The Relationship between Internet Addiction and Disordered Eating Attitudes Among Two Cohorts of Undergraduate Students in Karachi, Pakistan

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Abstract

Background: This study aimed to assess and compare the frequency of Internet Addiction (IA) and Disordered Eating Attitudes (DEA) among medical and non-medical university students in Karachi, Pakistan, and examine their relationship.

Methodology: A cross-sectional study was conducted among medical and non-medical students in Karachi, Pakistan. Two hundred students completed a socio-demographic questionnaire along with validated questionnaires: the Internet Addiction Test (IAT) for IA assessment and the Eating Attitude Test-26 (EAT-26) for measuring eating attitudes and behaviors.

Results: No significant difference was found in IA levels between the two groups. However, non-medical students (46.5%, n=93) were significantly more at risk of DEA compared to medical students (45.5%, n=91) (p-value=0.043). A significant positive correlation was observed between IA and DEA (r = 0.599, p-value < 0.001).

Conclusion: The study highlights a positive correlation between IA and disordered eating attitudes. Non-medical students are particularly at risk of developing such attitudes. Future research should delve into the factors contributing to both IA and DEA.

Keywords: Internet addiction disorder; feeding and eating disorders; medical students; Pakistan


Introduction

Internet is now considered an indispensable part of our lives, which is essential for acquiring information and spreading connections worldwide (1, 2). With the advancement in modern society, its use has increased significantly. As a result, Internet Addiction (IA) has become an increasing problem in all age categories and countries (3-6). Teenagers and young adults are regular and constant users of internet worldwide, particularly 14-24 years age group (7). These adolescents use the internet for educational purposes, social networking and leisure activities (8). The Internet has become an imperative part of every individual after the COVID-19 pandemic (9). In April 2020, there was an outbreak of an unprecedented virus COVID-19. In more than 130 countries, movement was restricted and approximately 3 billion people globally were required to stay-at-home as a preventive measure to avoid getting or spreading the disease to others. The stay-at-home lockdown orders has rapidly increased the utilization of the internet for work, studies and entertainment (10). This digital surge and dependence on the internet has negative consequences on mental health (11).

Excessive internet use has been represented by numerous terms like “at-risk/problematic Internet use”, “pathological Internet use”, “problematic Internet use” and “compulsive Internet use” (12). IA is defined as, “an individual’s inability to control his or her use of the internet, which eventually causes psychological, social, school, and/or work difficulties in a person’s life” (13, 14).

Eating Disorder is classified by Diagnostic and Statistical Manual of Mental Disorders (DSM-5) into eight different types, with Anorexia Nervosa and Bulimia Nervosa leading the list (15). Eating disorders have a “complex etiology involving transactions among socio-cultural, psychological, and biological influences” (16). Etiological factors of eating disorders include globalization and electronic media in developing countries (8, 17, 18), obesity and body shape (8, 18, 19), body dissatisfaction (20),...
IA (5, 8, 18) and depression (19, 21). Moreover, Disordered Eating Attitudes (DEA) have become a global problem among youngsters (4).

Rodgers et al reported that important predictors of eating disorder among women were controlling body mass index, IA symptoms and body image avoidance (22). Another study done in China on students between ages 12 to 25 years found a relationship between internet dependence and eating disorder. Data showed that internet dependents were more disposed to bulimia than anorexia. Furthermore, studies done in Turkey on young students found a positive correlation between IA and eating disorder (5, 8). In these studies, students at risk of eating disorders were 12.6% (5) and DEA was found in 15.2% students (8). A study conducted in Lahore, Pakistan among university students demonstrated that 9.6% and 41.9% were severely and moderately addicted to internet, respectively. IA was linked to unhealthy eating habits and living style (24).

According to Systematic Review and Meta-Analysis Study, problematic internet use is a predictor of eating disorder such as anorexia nervosa, bulimia nervosa, binge-eating disorder, food preoccupation, loss of control eating, and dieting. (25). Numerous studies are conducted worldwide to find the relationship between IA and DEA (5, 8, 22, 25). However, no research has been conducted in Pakistan, particularly Karachi to find the relationship between IA and DEA among university students (6, 7, 26).

Sedentary lifestyle and social isolation among youth is common nowadays. This surge of uncontrolled and excessive internet use poses a need to find out the addictive behavior of the internet on the younger generation of our country. Furthermore, increase in online free delivery services, powerful marketing tactics and attractive food advertisements give an impulse to order food at home. Therefore, excessive internet use can lead to eating disorders. Due to the paucity of literature available and to fill the knowledge gap, this study aimed to assess the frequency of IA & DEA between two cohorts of undergraduate students of Karachi as significant differences were found between internet addiction and eating disorders in medical and non-medical students in previous literature. (44)(45)(46) Furthermore, it aimed to examine any possible relationship between them so to recommend possible solutions to combat it.

**Methodology**

A cross sectional study was conducted among medical students of Jinnah Sindh Medical University and non-medical students of Karachi University. The study was conducted for one year after ethical approval was obtained (JSMU/IRB/2021/-483). Students were approached in their respective universities and were explained the objectives of the study. Confidentiality of the responses was maintained and they were explained that they can withdraw from the study anytime they want.

Male and female students of age group 18-25 and studying in the selected universities and they were inducted through non-probability convenience sampling. Meanwhile students who did not give consent to participate in the study were part of the exclusion criteria.

The sample size was calculated using open Epi. For the first objective, a prevalence of 9.6% of severe IA was taken among Pakistani university students (24). With a 95% confidence level and 5% bound on error, the estimated sample size came out to be 134. For the second objective, a prevalence of 13.9% of eating disorders was taken among Malaysian university students (28). With a 95% confidence level and 5% bound on error, the estimated sample size came out to be 184. Furthermore, a 36.4% prevalence of IA in young adults of the university who had an eating disorder, as compared to a 9.7% prevalence of IA in young adults without an eating disorder, was taken (5). With 95% confidence level and 80% power, the estimated sample size came out to be 92. The highest sample size was taken to capture maximum variability, which was 184. It was rounded off to 200 to adjust for missing data and non-responses, with 100 in each group.

A socio-demographic questionnaire along with validated questionnaire i.e., Internet Addiction Test (IAT) for the assessment of IA and Eating Attitude Test-26 (EAT-26) which measures eating attitudes and behaviors were used. The reliability of IAT and EAT-26 had a Cronbach’s alpha of 0.899 and 0.85, respectively (29)(30). Additionally, both the questionnaires were subjected to face validity by a subject expert and were pretested before implementing the study. Permission to use IAT was available on the website (31). Permission to use EAT-26 was granted through email.

The data were analyzed and subjected to statistical inference by Statistical Package for the Social Sciences (SPSS) software, version 26. Continuous variables were summarized by reporting mean and standard deviation and categorical variables by frequencies and percentages. Chi-square test was performed to assess significant differences between IA and DEA among medical and non-medical university students. Relationship between IA and DEA was assessed through Pearson’s correlation. The p-value of <0.05 was considered significant for all inferential tests.

**Results**

Out of 200 students, 73 (70.9%) medical students belonged to the age group 22-25, whereas 66 (68%) non-medical students belonged to the 18-21 age group (p<0.001). There were 48 (46.6%) medical students who were from the final year of their study whereas the non-medical students, 43 (44.3%) were mostly from the first year (p=0.001), with the majority from both groups living in nuclear families (p=0.02). (Table 1)
There was no significant difference between the IA levels of both groups, however non-medical students, 93 (95.9%) were significantly more at risk of DEA as compared to 91 (88.34%) medical students (p=0.043). (Table 2)

There was a significant positive correlation found between IA and DEA (r = 0.599, P < 0.00). [Table 3]

**Discussion**

The current study compared the frequency of IA (Internet Addiction) and DEA (Disordered Eating Attitudes) among medical and non-medical students and investigated the relationship between them. Our study revealed that problematic internet use is positively correlated with eating disorders. Additionally, our study found that higher internet use is more prevalent among medical students with a greater proportion of them being at risk for disordered eating behaviors in comparison to non-medical students.

The confirmation of our hypothesis that a strong correlation exists between pathological internet use and DEA has previously been well documented. Fayez et al’s study found that there was a significant association between pathologic use of the internet and Palestinian adolescents’ concerns about their body shape, weight and eating habits leading to a high possibility of developing disordered eating attitudes. Nowadays, people pay a lot of heed to celebrities and influencers promoting unreasonable and unrealistic beauty standards, while spending hours and hours on social media. (33) This leads to dissatisfaction with one’s own body, therefore, contributing to disordered eating behaviors. On the one hand, the internet may provide a haven for those unhappy with their body shape and size. On the other hand, being frequently exposed to unhealthy beauty ideals online creates pressure on individuals to have the perfect body and causes discontentment with one’s own body shape inducing DEAs. Therefore, a vicious cycle exists between PIU and DEA. (36)

High correlation between IA and unhealthy eating habits could also be a result of adoption of a more sedentary lifestyle due to unrestricted smartphone use. For instance, neglecting healthy foods, skipping meals or consuming excessive quantities of quickly processed junk food. (34)

A systematic review and meta-analysis study supporting our results, analyzed a total of 12 studies (systematic review) and 10 studies for meta-analysis, which determined the impact of IA on different eating disorders: anorexia nervosa, bulimia nervosa, binge-eating disorder, food preoccupation, loss of control eating, and dieting. The surveyed students with PIU were reported to have a higher percentage of eating disorders, the differences being significant. (35)
Our study showed that non-medical college students have more chance of developing disordered eating attitudes. This result is backed by an abundance of literature that reports eating disorders are prevalent among college students (36)(37)(38). A study done in France showed that a quarter (24.8%) of the college student population likely had eating disorders (39).

Eating disorders might also be influenced by the upbringing a child received and their relationship with their parents (40). Moreover, a parent’s behavior towards eating can influence their child’s eating attitude (41). A study done by Baker, C.W. studying the intergenerational transmission of eating attitudes and behavior reported that students’ eating attitudes and behavior were highly influenced by their parents’ criticism of their eating and appearance, particularly in daughters (42). Another study showed how children copy their parents’ behavior towards diet and weight and are influenced by parental feedback on body image, weight and dietary habits. This parental feedback can occur directly through a parent’s comments or criticism of their child’s weight, or indirectly by a parent’s dieting or fat talk (43).

Conclusion
In conclusion, our study demonstrates that there is a positive correlation between IA and disordered eating attitudes. Non-medical students were found to be more at risk of developing disordered eating attitudes. Future studies should focus to determine the factors that lead to IA and DEA and possible interventions to overcome it.

Our study had several limitations. Firstly, due to cross-sectional study design and convenience sampling the results cannot be generalized and study might be subject to bias. Therefore, a more rigorous and sophisticated study design may be employed in future to establish causal association.

Acknowledgment:
We wish to pay our gratitude to our organization Jinnah Sindh Medical University, for supporting us fully in this entire study.

Ethical Approval:
This study was approved by IRB of Jinnah Sindh Medical University (JSMU). Ref. No. JSMU/IRB/ 2021/-483 Date: 09-08-2021

Financial support and sponsorship: None

Conflict of interest: None declared.

Authors’ Contribution:
SGA: Participated in drafting and editing of the manuscript, collection and analysis of data.
RF: Conceived and designed the study, collected the data, involved in drafting of the article.
KS: Involved in acquisition and analysis of data, revision of the intellectual content.

SEA: Participated in collection of data and involved in editing of the article.
ZA: Designed the study, analysed data, supervised the project from inception to end.

References
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