Excessive Use of Mobile Phones and Social Networks Among Colombian University Students

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Abstract

INTRODUCTION: Social networks facilitate interactions among individuals, organizations, and communities. Their usage, especially among young people, has become increasingly widespread. This surge in usage has been linked to various impacts on individuals' daily lives and well-being, particularly in academic and emotional aspects.

OBJECTIVES: This study seeks to examine the extent to which excessive use of social networks (SN) contributes to social isolation among undergraduate students aged 18 to 35, residing in the departments of Cundinamarca, Boyaca, and Meta in Colombia. This phenomenon is primarily due to problematic cell phone use.

METHODS: We administered two established instruments: the "Mobile Phone Problem Use Scale (MPPUS-10)" adapted by Foerster *et al.* (2015), and the "Addiction to Social Networks Questionnaire " developed by Escurra & Salas (2014). Statistical analyses included descriptive techniques, multivariate Henze-Zirkler normality test, univariate Shapiro-Wilk test, as well as non-parametric methods such as Spearman's correlation and the Kruskal-Wallis test.

RESULTS: Key findings of this study include: (i) the identified intervention and mitigation strategies in the literature predominantly focus on prevention programs and family support with an emphasis on bolstering young people's self-esteem; (ii) 15.46% of the sample exhibited problematic cell phone use, with 25.96% indicating high intensity of social network use; (iii) significant differences were observed in relation to age and geographic location, while gender and socio-economic stratum did not exhibit a statistically significant impact; (iv) the statistical analysis demonstrated a positive and significant relationship with the dimensions of the Escurra & Salas (2014) instrument, namely Interest in Social Media (ISM), concern about lack of control (LC), and Excessive use of SN (EU).

CONCLUSION: The Mobile Phone Problem Use Scale (MPPUS-10) emerges as a concise and effective tool for identifying problematic cell phone use, and its association with excessive social network usage underscores the interconnectedness of these behaviours. This research sheds light on the prevalence of these issues among Colombian university students and provides valuable insights for targeted intervention and support strategies, emphasizing the importance of bolstering self-esteem in youth.

1. Introduction

The interaction within social networks is framed by [1] as "cybercommunication," defined as "the process of mediated communication through the internet and social media in general" (p. 10). From a sociological perspective, a social network encompasses interactions among societies, organizations, communities, or individuals. With the proliferation of the internet, social networks have also extended into virtual environments, understood as applications or platforms that facilitate the flow of data and

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information, as well as interaction among individuals or institutions. The first internet-based social network emerged in 1997: "SixDegrees.com" [2].

[3] defined social networks as "structures in which different groups maintain sentimental, friendly, or work-related relationships in the context of the web" (p. 243). Additionally, [4] found that social networks serve as sources of information and entertainment, promoting frequent usage.

There exist various types of social networks: (i) relational (Facebook, Instagram, WhatsApp, Twitter, Google+, among others); (ii) entertainment (Youtube, Pinterest, Instagram); (iii) professional (Academia, Linkedin, Bebee, Bayt, Xing, Viadeo, among others); (iv) niche-based (TripAdvisor, Goodreads, Behance, among others) [5]. Expanding on this, [6] notes that the typology of social networks can be categorized based on: (i) generality, professionalism, or specialization; (ii) thematic focus; (iii) activity-based; (iv) target audience; (v) objective; and (vi) geographic location.

According to data from [7] and [8], the social networks with the highest number of active monthly users as of January 2022 were: "Facebook (2.912 billion), Youtube (2.562 billion), Whatsapp (2.000 billion), Instagram (1.478 billion), Weixin (1.213 billion), TikTok (1.090 billion)" [8]. In this report, the use of Twitter was at the bottom with 330 million subscribers, a decrease of 23 million compared to 2021. Similarly, the report estimates that the monthly number of active users for 2022 corresponds to 3.960 billion, and it is expected to rise to 4.410 billion by 2025. The majority of users are from Latin America and Asia.

Furthermore, the [9] showed that as of July 2023, 46.4% of social media users were female and 53.6% were male. The distribution by age and gender of social media users was as follows: 13 to 19 years (5.5% female and 6.5% male, totaling 12%); 20 to 29 years (13.5% female and 17.5% male, totaling 31%); 30 to 39 years (9.9% female and 12.3% male, totaling 22.2%); 40 to 49 years (7.4% female and 8.1% male, totaling 15.5%); 50 to 59 years (5.2% female and 5.2% male, totaling 10.2%); over 60 years (4.8% female and 4.2% male, totaling 9%).

In addition to the increase in the number of users, the time spent browsing social media per person is also noteworthy. According to [10], the average worldwide time spent on social media in July 2023 was 2 hours and 26 minutes. However, countries like Brazil (3 hours and 41 minutes), Nigeria (3 hours and 44 minutes), Philippines (3 hours and 38 minutes), Chile (3 hours and 34 minutes), South Africa (3 hours and 34 minutes), Kenya (3 hours and 32 minutes), and Colombia (3 hours and 28 minutes) exceeded this value. It's worth mentioning that in 2021, Colombia ranked second among countries with the highest average usage hours [11].

In addition to the above, academic literature has identified unhealthy behaviors related to technology use. The concept of social media addiction was introduced by [12] and [13]. It constitutes a subcategory of internet addiction involving biological, social, and psychological elements. This addiction arises from "the expectation of positive results, combined with self-efficacy in using the Internet and poor self-regulation of its use" ([12], p. 2832). It is also known by other names such as "social media use disorder," "Facebook addiction," "Internet communication disorder," or "smartphone addiction" ([14], [15]). Another definition is proposed by [16], in which they state: "Social media addiction is considered an excessive fondness for a website to excessively play individually or in a group, to navigate and interact on sexual concerns or themes, and to engage in textual or verbal messaging" (p. 85).

The factors studied in recent works on the subject include time spent, population type, comprehensiveness, use, pleasure derived, age, positive and negative effects, and type of device used ([17] and [18]). For example, [12] established a link between mobile device addiction and excessive use of social media in 374 students aged 18 to 24. Similarly, [19] and [20] found evidence of a relationship between low academic performance and excessive use of social media.

[21] analyzed the effects of social media use in organizations, with a sample of 294 workers and a questionnaire comprising 44 items. Likewise, some studies have presented the construction and validation of scales to assess social media addiction, for example, the scale developed by [22]; the adaptation of the "Mobile Phone Problem Use Scale" by [18], and its shortened version.

From another perspective, [23] identified that individuals most prone to developing dependence on social media have certain personality traits, such as low self-esteem, a need for love and recognition, sadness, bad mood, insecurity, loneliness, a tendency towards fantasies, shyness, and limited social skills.

In the work of [1], a theoretical review of the tangible and intangible effects of social media use is conducted. They identified the following relationships with social media use: (i) individual psychological characteristics; (ii) prior personality development; and (iii) parental control. In this same approach, [24] conducted a review of documents available in WoS, Scopus, and Scielo to identify correspondence between obesity and social media use. One of the most comprehensive and recent reviews is that of [25], as it includes the evolution and discussion of: (i) addictions related to the internet and social media, (ii) whether they are new mental disorders or a consequence of pre-existing psychological or psychosocial disorders, (iii) risk factors predisposing to excessive and problematic behavior, and (iv) the consequences for those experiencing them. The approach by [26] studies the relationship between academic stress and social media addiction in 168 university students in Peru.

They applied non-parametric statistics, identifying a negative and moderate relationship between the variables analyzed. The work of [27] shows that what is appealing about social media for young people is the ease of access without adult supervision and the learning style it requires, namely, through trial and error. These researchers conducted a quasi-experimental study on 242 pre-adolescents residing in the Basque Autonomous Community. This work complements the one presented by [28], which also analyzed the use of social media in 364 pre-adolescents aged 10 to 13 residing in Navarre, Spain. It confirmed high internet usage, but for different purposes. Students used them more for accessing games, while female students used them for social interaction. On the other hand, [29] used a sample of 200

students from a private university in Mexico, finding a significant negative relationship between the number of hours spent on Facebook and their subjective psychological and material well-being (p. 19). In this same vein, [30] compared the quality of life and social media use in 400 students from Mexico and Colombia.

[31] evaluated the correspondence between introversion and extraversion in 60 students, with excessive social media use. [32], [33], [34], [35] also applied different psychometric instruments in young people. [32] identified alterations in sleep, anxiety, mood, and restlessness upon connecting to social networks. Along the same lines, [36] demonstrated a positive relationship between time spent on social media and the growth of sedentary behavior, isolation, distortion of socialization, disruption in rest and sleep patterns, and eating habits. [31] showed that individuals with some degree of social media addiction experience a decrease in their performance in affective, social, work, and academic contexts.

Similarly, [37] applied a "Social Media Addiction Questionnaire" and the "Beck Depression Inventory-Adapted" finding an association between social media addiction and depression in 262 university students selected by probabilistic sampling. In 2023, [38] validated "the Fear of Missing Out Scale (FoMOs)" in 357 Chilean university students.

Another very interesting association is proposed by [39], linking procrastination with excessive use of social media in 226 individuals. In the work of [40], the authors identified that there is a concordance between internet addiction and social media addiction, mediated by the inappropriate use of mobile phones, and issues such as depression, frustration, loss of concentration, and interference in academic capacity.

[16] assessed dependence on social media in a sample of 240 university students in Sinaloa. 92.5% of the participants exhibited moderate addiction, but there was no evidence of a correlation between age and the number of hours spent on social media. On the other hand, [41], based on the adaptation and validation of Goldstein's "Social Skills Checklist" and the "Attitudes towards Social Media Scale," evaluated the relationship between social skills and social media use in 205 primary school students.

This also represents several risks for minors, exposing them to digital criminal activities and cyber-violence such as networks of child prostitution, human trafficking, among others. [1], [42], and [43] also identified situations faced by social media users such as grooming, cyberbullying, sexting, among others.

[28] found risky behaviors like meeting with strangers, sending photos or videos, and providing personal data. They found a relationship between cyberbullying and reduced self-esteem. A similar finding was established in the work of [44], who identified that cyberbullying is experienced by between 2% and 16% of young people and can lead to school absenteeism, depression, low self-esteem, behavior changes, deterioration in social relationships, and suicide.

In the realm of mobile phones, the work carried out by [45] and [46] stands out, highlighting their various uses and emphasizing that it has become a factor affecting student behavior due to various causes. Their work is based on the "Unified Theory of Acceptance and Use of Technology". [47] studied addiction to smartphone-type mobile phones, finding, through the "Smartphone Dependency and Addiction Scale", greater dependence among women and a direct relationship with poor social media management.

In this context, the research question of this document is: What is the incidence of excessive social media use in social isolation arising from problematic cell phone use in undergraduate students aged 18 to 35 residing in the departments of Cundinamarca, Boyacá, and Meta (Colombia)? The specific objectives correspond to: (i) describe the clinical psychology approach to excessive use of social media and mobile phones, identifying strategies for treatment; (ii) identify the prevalence of excessive cell phone use and addictive behavior related to social media in undergraduate students aged 18 to 35 residing in Cundinamarca, Boyacá, and Meta, through the application of (a) the "Mobile Phone Problem Use Scale (MPPUS-10)" adapted by [18] and (b) the "Addiction to Social Networks Questionnaire" by [22]; (iii) explain the relationships between the three dimensions of the "Addiction to Social Networks Questionnaire" (Interest in Social Media (ISM), Concern about Lack of Control (LC, and Excessive Use of Social Media (EU)) with social isolation resulting from excessive cell phone use.

2. Method

2.1. Type, Scope, and Design

Following the methodology proposed by [48], the research will adopt a mixed method approach, utilizing concurrent triangulation [49]. The qualitative component will have a descriptive scope, employing a narrative design based on the documentary review of academic literature published between 2015 and 2023. Conversely, the quantitative segment will entail a cross-sectional, non-experimental, explanatory, and correlational design.

2.2. Sources and Participants

For the quantitative phase, a convenience sampling method was employed across 8 Colombian universities. Initially, 210 responses were collected. However, after applying inclusion and exclusion criteria, a total of 181 responses were deemed suitable for analysis. This implies a margin of error of 7.28%, a confidence level of 92.72%, and an effect size of 0.25, in accordance with calculations conducted using G*Power [50]. It is essential to note that studies involving human participants in Colombia must comply with Law 1090 of 2006 and Resolution 8430 of 2003. All students provided informed consent prior to participating.

Inclusion criteria comprised: (i) active enrolment in a university, (ii) residence in one of the following departments: Cundinamarca, Boyacá, or Meta, and (iii) completion of the information collection instrument. Exclusion criteria

included: (i) age below 18 or above 35 years; (ii) non-acceptance of participation conditions in the instrument; and (iii) enrolment in a level other than undergraduate.

Regarding the documentary review (qualitative component), a selection of 45 documents was made. The consulted bibliographic databases included Scopus, Science Direct, Ebsco, and Scielo. Inclusion criteria encompassed: (i) belonging to any of the previously mentioned databases, (ii) compliance with the search equation TITLE [allintitle: ("redes sociales" or "social network") and (efectos or effects)], and (iii) publication between 2015 and 2023. Exclusion criteria encompassed: (i) unavailability in open access and (ii) being written in a language other than English, Spanish, Portuguese, or French.

Hereafter, we highlight the main characteristics of the analysed sample. Out of the total, 172 students (95%) attended in-person classes, while 7 attended in a hybrid or virtual format. Majors pursued included law, business administration, marketing, political science, accounting, and various engineering disciplines (environmental, systems, industrial), among others. Of the participants, 116 (64.08%) resided in Cundinamarca, 33 (18.23%) in Boyacá, and 32 in Meta (17.69%). The demographic breakdown included 75 male students (41.44%) and 106 female students (58.56%). In terms of familial status, 171 individuals (94.48%) did not have children, while 10 (5.52%) did (with 1 to 3 children). Residential stratification, as per utility bills, revealed: 1 (12, i.e., 6.63%), 2 (59, i.e., 32.60%), 3 (83, i.e., 45.86%), 4 (21, i.e., 11.60%), 5 (5, i.e., 2.76%), and other (1, i.e., 0.55%). Marital status indicated that 164 were single (90.61%), while 17 were cohabiting or married (9.39%). The majority of university students fell within the 18 to 24 years age group (153, i.e., 84.53%).

2.3. Instrument

A data collection instrument was developed based on the "Mobile Phone Problem Use Scale (MPPUS-10)" as adjusted by [18], along with the "Questionnaire of Addiction to Social Networks" by [22]. This instrument was disseminated online.

2.4. Data Analysis Strategy

The analysis process is bifurcated into qualitative and quantitative components. For the qualitative aspect, a matrix of documentary review was constructed, followed by a thorough reading of each article. Relevant information pertaining to objectives, study type, population, instruments, techniques, and results was extracted. Subsequently, a manual axial coding approach ([51]) was applied to identify sections in each text that could offer pertinent data regarding strategies to mitigate excessive use of social networks. Specifically for mitigation strategies, Table 1 was compiled, categorizing proposing authors and grouping proposals based on focus and scope.

The research process for the qualitative component encompasses three stages: (1) retrieval of academic documents from bibliographic databases adhering to inclusion criteria; (2) creation of the synthesis matrix; and (3) analysis and synthesis of the collected scientific evidence to formulate results and discussion ([52]). For the quantitative data analysis, three phases were followed: (1) data collection; (2) purification of information applying inclusion and exclusion criteria; and (3) statistical analysis utilizing the open-source software R. Initially, Henze-Zirkler and Shapiro-Wilk tests were conducted to assess data normality. Given the non-compliance with this condition, non-parametric statistics, specifically Spearman's correlation and the Kruskal-Wallis test (the non-parametric equivalent of ANOVA for non-repeated measures), were employed.

3. Results

3.1. Strategies for addressing excessive use of Social Networks

As depicted in Table 1, the predominant strategies center around prevention programs and family support initiatives, which encompass bolstering the self-esteem of young individuals.

Table 1. Strategies for Managing Excessive Social Media Usage

Author	Proposal
[28], [1], [27] and [53]	Develop prevention programs for responsible and safe Internet use.
[54], [29] and [55]	Pedagogical practices aimed at guiding young people towards safe and lower-risk use of social networks.
[12], [19], [41] and [56]	Create specific plans for affected individuals, including the regulation of screen time through a defined schedule.
[36], [24] and [23]	Promote a shift from sedentary habits to increased physical activity.
[4], [57] and [37]	Focus on motivation strategies to boost users' self-esteem. Implement prevention programs or strategies that enhance users' self-esteem and refine their social skills.
[12], [19], [42] and [58]	Parental support strategies should involve recognizing the achievements, abilities, and capacities of each individual child.
[33]	Foster a family environment centered around communication, allowing for the creation of bonds of affection, peaceful coexistence, and positivity.
[34]	Offer workshops on self-control and comprehensive care programs.

3.2. Prevalence of Excessive Cell Phone Use and Social Media Addiction

Based on the fieldwork, it was possible to determine that participants primarily used their cell phones at home and while using public transportation. The most frequently performed activities on their cell phones included making or receiving calls, browsing the internet, sending, or receiving emails, taking photos, and listening to music. Less frequent activities included sending or receiving SMS messages, conducting banking transactions, gaming, using educational apps, and scanning QR codes.

The connection to social media was primarily reported at home, work, and university. The majority indicated logging in between 7 and 12 times a day (81 individuals, 44.75%) or being constantly connected (41, or 22.65%). 163 (90.06%) participants mentioned that their social media accounts had their real information, while 18 did not (9.94%).

Using the "Mobile Phone Problem Use Scale (MPPUS-10)" adapted by [18] as a detection tool and considering the articles by [59] and [60], in which a score of 59 or above would indicate problematic cell phone use, it was possible to identify 28 participants exhibiting this behaviour within the sample.

Table 2 displays the distribution of results by gender, revealing that 20% of the male participants and 12.26% of the female participants exhibited this condition. Subsequently, an analysis was conducted to determine if there were statistically significant differences between genders in the results. For this, the Kruskal Wallis test was calculated after confirming that the data was not normally distributed. As shown in Table 4, the differences did not turn out to be statistically significant.

Table 2. Results of Problematic Cell Phone Use in the Sample

Criterion	Male	Female	Total
Non-problematic cell phone use	60	93	153
Problematic cell phone use	15	13	28
Total	75	106	181

On the other hand, the results from the "Social Media Addiction Questionnaire" by [22] are summarized in Table 3. According to this, 26% (47 individuals from the sample) displayed signs of elevated social media use (high intensity). This means that 26.6% (20) of males and 25.4% (27) of females exhibited this behaviour. Like the case of MPPUS-10, the differences between males and females were not statistically significant (Table 4).

Table 3. Results from Escurra & Salas' questionnaire [22]

Intensity	Male	Female	Total
High	20	27	47
Low	29	53	82
Medium	26	26	52
Total	**75**	**106**	**181**

Table 4. Summary of Kruskal-Wallis Test

Variable	Group 1	Group 2	P-Value	H statistic	Significant Difference
MPPUS-10	Men	Women	.33107. The result is not significant at $p < .05$.	0.9447 (1, $N = 181$).	No
MPPUS-10	Stratification	Stratification	.58285. The result is not significant at a $p < .05$.	2.8523 (4, $N = 181$).	No
MPPUS-10	Boyaca	Cundinamarca	.10267. The result is not significant at a $p < .05$	2.6635 (1, $N = 149$).	No
MPPUS-10	Boyaca	Meta	.02120. The result is significant at $p < .05$.	5.3031 (1, $N = 65$).	Yes
MPPUS-10	Cundinamarca	Meta	.02521. The result is significant at $p < .05$.	5.0093 (1, $N = 148$).	Yes
MPPUS-10	18-24 years	25-35 years	.00246. The result is significant at $p < .001$.	9.1727 (1, $N = 181$).	Yes
Escurra Test	Men	Women	.20187. The result is not significant at a $p < .05$.	1.6268 (1, $N = 181$).	No
Escurra Test	Stratification	Stratification	.67628. The result is not significant at $p < .05$.	2.3247 (4, $N = 180$).	No
Escurra Test	Boyaca	Cundinamarca	.00849. The result is significant at $p < .05$	6.9281 (1, $N = 149$).	Yes
Escurra Test	Boyaca	Meta	.00025. The result is significant at $p < .001$.	13.4029 (1, $N = 61$).	Yes
Escurra Test	Cundinamarca	Meta	.01533. The result is significant at $p < .05$.	5.878 (1, $N = 148$).	Yes
Escurra Test	18-24 years	25-35 years	.00512. The result is significant at $p < .001$.	7.8352 (1, $N = 181$).	Yes

Furthermore, as mentioned earlier, efforts were made to contrast the differences in results between groups defined by sociodemographic conditions, using the Kruskal Wallis test. Age and geographic differences were identified as factors that explained the variances in both instruments. The variables that did not show differences between groups in either case were gender and socioeconomic status.

3.3. Relationships between IRS, PFC, UERS, and Social Isolation

To facilitate the analysis, the R software was employed for visual representation (Figures 1 and 2) of the Spearman correlation between the three factors measured in the [22] instrument (Interest in Social Media - ISM, Concern for Lack of Control - LC, and Excessive Use of Social Media - EU) and the dimension of social isolation (SI) captured through the MPPUS-10. Based on the information from Figures 1 and 2, statistically significant correlations at the 1% level were established, as mentioned in Table 5.
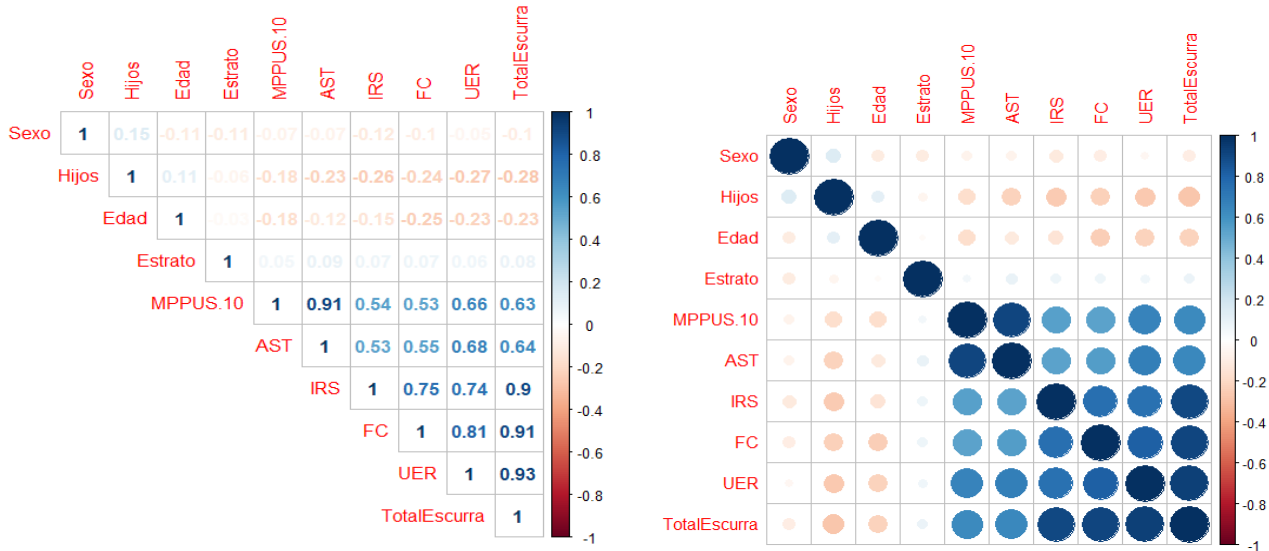
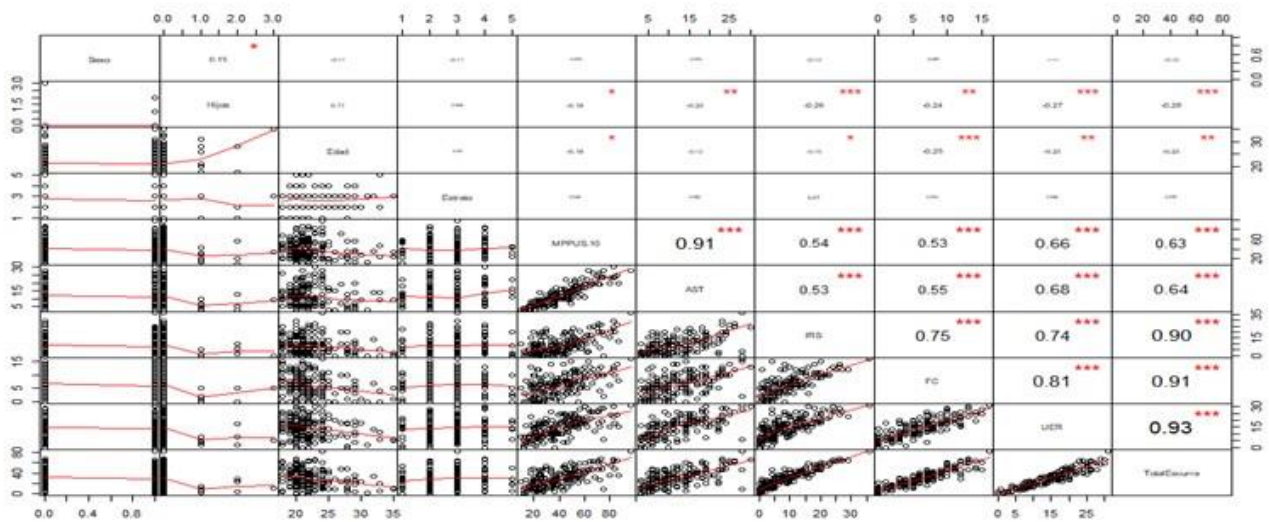**Figure 1.** Representation of Spearman Correlation in Selected Variables

Figure 2. Scatterplot matrix and Spearman correlation in selected variables, including the level of significance.
Note. *** (p-value 1%), ** (p-value 5%), and * (p-value 10%).

Table 5. Spearman Correlation between Dimensions and Instruments

Variables	Value	Interpretation of Correlation
ISM y LC	0,75 (high)	Positive, high, and significant
ISM y EU	0,74 (high)	Positive, high, and significant
ISM y SI	0,53 (medium)	Positive, medium, and significant
LC y SI	0,55 (medium)	Positive, medium, and significant
EU y SI	0,68 (medium)	Positive, medium, and significant
EU y LC	0,81 (high)	Positive, high, and significant
MPPUS-10 and Escurra	0,63 (medium)	Positive, high, and significant for the total results of both instruments

4. Discussion

The problematic use of social media isn't specifically categorized as a mental disorder. However, this study has identified a growing body of empirical research that highlights symptoms akin to addiction disorders ([3], [35], [42], [43], [28], [44], [12] and [31]).

Precisely, akin to the work of [12,45-49] and, social media addiction in this paper is considered a subcategory of internet addiction and cyber addiction. Furthermore, based on fieldwork, the results of [50-53] and [54-58] were corroborated, revealing the diversity of mobile phone usage by participants, even when not connected to the internet. Similarly, as in the work of [59-64], it was possible to find discrepancies between the perception of safe technology and social media use [65-69].

Regarding the quantitative findings, like [70-74], the results from both instruments indicated a moderate level of addiction in the majority of participants [75-79]. However, in this study, a correlation between age and excessive cell phone use, as well as the intensity of social media addiction, was observed [80-84].

Another deviation from the literature is noted in [85-89]. In that study, a greater dependency was found among women, with a direct relationship to poor management of social media [90-93]. In contrast, based on the fieldwork conducted, it was not possible to identify significant differences between the results for men and women [94-99].

Finally, the relationship between excessive social media use and its impact on social context (isolation) found in this study corroborates the findings of [31], [32], [36], and [40], where a decrease in the performance of those affected was identified in various areas.

5. Conclusions

This document establishes that among the identified strategies for intervention and mitigation, the majority focus on prevention programs and family support strategies, which include bolstering the self-esteem of young individuals. Through fieldwork involving 181 undergraduate students residing in Cundinamarca, Boyacá, and Meta, and utilizing the "Mobile Phone Problem Use Scale (MPPUS-10)" [18] and the "Social Media Addiction Questionnaire" [22], it was determined that: (i) the most frequently used locations for mobile phones were at home and in public transportation; (ii) the most frequently performed activities with the phone included making or receiving calls, browsing the internet, sending or receiving emails, taking photos, and listening to music. Less frequent activities included sending or receiving SMS, making bank payments, playing games, using educational applications, and reading QR codes, among others.

The use of the MPPUS-10 as a tool for detecting problematic cell phone use identified 28 participants (15.46%) exhibiting this behavior within the sample.

Furthermore, 47 individuals from the sample (25.96%) displayed signs of excessive social media use (high intensity) according to the [22] instrument, although the majority fell within a moderate intensity.

We sought to contrast differences in results among groups defined by sociodemographic conditions, using the Kruskal Wallis test. It was concluded that age and geographical differences were statistically significant factors in both instruments. Variables that did not show disparities among the groups were gender and socioeconomic stratum.

In terms of social isolation (a dimension of the MPPUS-10), the statistical results demonstrated a positive and significant correlation with the components of the Escurra & Salas (2014) instrument: Interest in Social Media (IRS), Concern about Lack of Control (FC), and Excessive Use of Social Media (UER), further emphasizing the importance of the MPPUS-10 as a tool for detecting problematic cell phone use. Finally, based on the findings, it was identified that the MPPUS-10 is a straightforward and concise tool for detecting problematic cell phone use, which, as derived from this study, is associated with excessive social media use.

Considering this is a pioneering study in Colombia, its results require validation through subsequent studies. Among the study's limitations is that the literature review did not delve into biological, psychological, and social variables that may contribute to the excessive use of social media. Additionally, it was found that students, when surveyed, tend to perceive the use of social media in university settings not as something significantly impacting their lives, but rather as a routine element of daily life.

Another limiting factor is the geographical representativeness of the sample. While three departments were considered, this could be extended to other regions. Furthermore, the fact that the majority of responding students were in the in-person modality suggests that future research should include a comparison with students in virtual or hybrid modalities. As the instrument used was self-reported, this study could be complemented with a qualitative phase, conducting interviews with some of the students who reported the highest levels of intensity in problematic social media and cell phone use.

Future research endeavors may include: (i) expanding the study to students in hybrid or virtual modalities, seeking to identify differences from in-person undergraduate students; (ii) contrasting with other potential diagnostic instruments such as anxiety or depression; (iii) broadening the present study to other age ranges and to a non-student population.

Declaration of competing interest.

The authors declare that they have no known financial or non-financial competing interests in any material discussed in this paper.

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