

# Evaluation of the Relationship of Internet Addiction with Academic Success and Grit

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## ABSTRACT

The present study aimed to evaluate the effect of internet addiction, an ever-increasing phenomenon, on success and grit in academics. This descriptive cross-sectional study was completed by reaching participants on social media platforms, using socio-demographic information, grade point averages (GPA), internet addiction scale, and the academic grit scale. No difference was found between the median scores of GPA, the academic grit scale, and the internet addiction scale according to the field of study ( $p$ -values = 0.360, 0.539, and 0.170, respectively). There was a difference between the median scores of the academic grit scale according to gender ( $p=0.025$ ). There was also a statistically significant positive and very weak relationship between the grade point average and the academic grit scale ( $r=0.096$  and  $p=0.041$ ). Therefore, when there is a desire to increase academic success and academic grit, different methods should be considered rather than increasing internet use and thus addiction.

**Key Words:** *Academic success, Grit, Internet, Internet addiction.*

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There are many different definitions of the concept of success. Despite this broad range of definitions, success in education generally refers to academic success, which is the expression of skills or knowledge developed in school courses and determined by teacher grades, test scores, or both. Academic success generally refers to behavioural changes in all education program areas.<sup>1</sup>

The characteristics necessary for an individual to achieve success have been a topic of interest to researchers for years. Recent studies have shown that academic perseverance is among these characteristics. Research shows that the more determined of two individuals with the same level of intelligence is closer to success and that there is a significant relationship between grit and academic success.<sup>1,2</sup>

Nowadays, the internet is frequently used in academia, and printed materials have been replaced by digital materials in many fields. In less than half a century after its invention, the internet has become a tool of interest as well as a necessity for majority and is being used by more than 4.5 billion people worldwide (60% of the world's population).<sup>1,3-5</sup>

Internet addiction, one of the newest and most widespread types of technology addiction, is significant due to its impact on quality of life and academic life. This study aimed to evaluate the relationship between internet addiction, academic success, and grit.

This study was conducted at the Department of Family Medicine in the Faculty of Medicine at the Hacettepe University using e-surveys on social media platforms. Approximately 1000 patients apply to the university's polyclinics per month, with approximately 750 of them were 18 years of age or older. The population of the study thus consisted of university students aged 18 years and over who applied to the polyclinics and who agreed to participate in the e-surveys found online. Posters advertising the e-survey links were hung in the polyclinics and participants were selected from those who accessed these links. The sample size was calculated to be 355 participants, according to a 95% confidence level and 5% margin of error, from 4500 patients in total over 6 months. Only university students were included in the study, and participants with a diagnosis of any psychiatric illness were excluded. The first part of the 28-question survey included sociodemographic information consisting of six questions, the second part included the Young internet addiction test (IAT) consisting of 12 questions, and the third part included the academic grit scale, consisting of 10 questions. Participants were also asked to provide their current grade point averages of exam scores. Turkish validity and reliability studies were conducted for the scales used,<sup>2,3</sup> and the necessary scale permissions were obtained before the study commenced. The study was completed between May 2022 and March 2023.

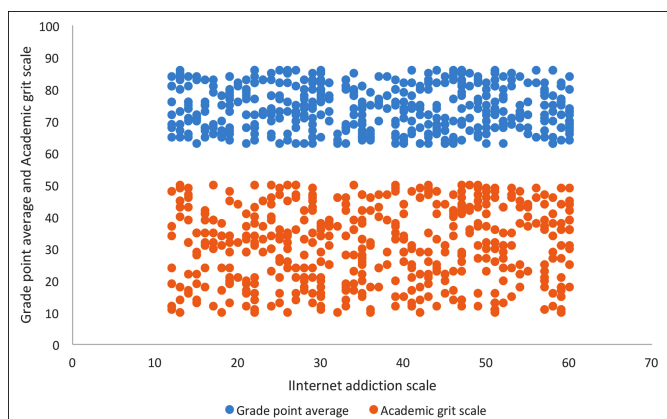
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**Table I: Comparison results by field of study and gender.**

Field of Study	Grade point average		Academic grit scale		Internet addiction scale score	
	Mean $\pm$ S. Dev.	Median (min. - max.)	Mean $\pm$ S. Dev.	Median (min. - max.)	Mean $\pm$ S. Dev.	Median (min. - max.)
Basic Field of Educational Sciences	74.43 $\pm$ 6.73	77.00 (63.00 - 85.00)	30.96 $\pm$ 12.10	34.00 (12.00 - 49.00)	34.96 $\pm$ 15.47	35.00 (12.00 - 60.00)
Basic Field of Science and Mathematics	74.31 $\pm$ 7.27	75.00 (63.00 - 86.00)	31.78 $\pm$ 10.99	34.00 (10.00 - 49.00)	34.36 $\pm$ 15.90	31.00 (13.00 - 60.00)
Basic Field of Philology	67.40 $\pm$ 4.34	65.00 (63.00 - 73.00)	30.40 $\pm$ 15.57	29.00 (10.00 - 49.00)	41.80 $\pm$ 11.80	42.00 (28.00 - 60.00)
Basic Field of Fine Arts	75.14 $\pm$ 6.17	76.00 (63.00 - 86.00)	33.43 $\pm$ 12.02	37.00 (11.00 - 50.00)	39.40 $\pm$ 13.25	43.50 (12.00 - 59.00)
Basic Field of Law	74.41 $\pm$ 6.26	74.50 (64.00 - 86.00)	27.59 $\pm$ 13.42	25.50 (10.00 - 50.00)	40.71 $\pm$ 13.70	43.00 (13.00 - 59.00)
Basic Field of Theology	73.39 $\pm$ 5.93	72.50 (63.00 - 85.00)	30.33 $\pm$ 11.64	30.00 (10.00 - 50.00)	32.50 $\pm$ 13.02	31.00 (12.00 - 57.00)
Basic Fields of Architecture, Planning, and Design	74.63 $\pm$ 6.94	74.50 (63.00 - 86.00)	32.85 $\pm$ 12.18	33.00 (10.00 - 50.00)	37.50 $\pm$ 11.16	36.00 (14.00 - 60.00)
Basic Field of Engineering	73.59 $\pm$ 7.00	73.00 (63.00 - 86.00)	30.33 $\pm$ 10.86	31.00 (12.00 - 49.00)	32.95 $\pm$ 15.01	29.00 (12.00 - 60.00)
Basic Field of Health Sciences	72.93 $\pm$ 7.13	71.00 (63.00 - 86.00)	31.32 $\pm$ 12.56	30.00 (10.00 - 50.00)	36.00 $\pm$ 15.01	38.00 (12.00 - 60.00)
Basic Field of Social, Humanities, and Administrative Sciences	75.44 $\pm$ 7.03	76.00 (63.00 - 86.00)	33.56 $\pm$ 11.35	37.00 (13.00 - 50.00)	38.81 $\pm$ 13.40	39.00 (14.00 - 60.00)
Basic Fields of Agriculture, Forestry, and Aquaculture	74.96 $\pm$ 6.49	74.00 (63.00 - 86.00)	32.46 $\pm$ 10.87	32.00 (11.00 - 50.00)	33.87 $\pm$ 13.82	31.00 (12.00 - 60.00)
Basic Field of Sport Sciences	73.53 $\pm$ 7.44	74.00 (63.00 - 86.00)	28.25 $\pm$ 11.46	28.50 (12.00 - 48.00)	37.63 $\pm$ 13.64	40.00 (12.00 - 60.00)
Test Stat.	12.045		9.909		15.281	
p	0.360		0.539		0.170	
Gender						
Male	73.71 $\pm$ 6.94	73.00 (63.00 - 86.00)	32.50 $\pm$ 12.26	34.00 (10.00 - 50.00)	35.08 $\pm$ 14.32	34.50 (12.00 - 60.00)
Female	74.53 $\pm$ 6.64	74.50 (63.00 - 86.00)	30.15 $\pm$ 11.28	31.00 (10.00 - 50.00)	37.47 $\pm$ 13.81	39.00 (12.00 - 60.00)
Test Stat.	24344.000		23057.000		23745.000	
p	0.185		0.025		0.080	

\*Kruskal-Wallis test, \*\*Mann-Whitney U test

**Figure 1: Scatter plot of the relationship between the internet addiction scale and GPA and the academic grit scale and between GPA and the academic grit scale.**

Data were analysed with IBM SPSS V23 (IBM Corp., Armonk, NY, USA) statistics. Compliance with normal distribution was examined by the Kolmogorov-Smirnov test. The Mann-Whitney U test was used for the comparison of non-normally distributed data in paired groups and the Kruskal-Wallis test was used for the comparison of non-normally distributed data in groups of three or more. Spearman's rho correlation coefficient was used to examine the relationship between non-normally distributed data. The significance level was taken as  $p < 0.05$ .

Of the participants, 228 (49.8%) were females and 230 (50.2%) were males. The average age of participants was 21.9 years with the youngest age being 18 years and the oldest being 26 years. The average grade point average was 74.1 from 100 points, with the minimum value at 63 and the maximum at 86. Participants scored an average of 31.3 on the academic grit scale (minimum of 10 and maximum of 50). Finally, the mean internet addiction scale score for all participants was 36.3, with the lowest being 12 and the highest being 60.

No difference was found between the median GPA scores, the academic grit scale, and the internet addiction scale

according to the field of study ( $p$ -values = 0.360, 0.539, and 0.170, respectively). There was a difference between the median scores of the academic grit scale according to gender ( $p=0.025$ ). While the median for male respondents was 34, the median for female participants was 31. No difference was found between the median GPA scores and the internet addiction scale according to gender ( $p$ -values = 0.185 and 0.080, Table I).

There was a statistically significant positive and very weak relationship between the grade point average and the academic grit scale ( $r=0.096$ ,  $p=0.041$ ). No statistically significant relationship was found between the internet addiction scale, GPA, and the grit scale ( $p > 0.05$ , Figure 1).

Although there are many different definitions of the concept of success, the perceived definition for students is educational success. In the current system, educational success is measured by the average grade received in exams. No relationship was found between GPA and internet addiction, but the effect of academic grit on success was shown through the results of this research.

There are many publications in the literature indicating that internet use increases academic success.<sup>1-6</sup> However, as the internet can be accessed from a variety of sources (i.e., smartphones and computers), the research to date has been unclear on the effect of how the internet is accessed on academic success.<sup>3-6</sup> Today, most university students use the internet at similar rates, which is evidenced by the fact that the present study determined no relationship between GPA and the internet addiction scale score medians according to the field of study. There was a statistically significant positive and very weak relationship between the grade point average and the academic grit scale ( $r=0.096$ ,  $p=0.041$ ).

When academic success is analysed according to gender, although there are studies indicating that women are generally more successful and determined, there are also studies that show contrasting results.<sup>4-6</sup> In the present study, there

was a difference between the median scores of the academic grit scale according to gender. Although there was no difference between GPA and Internet addiction scale score medians according to gender, the median academic grit score of males was found to be higher.

In a study conducted by Palisoc *et al.* on pharmacy graduates, no relationship was observed between academic success and academic grit.<sup>4</sup> Similarly, in the current study, there was a statistically significant positive, albeit very weak, relationship between academic grit and university course grades, which are considered an indicator of academic success.

In a study conducted by Türel and Torama on middle school students, it was reported that internet addiction decreased with increasing academic success.<sup>6</sup>

There are limited studies suggesting that internet addiction has negative effects on academic grit.<sup>1-6</sup> In the present research, no significant relationship was found between internet addiction and academic grit.

A significant limitation of the present study is that it considered academic success based solely on grade point average, and accordingly, a comparison was made between internet addiction and academic grit. Since the purpose of the time spent by participants in this study on the internet was not clearly known, internet use in academic terms could not be distinguished clearly. Academic content can even be accessed on social media platforms today.

Overuse of the internet is one of the main types of technology addiction. Although internet use has become a necessity, but studies on the effects of internet addiction levels on academic success and grit are limited and unclear. In the current study, no effect of internet addiction on these factors was found. This may be due to the fact that students may not give priority to academic success during their first years of university and use the internet as a social mechanism rather than as a supportive medium to their courses. In cases, where academic success needs to be increased, it would be more appropriate to increase academic determination or to try completely different methods instead of approaches that could increase internet addiction.

#### **ETHICAL APPROVAL:**

Ethical approval was obtained from the Hacettepe University Non-Interventional Clinical Research Ethics Committee

(Meeting date: April 05, 2022, Meeting no: 2022/06, Project no: Go 22/287, Decision no: 2022/06-21).

#### **PARTICIPANTS' CONSENT:**

Informed consent was taken from the participants before the start of the interview and examination. The participants were informed about the intended use of their data in the research article.

#### **COMPETING INTEREST:**

The authors declared no conflict of interest associated with the publication of this research and no funding was received for the publication of this manuscript.

#### **AUTHORS' CONTRIBUTION:**

IF: Conceptualisation, methodology, draft preparation, and visualisation.

HA: Methodology, formal analysis, and draft preparation.

DAB: Supervision, investigation, reviewing and editing.

All authors approved the final version of the manuscript to be published.

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