Relationship Between Internet Addiction and Academic Performance Among Peruvian University Students

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Abstract. The digital era has made internet omnipresence a transformative factor in how we live, work, and learn. However, excessive internet use, particularly among students, has emerged as a concern, potentially interfering with daily life and academic performance. This study addresses the gap in literature regarding internet addiction and its influence on academic success within a Peruvian university context, aiming to inform intervention strategies. Conducted at a public university in Arequipa, Peru, the study focused on students enrolled in an Introduction to Computing course. Data on internet addiction were gathered through surveys, while academic performance data were obtained from the university's academic system. Statistical analyses were performed using Spearman's correlation to understand the relationship between internet addiction and academic performance. The results disclosed that while a majority perceived their internet addiction as having low relevance to academic performance, there were notable cases of moderate to high addiction levels. Statistically significant negative correlations were found between the perception of internet addiction relevance, work negligence, and academic performance, suggesting that certain aspects of internet addiction can impinge on students' academic success. The study concluded that while most students do not perceive a direct significant connection between internet use and academic performance, there are dimensions of internet addiction, specifically relevance and work negligence, that correlate negatively with academic achievement. These findings highlight the complex role of internet use in education and the need for targeted interventions focusing on aspects of internet addiction that most affect academic performance.

Keywords: Internet Addiction, Academic Performance, Academic Success, University Students.

1 Introduction

In the current digital era, the ubiquity of the Internet has revolutionized the way we live, work, and learn. Although it offers invaluable tools for knowledge and communication, its excessive use has emerged as a source of concern, particularly among the

P. C. López-López et al. (eds.), *Proceedings of the International Conference on Communication and Applied Technologies 2024 (ICOMTA 2024)*, Atlantis Highlights in Social Sciences, Education and Humanities 28,
https://doi.org/10.2991/978-94-6463-596-6_2

student population [1,2]. Internet addiction, defined as the compulsive use of the Internet that interferes with daily life [3], has been linked with multiple negative consequences, including a decline in academic performance [4,5]. However, the nature and extent of this impact remain subjects of intense research, especially in specific contexts such as university education.

Internet addiction among university students is a growing concern, evidenced through a series of studies highlighting both its common risk factors and impacts on mental health [6], academic performance [7,8,9], and the psychosocial well-being of students [10,11]. Although there is convergence in identifying issues and vulnerable populations, divergences in specific approaches and recommendations warrant careful integration.

Regarding risk factors and vulnerable population, several studies agree that men, individuals under 20 years of age, and regular users of social networks are more susceptible to Internet addiction [12,13]. These studies also highlight that students facing academic challenges and those living with mental health conditions such as depressive episodes and anxiety are particularly at risk.

Moreover, the COVID-19 pandemic has exacerbated students' dependence on the Internet. Studies point to an increase in Internet addiction and its negative effects on students' mental health in China after lifting COVID-19 restrictions [4,14]. In particular, a significant relationship between severe Internet addiction and higher rates of depression, anxiety, insomnia, and suicidal thoughts is reported [4].

In this sense, Internet addiction is associated with negative consequences for student well-being, including mental health issues such as depression, anxiety, and insomnia [4,13]. Additionally, loneliness and academic burnout are strongly linked to Internet addiction, with loneliness acting as a partial mediator between addiction and burnout [9].

Although the studies identify similar problems, recommendations for addressing Internet addiction vary. For example, redirecting existing mental health services at universities and establishing detox clinics are suggested [15]. On the other hand, emphasizing the importance of psychological interventions to prevent loneliness [16] and highlighting the role of regular physical exercise as an effective mitigator of social anxiety and Internet addiction [17] are recommended.

In summary, a notable divergence among studies is the emphasis on different mediators and risk factors. While some authors focus on psychological contracts as mediators between Internet addiction and academic anxiety [13], others investigate the role of loneliness in academic burnout related to addiction [5]. These differences underline the complexity of Internet addiction and the need for multidimensional approaches for its understanding and treatment [15].

Together, the studies demonstrate that Internet addiction is a complex phenomenon with multiple determinants and consequences for university students. They highlight the need for multidisciplinary approaches that include psychosocial interventions, educational strategies, and mental health support to address both the causes and effects of this issue. Collaboration among educators, psychologists, and health professionals will be crucial in developing effective programs that promote healthy Internet use and improve student well-being.

This study focuses on the Introduction to Computing course at a Public University in Peru, selected for its relevance in basic computer skills training. Choosing this context offers a unique opportunity to examine how Internet addiction could influence academic success in a field inherently linked to technology use. By doing so, this work seeks to fill a gap in the existing literature, providing valuable insights into the intersections between Internet addiction and academic performance in the Peruvian university setting [18].

Therefore, the aim of this research is to assess the relationship between Internet addiction and academic success of students in the aforementioned course, hoping to inform intervention strategies that can mitigate its negative effects and promote healthier Internet use. Through this study, we aspire to contribute to the existing body of knowledge, offering a novel perspective on how Internet addiction affects academic performance in a specific educational and culturally distinct context.

2 Methods

The research was conducted at the School of Systems Engineering of a public university in the city of Arequipa (Peru), during the year 2023. It focused on evaluating the relationship between internet addiction and academic performance, taking as a case study the students enrolled in the Introduction to Computing course.

For the study, a specific population and sample were defined. The population consisted of 107 regular students of both sexes, enrolled in the First Semester of the aforementioned School of Professional Studies. A directed non-probabilistic sample was used to validate the research proposal, composed of 41 students from group A (34 men and 7 women), 36 students from group B (30 men and 6 women), and 30 students from group C (28 men and 2 women). The calculated sample size was 84, with a confidence level of 95%, a margin of error of 5%, and a probability of success-failure of 50% for both cases. A non-probabilistic convenience sampling was employed.

The survey technique and the questionnaire were used as tools for collecting data on internet addiction, and the observation technique along with the documentary record sheet were used to collect information on the academic performance of the students.

Internet addiction was operationally defined in six dimensions: Relevance, Excessive Use, Work Negligence, Anticipation, Lack of Control, and Social Negligence, evaluated by specific indicators such as avoidance of real-life problems, fear of living without the internet, neglect of domestic and academic duties for web browsing, loss of sleep, hiding online time, anticipation to reconnect, and establishing mainly virtual relationships. Each indicator was measured through specific items, on a scale from 0 (Null) to 5 (Very high), allowing the quantification of the frequency of behaviors related to internet addiction. On the other hand, academic performance was measured through the "Final Average," classified on a scale from "Dropout" to "Outstanding," allowing a precise quantitative evaluation of the students' performance.

For data collection, access was made to the students' grades through the Academic System (SISACAD) of the University, obtaining the partial and final averages of the

Introduction to Computing course through an electronic report. Additionally, when applying the questionnaire, essential information was provided to the students to ensure accurate responses, emphasizing the importance of their truthfulness for the success of the study. The supervision and control of data collection were in charge of the researchers and a validated web information system developed for this purpose.

The information processing was carried out both manually and computationally, using KarPas SBC and SPSS version 29.0.1.0 for statistical analysis, storing the data in a Database and ordering them in a Systematization Matrix. The data analysis was quantitative and bivariate, using the Spearman correlation coefficient test to examine the relationship between the variables, as can be seen in Table I:

Table 1. Ordinal Statistical Treatment.

Var.	Type	Measurement Scale	Descriptive Statistics	Test
Internet Addiction	Quantitative	Ordinal	Absolute frequencies Percentage frequencies	Spearman's correlation coefficient
Academic Performance	Quantitative	Ordinal	Absolute frequencies Percentage frequencies	Spearman's correlation coefficient

3 Results

This section presents the main results and findings of the study. Initially, a descriptive analysis was conducted to examine how student perceptions regarding the relevance of their internet addiction and its influence on academic performance are distributed. Subsequently, the Kolmogorov-Smirnov normality test was carried out with the aim of verifying whether the variables of internet addiction and academic performance conformed to a normal distribution. As a third step, the Spearman correlation coefficient was used, appropriate for data that do not meet the criteria of normality due to their non-parametric characteristics. Following this, the correlation between the different dimensions of internet addiction and academic performance was estimated. To conclude, the results were interpreted and validated, examining the correlation coefficients in relation to the study's hypotheses and taking into account their statistical significance and magnitude, to confirm or refute the specific hypotheses previously established.

3.1 Descriptive Result

Table 2 shows the distribution of the relevance levels in internet addiction among the surveyed university students. Out of a total of 84 responses, the majority (38.57%) perceive their internet addiction as of very low relevance to their academic performance, followed by 20% who consider it nonexistent and another 20% who view it as low. A 14.05% rate it as moderate, while only 6.67% consider it high and a marginal 0.71% very high:

Table 2. Relevance.

Level	*f*	%	Valid %	Cumulative %
Null	17	20.00	20.00	20.00
Very low	32	38.57	38.57	58.57
Low	17	20.00	20.00	78.57
Moderate	12	14.05	14.05	92.62
High	6	6.67	6.67	99.29
Very high	1	0.71	0.71	100.00
Total	84	100.00	100.00	

These data suggest that the majority of students do not see a significant direct connection between their internet use and their academic performance, with a cumulative 78.57% of participants rating their addiction as of low to nonexistent relevance.

Table 3 reveals how respondents perceive their degree of excessive internet use. Of the 84 participants, 28.10% classify it as very low and 25.48% as low, indicating that more than half of the students (53.58%) consider their use of the internet to be low to very low in terms of excessiveness. A 16.67% believe they do not make excessive use of the internet at all. On the other hand, a smaller percentage of students perceive their use of the internet as moderate (19.05%), high (8.57%), and very high (2.14%), totaling 29.76% who acknowledge a significant level of excessive use:

Table 3. Excessive Use.

Level	*f*	%	Valid %	Cumulative %
Null	14	16.67	16.67	16.67
Very low	24	28.10	28.10	44.76
Low	21	25.48	25.48	70.24
Moderate	16	19.05	19.05	89.29
High	7	8.57	8.57	97.86
Very high	2	2.14	2.14	100.00
Total	84	100.00	100.00	

These results suggest that, although the majority of students do not view their use of the Internet as problematically excessive, there is a considerable proportion that does consider it moderate to very high, which could have implications for their academic behavior and overall well-being.

Table 4 details the participants' self-perception regarding how their use of the Internet affects their academic or work responsibilities. Of the 84 participants, 37.70% classify their level of work negligence as very low and 29.37% as low, indicating that a significant majority (67.07%) of students perceive their use of the Internet as little or

not detrimental to their obligations. Only 14.29% rate it as moderate, and a small fraction see their use of the Internet as high (2.38%) or very high (1.98%) in terms of work negligence, adding up to just 4.36%:

Table 4. Work Negligence.

Level	*f*	%	Valid %	Cumulative %
Null	12	14.29	14.29	14.29
Very low	32	37.70	37.70	51.98
Low	25	29.37	29.37	81.35
Moderate	12	14.29	14.29	95.63
High	2	2.38	2.38	98.02
Very high	2	1.98	1.98	100.00
Total	84	100.00	100.00	

These results suggest that, although the majority of students do not consider their use of the internet to interfere significantly with their academic or professional commitments, there is a minority that does perceive a negative impact, which could indicate problems with time management or priorities among some users.

Table 5 examines how participants anticipate internet use, reflecting the tendency to think about being online when not using the computer and the feeling of needing to use the internet when away from it. In this dimension, a notable majority (47.62%) of the 84 respondents report a very low level of anticipation, followed by 19.64% who classify it as low, indicating that 67.26% of participants do not experience a strong compulsion to anticipate internet use. Only 7.14% rate it as moderate, while 8.93% report a high level of anticipation and just 0.60% consider it very high, totaling 16.67% who might be experiencing symptoms of a higher dependence on the internet:

Table 5. Anticipation.

Level	*f*	%	Valid %	Cumulative %
Null	14	16.07	16.07	16.07
Very low	40	47.62	47.62	63.69
Low	17	19.64	19.64	83.33
Moderate	6	7.14	7.14	90.48
High	8	8.93	8.93	99.40
Very high	1	0.60	0.60	100.00
Total	84	100.00	100.00	

This suggests that, while the desire to connect to the internet does not significantly dominate the thoughts or behaviors of most students, there is a small segment that does experience this compulsion, which could have implications for their wellbeing and academic performance.

Table 6 assesses the difficulty in managing online time, staying online longer than necessary, and complaints from their surroundings about the time spent online. Of the 84 respondents, 31.35% perceive their lack of control as low, followed by 28.17% who rate it as very low, indicating that the majority (59.52%) do not consider themselves to have a significant problem with controlling their internet time. A 17.06% rate it as moderate, suggesting that some students acknowledge difficulties in managing their online time. However, 11.11% feel no lack of control at all, and 12.30% rate their lack of control as high or very high, revealing that a minority experiences serious difficulties in this aspect, which could have negative implications for their academic and personal life. This underlines the existence of a group of students who could benefit from interventions to improve time management and internet usage:

Table 6. Lack of Control.

Level	*f*	%	Valid %	Cumulative %
Null	9	11.11	11.11	11.11
Very low	24	28.17	28.17	39.29
Low	26	31.35	31.35	70.63
Moderate	14	17.06	17.06	87.70
High	7	8.73	8.73	96.43
Very high	3	3.57	3.57	100.00
Total	84	100.00	100.00	

These data suggest that, although the majority of students do not perceive a significant problem with control over their internet use, there is a notable proportion that does experience difficulties in their personal relationships, academic responsibilities, and overall well-being due to excessive internet use.

Table 7 shows how these students use online relationships to avoid facing situational problems or to reduce mental and nervous tension. A significant 32.14% of respondents do not experience social neglect, and 41.07% rate it as very low, indicating that the vast majority (73.21%) do not overly depend on online relationships for managing their problems or tensions. A 14.29% perceive a low level of this type of neglect, suggesting that, while there is a certain inclination towards online relationships, it is not predominant. Only a small percentage consider it moderate (7.74%), high (4.17%), or very high (0.60%) in terms of social neglect, totaling 12.51% who potentially rely more on online interactions for their social relationships:

Table 7. Social Negligence.

Level	*f*	%	Valid %	Cumulative %
Null	27	32.14	32.14	32.14
Very low	35	41.07	41.07	73.21
Low	12	14.29	14.29	87.50
Moderate	7	7.74	7.74	95.24

High	4	4.17	4.17	99.40
Very high	1	0.60	0.60	100.00
Total	84	100.00	100.00	

This suggests that, although for the majority of students online relationships do not significantly replace face-to-face social interactions, there is a minority that might be using the internet in a way that negatively affects their ability to maintain or form real-world relationships, which could have implications for their social and emotional well-being.

Figure 1 displays a histogram with an overlaid normal distribution curve representing the data on internet addiction among Peruvian university students. The histogram shows the frequency of scores obtained on a measure of internet addiction. The mean is positioned at 32.45, with a standard deviation of 10.6353, indicating the variability of scores around the mean. The total number of participants (N) is 84:

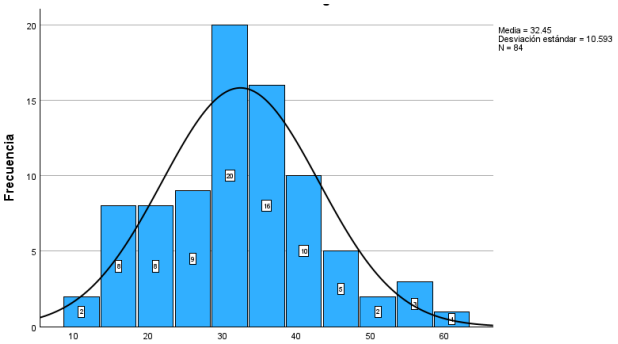

Fig. 1. Internet Addiction.

The previous data suggest that, although there is widespread internet addiction among students, the majority do not classify at the high or low extremes of addiction. However, there are outliers from the mean (such as those found at the extremes of the distribution, especially above 50), which could indicate higher levels of internet addiction. These students might be those who exhibit abnormal behaviors in different settings, as mentioned in the given definition, which could have a negative impact on their academic performance and work life.

Figure 2 categorizes the levels of internet addiction among Peruvian university students. It represents three levels of addiction: "Normal" with 54.78% of the students, "Mild" with 30.10%, and "Moderate" with 7.14%. There are no categories for "High" or "Very High" levels, which may suggest that no students were identified with these levels of addiction, or they are included within the existing categories.

The majority of students fall into the "Normal" category, indicating that they do not show significant signs of internet addiction according to the research criteria. The 30.10% in the "Mild" category suggests that there is a considerable portion of the student population experiencing some problems related to internet use, but these issues are

not severe enough to deeply affect their lives. The 7.14% in the "Moderate" category implies that a small group of students is dealing with levels of addiction that could have a more noticeable impact on their behavior and environment, including home, school, and work:

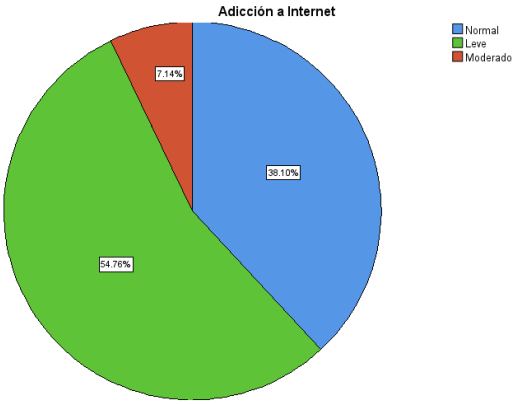

Fig. 2. Level of Internet Addiction.

The fact that the majority of students are classified in the "Normal" and "Mild" categories is encouraging, but it is also a signal that attention should be paid to the "Moderate" group, as they may be at risk of suffering negative consequences if their level of internet addiction increases. These results could be useful for developing preventive interventions and specific support programs for those who are showing signs of a more serious addiction.

Figure 3 represents the academic performance of Peruvian university students. The average academic performance is shown as 15.48, with a standard deviation of 1.7431, indicating the spread of academic grades around the mean for the total number of participants (N) of 84.

The distribution is relatively normal, with the largest concentration of students grouped around the average (approximately between 14 and 17), which is indicative of an average academic performance in the studied population. Figure 3 suggests that there are fewer students with very low or very high performances, as the bars are lower at the extremes of the grading axis:

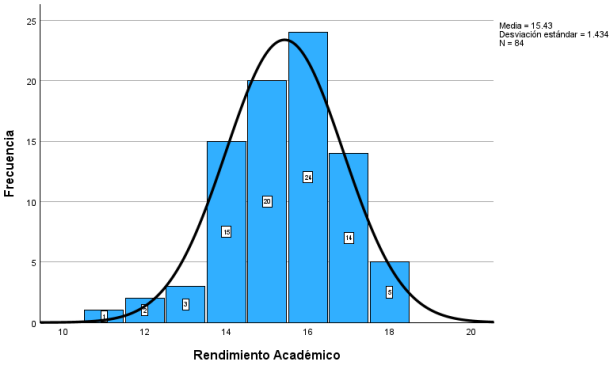

Fig. 3. Academic Performance.

Thus, it can be noted that the majority of students have an average academic performance, with relatively few students achieving exceptionally high or low performances.

Table 8 shows the consolidated average grades of Peruvian university students, classified according to a valuation scale ranging from "Dropout" to "Outstanding". Out of a total of 84 students, none fall into the categories of "Dropout", "Unsatisfactory", or "In Progress", indicating that there were no students who dropped out or had extremely low grades (1 to 7), nor were in a range of progress (8 to 10).

A 25% of the students are in the "Satisfactory" category (grades from 11 to 14), which suggests that a quarter of the participants reached a performance level that meets the minimum expected requirements. The majority of the students, 75%, are in the "Outstanding" category (grades from 15 to 20), revealing that the larger part of the studied population not only met the academic requirements but exceeded them:

Table 8. Average Consolidated Grades According to Valuation Scale.

Valuation Scale	Range	*f*	Valid %	Cumulative %
Abandonment	AB	0	0%	0%
Unsatisfactory	From 1 a 7	0	0%	0%
In Process	From 8 a 10	0	0%	0%
Satisfactory	From 11 a 14	21	25.0%	25.0%
Outstanding	From 15 a 20	63	75.0%	100.0%
Total		84	100.0%	

This positive outcome in terms of academic performance might indicate that, regardless of the levels of internet addiction reported elsewhere in the research, the majority of students are effectively managing their academic responsibilities. It could also suggest that students who participate in research studies are those more committed to their education, as reflected in their high grades.

3.2 Normality Test

Table 9 presents the results of the Kolmogorov-Smirnov normality test for two variables: internet addiction and academic performance:

Table 9. Normality Test.

	Kolmogorov-Smirnov[a]		
	Statistic	gl	Sig.
Internet Addiction	.065	84	.200*
Academic Performance	.167	84	<.001

*. This is a lower limit of the true significance.

a. Lilliefors significance correction.

The normality test results indicate that while the data on internet addiction, with a statistic of 0.065 and a p-value of 0.200, do not significantly deviate from a normal distribution, allowing for the null hypothesis of normality to be retained, the academic performance data show a different pattern. With a statistic of 0.167 and a p-value of less than 0.001, they significantly deviate from normality, leading to the rejection of the null hypothesis. This implies that the correlation analysis for these variables should be carried out using the Spearman correlation coefficient, a non-parametric method suitable for data not normally distributed.

3.3 Statistical Hypothesis Test

Table 10 shows the results of the Spearman correlation coefficient, which measures the association between academic performance and internet addiction in Peruvian university students. It is observed that the correlation coefficient between academic performance and internet addiction is -0.271, with a bilateral significance value of 0.013.

This negative correlation coefficient suggests that there is an inverse relationship between the two variables; as internet addiction increases, academic performance tends to decrease, or vice versa. Moreover, the bilateral significance value indicates that this correlation is statistically significant, as it is below the common threshold of 0.05, suggesting that the association is not due to chance:

Table 20. Correlation Between Both Study Variables.

			Academic Performance	Internet Addiction
Spearman's Rho	Academic Performance	Correlation Coefficient	1.000	-.271*
		Sig. (two-tailed)	.	.013
		N	84	84
	Internet Addiction	Correlation Coefficient	-.271*	1.000
		Sig. (two-tailed)	.013	.

	N	84	84

However, the value of the coefficient (-0.271) is relatively low, indicating that although there is a trend, it is not a very strong relationship. This means that additional factors could be influencing academic performance besides internet addiction. The findings support the notion that there is a negative relationship between internet addiction and academic performance, but further research would be needed to fully understand the dynamics of this relationship and what other factors might be at play.

Table 11 indicates how academic performance, divided into "Satisfactory" and "Outstanding", is associated with different degrees of internet addiction, categorized as "Normal", "Mild", and "Moderate". Of the 84 students analyzed, 32 who do not present addiction problems have predominantly "Outstanding" outcomes (28), compared to only 4 "Satisfactory". On the other hand, of the 46 students with a mild addiction, the majority also achieve an "Outstanding" level (34), but the number with "Satisfactory" performance increases to 12. Meanwhile, the 6 students showing a moderate addiction tend to have a "Satisfactory" performance in equal numbers (4) as those with an "Outstanding" performance (2):

Table 13. Cross Table of Internet Addiction and Academic Performance.

		Academic Performance		
		Satisfactory	Outstanding	Total
Internet Addiction	Normal	4	28	32
	Mild	12	34	46
	Moderate	4	2	6
	Total	20	64	84

However, since the majority of students are in the "Outstanding" performance category regardless of their level of internet addiction, this could suggest that factors other than internet addiction are influencing academic performance, or that internet addiction does not have a significant impact on academic performance for most students.

Table 12 presents the correlations between different dimensions of internet addiction and academic performance using the Spearman correlation coefficient. Two dimensions show significant negative correlations: "Relevance" and "Work Neglect". Relevance has a coefficient of -0.247 with a bilateral significance of 0.024, and work neglect a coefficient of -0.231 with a significance of 0.034, both with a subject number of 84, indicating that the higher the perception of relevance and the greater the work neglect related to internet addiction, the worse the academic performance.

The other dimensions, "Excessive Use", "Anticipation", "Lack of Control", and "Social Neglect", do not show statistically significant correlations, with coefficients of -0.11, -0.06, -0.123, and 0.032 respectively and p-values of 0.321, 0.585, 0.265, and 0.769. This suggests that these dimensions do not have a direct and significant relationship with academic performance in this sample of students:

Table 42. Correlation Between the Dimensions of the Internet Addiction Variable and the Academic Performance Variable.

			Academic Performance
Spearman's Rho	Relevance	Correlation Coefficient	-.247*
		Sig. (two-tailed)	0.024
		N	84
	Excessive use	Correlation Coefficient	-0.11
		Sig. (two-tailed)	0.321
		N	84
	Work neglect	Correlation Coefficient	-.231*
		Sig. (two-tailed)	0.034
		N	84
	Anticipation	Correlation Coefficient	-0.06
		Sig. (two-tailed)	0.585
		N	84
	Lack of control	Correlation Coefficient	-0.123
		Sig. (two-tailed)	0.265
		N	84
	Social neglect	Correlation Coefficient	0.032
		Sig. (two-tailed)	0.769
		N	84

These results could imply that certain behaviors and perceptions associated with internet addiction, such as the priority given to it and how it affects work obligations, have a more noticeable impact on students' academic performance. Meanwhile, other practices related to addiction, such as how much time is spent online or the anticipation of its use, do not seem to significantly affect their performance in studies.

4 Discussion and Conclusions

According to the findings of the current study, the perception of the relevance of internet addiction and its impact on students' academic performance appears to parallel the conclusions of studies in Thailand, where a correlation between academic procrastination and internet addiction was also found [19]. This finding is consistent with the negative correlation between internet addiction and academic performance identified in the current study, reflected in a Spearman coefficient of -0.271, supporting the notion that internet addiction can have detrimental effects in the academic realm.

However, while studies conducted in Spain, Mexico, and Thailand emphasize the significant impact of internet addiction on academic procrastination [18,19], the present

study suggests that some dimensions of internet addiction, such as excessive use and anticipation, do not have a statistically significant correlation with academic performance. This could indicate that while internet addiction is present among students, not all its aspects directly interfere with their academic performance, a finding that does not fully align with suggestions from findings reported in Ecuador, where a direct relationship between procrastination and internet addiction was noted [16].

The results of the current study also partially contradict studies in Afghanistan, which claimed a significant correlation between internet addiction and academic performance [17]. In our case, it is observed that despite internet addiction, the majority of Peruvian students still achieve "Outstanding" academic grades, suggesting that the impact of addiction may not be as severe as expected.

Compared to studies in Greece, which found no significant correlation between internet addiction and academic performance [20], the current study suggests that there are certain dimensions of addiction that are significantly correlated with academic performance, such as relevance and work negligence.

In synthesis, various studies identify the risk of internet addiction and its relationship with academic procrastination and sleep quality [3], which is relevant since the current study identifies a group of students with time management difficulties and excessive internet use who could benefit from interventions.

Under these considerations, the study concludes that the use of the Internet plays a complex role in the educational process. There is a relationship between the degree of Internet use and academic performance, but this relationship is neither direct nor uniform. Certain dimensions of internet addiction are related to academic performance, especially relevance and work negligence. However, other factors such as excessive use, anticipation, lack of control, and social negligence do not seem to have a direct and significant impact on the academic performance of students in the Introduction to Computing course at the National University of San Agustin in Arequipa. This suggests that interventions should focus on those aspects of internet addiction that correlate negatively with academic performance and consider other factors that could mediate or moderate this relationship.

Moreover, while there is a general trend suggesting a negative impact of internet addiction on academic performance, the data suggest that the effect may be more complex and nuanced, with some aspects of internet addiction not correlating significantly with academic performance. These findings require deeper analysis and possibly a more individualized consideration of the dimensions of internet addiction and its impact on student performance [3,17,18,19,20].

Finally, the present study suggests that, within the educational context, particularly in courses that involve intensive use of technologies like Introduction to Computing, it is essential to implement programs that educate students on balanced Internet use. This could include integrating curricular components designed to teach critical time management and responsible network use skills [18]. Additionally, counseling services at universities should offer support to students struggling with Internet addiction, providing strategies to manage stress and anxiety that often accompany this challenge [12,17].

The psychological and social well-being of students should not be overlooked. Interventions must address not only Internet addiction but also its impact on students'

social and academic lives. Various studies highlight the importance of evaluating and fostering self-regulation skills and strategies to limit Internet dependency [9,13]. Furthermore, it is suggested that activities such as regular physical exercise can be effective in reducing both social anxiety and internet addiction [14]. These recommendations are crucial for creating a learning environment that supports academic success and personal development.

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