

Use of social networks and academic performance of nursing students in an Ecuadorian technological university institute

Uso de las redes sociales y rendimiento académico de estudiantes de enfermería en un instituto universitario tecnológico ecuatoriano

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ABSTRACT

The relationship between the use of social networks (SN) and academic performance (AP) in nursing students was investigated. This research is part of the framework of institutional diagnostics aimed at improving the quality of education. A quantitative, descriptive-correlational approach was adopted in 140 nursing students (N=n) of a university technological institute in Quito, during the 2024-1 academic period. The use of SNs was measured with the ERA-RSI scale (Peris Hernández et al., 2018) (α : 0.86); and its four dimensions were assessed: addiction symptoms (SAD), social use (USOC), geek traits (RFRI) and nomophobia (NOM). To assess AP, the students' summary report card was analyzed. The Jamovi 2.4.14 program was used, obtaining frequency data, percentages and measures of central tendency (mean) and variability (standard deviation). The bivariate correlation was based on Spearman's test (H_1 : SN \leftrightarrow AP; $p \leq 0.05$). The results show that SNs do not have considerable use among students, presenting low levels and isolated cases of problematization. This suggests that, although SNs are part of student life, they do not necessarily lead to a risk of addiction in a generalized way, except in some cases of excessive use. The correlation observed between SN use and AP was negative (-0.120; p .value >0.05), which is not statistically significant. Despite widespread use of SNs, this does not yet raise concerns about the potential for addiction and its associated negative consequences, especially with AP. There are therefore no arguments to point to evidence of addiction symptoms, social use patterns, geek traits and nomophobia, and their manifestation in AP.

Keywords: Technological education; Social networks-academic performance relationship; Use of social networks; Educational use of ICTs.

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RESUMEN

Se indagó la relación entre el uso de las redes sociales (SN) y el rendimiento académico (AP) en estudiantes de enfermería. Forma parte esta pesquisa del marco de diagnósticos institucionales orientados a la mejora de la calidad educativa. Se adoptó un enfoque cuantitativo, descriptivo-correlacional, en 140 estudiantes de Enfermería (N=n) de un instituto tecnológico universitario en Quito, durante el periodo académico 2024-1. El uso de las SN se midió con la escala ERA-RSI (Peris Hernández et al., 2018) (α : 0.86); y se valoraron sus cuatro dimensiones: síntomas de adicción (SAD), uso social (USOC), rasgos frikis (RFRI) y nomofobia (NOM). Para evaluar el AP, se analizó la ficha de resumen de calificaciones de los estudiantes. Se empleó el programa Jamovi 2.4.14, obteniéndose datos frecuenciales, porcentajes y medidas de tendencia central (media) y de variabilidad (desviación estándar). La correlación bivariada se basó en el test de Spearman (H_1 : $SN \leftrightarrow AP$; $p \leq 0.05$). Los resultados muestran que las SN no tienen un uso considerable entre los estudiantes, presentándose niveles bajos y casos aislados de problematización. Esto sugiere que, aunque las SN forman parte de la vida estudiantil, no necesariamente conducen a un riesgo de adicción de forma generalizada, salvo en algunos casos de uso excesivo. La correlación observada entre el uso de SN y el AP fue negativa (-0.120; p .valor >0.05), lo cual no resulta estadísticamente significativo. A pesar de existir un uso generalizado de las SN, esto todavía no genera preocupaciones sobre el potencial de adicción y sus consecuencias negativas asociadas, en especial con el AP. No existen por tanto argumentos para señalar que se evidencian los síntomas de la adicción, los patrones de uso social, los rasgos frikis y la nomofobia, y su manifestación en el AP.

Palabras claves: Educación tecnológica; Relación Redes Sociales- Rendimiento académico; Uso de las redes sociales; Uso educativo de las TICs.

INTRODUCTION

According to Nwufo & Ike (2024), the percentage of people connected to social networks (SN) has increased year by year, and it has been determined that indiscriminate use by users involves risks, making its use a health problem that has negative repercussions on the psychological, physical and emotional health of higher education students (Tian et al., 2021; Vorderer et al., 2019; Yang et al., 2018). In addition, systematic technological progress has favored the proliferation of SRs and digital platforms designed for electronic devices that seek to satisfy the needs of users and stimulate their consumption.

This increase in use is notable and continuous, bringing this accessibility the risk of inappropriate use of these resources (Díaz et al., 2020; Kuss et al., 2020). Rojas & Yepes (2022) mention that the use of computer technology has developed rapidly in recent years, providing advantages in education and becoming a very useful tool in our lives.

This technology makes it easier for people, companies, and institutions to access various information, such as academic, work, social, family, entertainment, videos, and tutorials. The relationship between the user and social networks generates a need to spend more time with the teams, which results in both positive and negative aspects. It is emphasized that the use of SN is not a problem in itself, but rather in cases where it entails unfavorable consequences for the lives of individuals and students.

These platforms are especially attractive to the youth population, as they allow them to maintain contact with their peers, expand their social circles, and reinforce their sense of belonging (Peris Hernández et al., 2018; Proaño Ponce & Sánchez Pazmiño, 2019; Rodríguez-García, et al., 2021). However, the easy access they offer to people of all ages can result in the inappropriate use of this medium to the point of generating addiction (Daei et al., 2019).

Academic performance (AP) is the level of knowledge that a student has achieved in a particular subject, measured within an educational standard applicable to the student, through the assessment approaches used, it involves analysing the results achieved and establishing detailed guidelines to increase the quality of education (Assem et al., 2023).

This aspect is key in the configuration of the education sector and has been the subject of in-depth analysis from various theoretical and methodological perspectives (Reyes et al., 2020, 2023, 2024), is affected by multiple factors, such as the student's context, motivation, intellectual and cognitive capacity, study techniques and habits, and the educator's ability to teach (Abubakar et al., 2018; Adrogué et al., 2021; Navarrete-Enríquez et al., 2024).

In the environment of the third level education of the institute of interest, it has been noted that students make recurrent use of electronic devices for entertainment purposes during their academic days. In addition, it is observed that they engage in communications through chat with people with similar purposes. It has been reported that similar situations result in behavioral problems and disinterest in academic activities, contributing to low performance among young university students (Aznar et al., 2020; Rojas & Yepes, 2022; Mercan & Uysal, 2023).

Studies carried out in Spain (Muñoz Franco et al., 2023) have shown that the use of SN and information and communication technologies (ICTs) has grown significantly, becoming an integral part of the daily life of adolescents. Muñoz Franco et al. (2023), in their review of the impact of Instagram and TikTok, highlight that the problematic use of these platforms can negatively affect AP, pointing to the lack of parental supervision, frequency of use, and access hours as factors; and they highlight the need to raise awareness among young people and exercise prevention and support measures, both for them and for teachers and significant adults.

Nwufo & Ike (2024) has highlighted the role of significant adults in this type of control; additionally, positive correlations have been found between conscientiousness and extraversion, openness to experience and neuroticism with Internet addiction, and that, on the contrary, agreeableness is inversely associated with it.

They highlight that positive family actions are inversely correlated with addictive behaviors to the Internet, and that it moderates the relationships of pleasantness and extraversion with this addiction, so they suggest working on improving family functioning to favorably impact sensitivity to addiction in relation to personality. What Nwufo & Ike (2024) pointed out coincides with what was reported by Aznar-Díaz et al. (2020), regarding the problematic use of the internet and the various associated pathologies.

On the other hand, Díaz-Vicario et al. (2019), in Spain, identified problems in the social, academic, and family spheres, pointing out that the use of technology and SN should be moderated and supervised to avoid adverse effects on health and academic performance, something that is easier to do in adolescents, but not so much in university students. In this sense, this paper investigates the relationship between the use of social networks and the academic performance of nursing students in an Ecuadorian university technological institute. This research is part of the framework of institutional diagnoses aimed at improving the quality of education.

METHODOLOGY

A quantitative, descriptive and correlational approach was adopted to determine the relationship between the use of SN and the RA of 140 nursing students ($N=n$) a university technological institute in Quito, during the academic period 2024-1. To measure the use of SN, the social media and Internet Adolescent Addiction Risk Scale (ERA-RSI) (Peris Hernández et al., 2018) was used, which groups 29 items with categories from never (1) to always (4), (α : 0.86); around four dimensions: symptoms of addiction (SAD), social use (USOC), geeky traits (RFRI) and nomophobia (NOM). The score for each dimension is obtained by adding the corresponding items and dividing them by the number of items, and the same procedure was applied to obtain the total addiction score.

The levels related to addiction were calculated following the scale of Peris Hernández et al. (2018): \geq to p.95 (very high risk of addiction to SN); \geq to p.85 and $<$ to p.95 (risk of addiction); \geq to p.75 and $<$ to p.85 (suspicion of risk of addiction); $<$ to p.75 (without addiction)" (Peris Hernández et al., 2018).

To evaluate the RA, the summary sheet of grades of the students was analyzed, whose levels were categorized as low (<7), medium (7-8) and high (9-10). The Jamovi 2.4.14 program was used, obtaining frequency data, percentages and measures of central tendency (mean) and variability (standard deviation). The bivariate correlation was based on Spearman's test (H_1 : SN \leftrightarrow AP; $p \leq 0.05$).

RESULTS

Table 1 is presented below with the statistical data corresponding to the variable SN. The results show the significant presence of this variable among the surveyed students. It is important to note that social networks act as predisposing factors that can influence academic development, so it is essential to understand their proper use.

Table 1
Descriptive statistics for the SN variable.

	D1-Symptoms-Addiction (9 items)	D2-Social-Use (8 items)	D3-Rasga frikis (6 items)	D4-Nomophobia (6 items)
Average (scores)	17.6	15.1	9.07	9.99
Standard deviation	5.50	4.48	3.27	3.44
Minimal	9.00	8.00	6.00	6.00
Maximum score	36.0	32.0	24.0	24.0

SAD (p.75= 27); USOC (p.75= 24); RFRI (p.75= 18); NOM (p.75= 18).

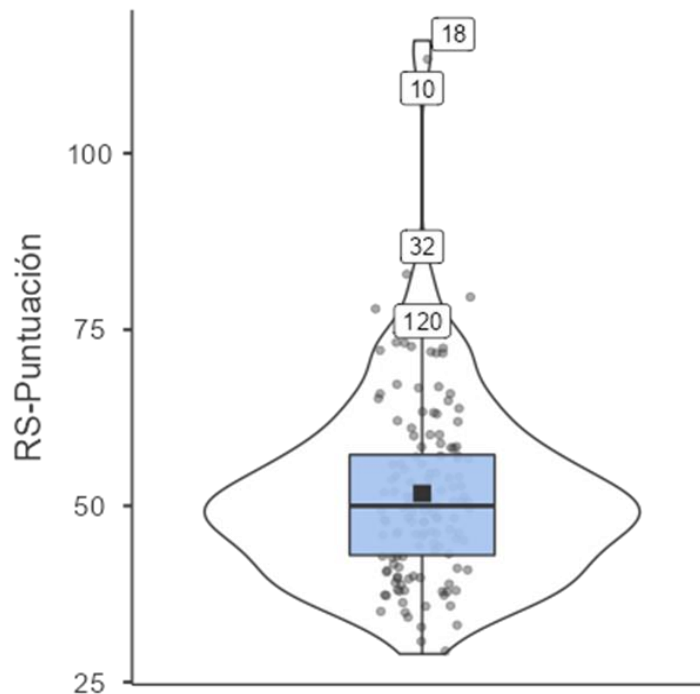
The *SAD* dimension presented a mean of 17.6 ± 5.50 , which indicates that, on average, the participants showed that they are far from manifesting symptoms related to SN addiction, reflecting the not excessive use of mobile devices and digital platforms. The cut-off points to reflect the possibility of a problem in this regard would be $p.75$ (27 points/36). As for *USOC*, the mean was 15.1 ± 4.48 , which is below $p.75= 24$ ($15.1 < p.75$), which suggests an infrequent use of SN for social purposes associated with the search for information and the practice of interaction with other people through digital technologies.

On the other hand, the *RFRI* dimension obtained a mean of 9.07 ± 3.27 , which is located below $p.75= 18$ ($9.07 < p.75$), which denotes a lack of interest in specific topics and online subcultures that are associated with the term "geek". Finally, *NOM* recorded an average of 9.99 ± 3.44 , reflecting a low usage tendency to experience anxiety at the thought of not having access to a mobile device or RS. The cut-off point of $p.75= 18$ is well above the threshold of risk of addiction ($9.99 < p.75$)

Table 2
Descriptive statistics for the variable SN – scores.

	RS- scores
Media	51.8
Median	50.0
Standard Deviation (SD)	13.4
Minimal	29.0
Maximum	116

Figure 1.
Use of RS - scores.



The statistical results of the variable of SN use based on the scores are presented in Table 2 and are illustrated in Figure 1. The reference levels established by the model were used, where the following are first specified: Low (29-58), Medium (59-87), High (88-116). The mean obtained was 51.8 ± 13.4 , which reflects a low use of SN among the students consulted.

This value indicates that, on average, students are not engaged with these networks on a regular basis, which is an aspect to highlight in this population of Quito. Even so, a SD of 13.4 is recorded, which indicates that it is possible to identify subjects who do have some degree of risk (see figure 1), and who will require some attention and support. The median marks 50.0, which implies that this cut-off point is also positioned at the low level, although it can be deduced from this that half of the students have values greater than 50 points, and some cases with some level of addiction to SN can be identified.

Table 3
Percentage of social media usage by tiers

SN-Levels	Frequencies	% of Total	% Accumulated
Low	109	77.9 %	77.9 %
Middle	29	20.7 %	98.6 %
High	2	1.4 %	100.0 %

As shown in Figure 1 and the mean (51.8 ± 13.4) and median (50) values, most students are at a low level (77.9%) in terms of problematic use of SN, which is an important fact, since it suggests that most have not yet developed harmful or addictive habits in the use of these platforms. 20.7% of the students are at a medium level, which indicates a moderate use of social networks, while a small group, represented by 1.4%, is at the high level.

Although this percentage is low, it is an indication that some students may need support to reduce their dependence on social media and thus prevent it from affecting their academic performance.

Table 4
Descriptive statistics for the AP variable.

	RA - Ratings
Middle	7.95
Median	8.00
DS	1.29
Minimal	5.00
Maximum	10.0

The mean AP was 7.95 ± 1.29 , which indicates an overall performance above the approval cut-off point (7 points) and positions the group in the middle level (7-8). The median of 8.00 indicates that 50% of students have grades above 8 points, but that the other half are positioned below that grade threshold.

The SD of 1.29 suggests that, although there are variations in grades, most students are around the average of 7.95, with low variability. The range, with a minimum of 5.00 and a maximum of 10.00, reveals that some students are achieving outstanding results, while others face significant difficulties in their performance (table 4).

Table 5
Percentage of grades by levels

AP - Ratings	Frequencies	% of Total	% Accumulated
Low	21	15.0 %	15.0 %
Middle	58	41.4 %	56.4 %
High	61	43.6 %	100.0 %

The performance at the medium level was 41.4% and it is at this level where the mean and median are located, and 43.6% of the students have a high academic performance (9 to 10 points), which is a positive result. On the other hand, 15.0% of students show low performance (table 5).

Table 6
Correlation Matrix (SN-AP).

		SN-Levels
AP - Levels	Rho	-0.120
	P value	0.157

Nota. * $p < 0,05$, ** $p < 0,01$, *** $p < 0,001$

The correlation between social media use (SN) and academic performance (AP) shows a low and negative value (-0.120), indicating that it is not statistically significant (table 6). This suggests that, in this group of students, no clear or conclusive relationship has been found between the use of SN and their AP. This may be due to the distribution of both usage scores and ratings. In the former, a low level prevails, while in the grades the highest percentages are almost equally located between the medium and high levels.

DISCUSSION

The results of the study show that SN is not widely used among the surveyed students, with low levels and isolated cases of problematization. This suggests that, although SN is part of student life, it does not necessarily lead to a risk of addiction in a generalized way, except in some cases of excessive use. Another important point to discuss is the low negative correlation observed between the use of SN and the AP (-0.120; $p.value > 0.05$), which is not statistically significant. This raises a question mark about the relationship between the two factors, as other studies indicate a more pronounced correlation, especially in the case of excessive or unsupervised use (Mercan & Uysal, 2023; Aznar-Díaz et al., 2020).

The data shows that despite the widespread use of SN and the Internet and that this is an integral part of the lives of the students consulted, this still does not raise concerns about the potential for addiction and its associated negative consequences, especially with academic performance. Regarding the risk of addiction to SN among university students, there are therefore no arguments to indicate that the symptoms of addiction, patterns of social use, geeky traits and nomophobia, and their manifestation in AP, are evident.

This differs from recent studies where several symptoms associated with SN addiction have been identified among students and their impact on academic outcomes. For example, Kuss et al. (2020), based on a systematic review of 43 studies, found that the most common symptoms include preoccupation with online activities, loss of control over use, mood modification, and continued use despite negative consequences.

These symptoms align with traditional criteria for addiction and suggest that social media and internet addiction may share similarities with substance use disorders (Kuss et al., 2020). In the present study, this was not identified. This study is based on a hypothesis of a possible inverse relationship between the use of SN and AP.

Here this was not identified and differs from what was reported by Yang et al. (2022), who reported the relationship between SN addiction symptoms and RA in a sample of 800 university students, expressed in a significant negative correlation between the severity (high level) of addiction symptoms and the mean grades. It was specified that students with higher levels of addiction symptoms were associated with more cases of homework delays, missed classes, and reduced study time (Yang et al., 2022). In addition, the findings of Yang et al. (2022) are concurrent with what was reported by Aznar-Díaz et al. (2020), who in a meta-analysis of 15 studies revealed a small but significant negative effect of addiction on academic performance on several measures, including grade point average, self-reported academic performance, and standardized test scores (Aznar-Díaz et al., 2020).

One aspect that emerges from this work is the need to investigate more deeply the patterns of use of SN and academic performance. Initiatives in this field carried out by Vorderer et al. (2019), managed to categorize young people into three distinct usage patterns: moderate users, intensive social users, and intensive users focused on entertainment. Notably, the study found that intensive social users were at a higher risk of developing addiction symptoms compared to the other 2 groups (Vorderer et al., 2019). This was not explored in this work, but it raises future routes. It is also possible to investigate the role of *smartphones*, which are widely used, since Felisoni and Godoi (2018) showed that for every 100 minutes of use of a smartphone per day, there was an average decrease of 6.3% in AP. This is an important aspect, as the study highlighted the importance of developing strategies to help students effectively manage smartphone use (Felisoni & Godoi, 2018). Additionally, it would be advisable to explore whether there is a conditioning factor of AP associated with the use of SN in classes. Marker et al. (2018), for example, demonstrated a relationship between multitasking in SRs and AP, and that students who frequently engaged in multiple tasks in SRs during academic activities had lower averages and comparatively performed poorly on cognitive tasks compared to those who did not multitask and focused only on school activity.

The need for interventions to help students develop better media use habits and improve their ability to focus on academic tasks was emphasized (Marker et al., 2018). Based on the exploration of nomophobia and AP, the results did not reveal alarming levels either, with a prevalence of a level of absence of risk of addiction or fear of being without the smartphone. This contrasts with what was reported by Rodríguez-García et al. (2021) in an exhaustive meta-analysis of 35 studies in university populations. The data revealed a strong positive correlation between nomophobia and symptoms of SN addiction. In addition, the study reports that nomophobia was associated with higher levels of depression, anxiety, and academic difficulties (Rodríguez-García et al., 2021).

CONCLUSION

In the current educational context, SN has ceased to be simple platforms for social interaction and has become tools with significant potential for learning and academic development.

While its massive use by students has raised concerns around distraction and declining AP, its impact is diffuse, complex, and multifaceted, and much remains to be said about it. The results of this study did not reveal worrying levels or risk of addiction, therefore, the sample consulted exhibits healthy levels of relationship with this type of technology. Nor were inverse relationships reported between the use of SN and AP, which was the starting assumption of the work.

This differs from what has been reported in the academic literature. It is necessary to explore contextual factors that could condition this relationship in the city of Quito. It is thought that beyond the fatalism that accompanies the use of SN, they can become powerful allies in the teaching and learning process, when they are managed in a good way and from a clear institutional perspective. From the point of view of educational management, it is advisable on the one hand to develop strategies that channel the use of SN towards training purposes, promoting a balanced and conscious approach.

This would imply intentionally articulating SN in teaching models, aligning this with the objectives of the microcurriculum and taking advantage of its interactive characteristics to promote creativity, collaborative learning and access to quality communication resources. SN, when strategically incorporated into the academic environment, can prove to be a catalyst for personal growth and learning. It is advisable to establish a commitment in educational managers to ensure that these tools are used constructively, so that a healthy balance is promoted that promotes both academic success and the emotional well-being of students.

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