. Ware J E Jr, Kosinski M, Keller S D. SF-12: How to score the SF-12 Physical and Mental Health Summary Scales, 2nd edition, The Health İnstitute New England Medical Center, Boston, 1995.
 24. Kocyigit H, Aydemir O, Olmez N, Memis A. Reliability and Validity of the Turkish Version of Short Form-36 (SF-36). *Turkish Journal of Drugs Therapeutics*.1999 Jan;12(2):102-106.
 25. Chou C, Hsiao M C. Internet addiction, usage, gratification, and pleasure experience: the Taiwan college students' case. *Computers & Education*. 2000 Aug; 35: 65-80.
 26. Kelley K J, Gruber E M. Problematic Internet use and physical health. *Journal of Behavioral Addictions*.2013Jun; 2(2):108-112.
 27. Kim J H, Griffiths S M, Lau C H, Fong B Y, Lam J. Pathological Internet use and associated factors among university students in Hong Kong. *Hong Kong Medical Journal*.2013Dec; 19 Suppl 9: 9-11.