

Article

Social Networks Consumption and Addiction in College Students during the COVID-19 Pandemic: Educational Approach to Responsible Use

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Abstract: Within the framework of digital sustainability, the increase in Internet consumption, and especially online social networks, offers social benefits, but is not without its drawbacks. For example, it can lead to psychological and/or psychiatric disorders in some people. Numerous researches are highlighting the similarities of these addictions with the consumption of toxic substances. University students are heavy users of the Internet and, in certain situations, addiction to online social networks can be the result of depression, harassment, and anxiety, among others, affecting their daily life, including their academic responsibilities. In recent months, an anomaly has occurred that may have contributed to intensifying this problem, namely the confinement produced by the COVID-19 pandemic, which has affected the whole world to a greater or lesser extent. In this cross-sectional study, with a descriptive and quantitative methodology, students from 14 Spanish universities were investigated in the first wave of the COVID-19 pandemic in order to understand the effects of this situation on the problem described. The results show a high consumption of social networks during that time, with significant incidences of addiction. In parallel, the presence of comorbidity has been determined. In this scenario, it would be necessary to implement university educational programs to redirect these addictive behaviors, as well as preventative recommendations and actions to minimize negative impacts. This is a major problem that is growing, exacerbated by the global pandemic produced by the SARS-CoV-2 coronavirus. Situations of this gravity call for the development of preventive and educational measures for the responsible and sustainable use of ICT.

Keywords: social networks; digital sustainability; addictions; college students; health education; covid-19; prevention; higher education

1. Introduction

The increase of information and communication technologies (ICTs) has profoundly transformed the world. We are in a new historical period, the digital era, in which the digitization of information has produced highly relevant changes in all areas of life. This is especially true for social relations and communication processes between people, generating new social and cultural structures [1–3]. It is clear that the Internet, the network of networks born of this new

communication paradigm, is now part of everyday life in society, and users of online social networks have increased considerably in recent decades around the world [4–7].

ICTs have promoted new jobs that did not exist before, they have improved and streamlined the way people work and move around in all spheres of life, from shopping to taking a train ticket, or sending photographs in real time in tenths of a second to another part of the world. The ways of interacting with the environment have also changed [8,9]. In many aspects, social networks have made it possible to communicate with people who are unknown or with whom contact has been lost; they make it possible for people who are far away from each other to meet and facilitate encounters with family and friends [10].

Social networks were an important evolution in the development of ICT. So much so that borders have been established between the old forms of communication and the current ones within the digital paradigm. Thus, some specialists speak of both non-digital natives (born before 1995, when these new technologies were born) and digital immigrants (people adapted mainly to the analogical era) [1,11]. These are people who continue to maintain a behavior based on direct personal relationships in a physical context: Face-to-face interactions instead of virtual ones, physical meetings instead of video conferences, shopping in physical stores instead of virtual ones, attending conferences in person instead of online, etc. However, this is not the case for the younger generations, who have been born into the digital age.

This new form of society that the social networks are creating is causing the old forms of relationship to be fragmented and replaced. Social networks (Facebook, Twitter, LinkedIn, etc.) are part of social media, which include, in addition to social networks, other media such as blogs (WordPress, Blogger, etc.), multimedia systems (iTunes, Livestream, YouTube, Vimeo, etc.), geolocation systems (such as Foursquare), etc. In these new interactive societies, the sense of belonging and permanence is fragile and diffuse, and the relationships established through electronic devices are vulnerable and easily forgotten, unlike the relationships typical of analog societies [12]. Different studies have shown the interest of young people in the use of social networks in the educational sphere [13–16], but the problem lies in the fact that their massive use is created outside this sphere, within their leisure activities and diverse interpersonal communications [17–22], without there being controls and protocols established for their adequate use [7,23–28].

In the age of the Internet, the benefits that ICTs have brought to society and science are certainly innumerable, but their abuse can create problems at the personal and psychological level [29], especially among the younger population [30–35]. The benefits of digital technologies include the development of skills, creativity, new learning opportunities, socialization and motivation; the negative aspects include, at least, the lack of communication limits, reduced listening skills, and emotional withdrawal [4]. The consequent derivations of the new forms of interaction make it essential to know how the generation of digital natives interpret reality outside the social networks. Various studies have long been in charge of analyzing the consequences of excessive immersion in the digital world in relation to social and psychological factors, eating habits, self-esteem, self-decentralization, and intercommunication [36–40].

In addition to all this, it is clear that the situation we are experiencing due to the pandemic produced by the SARS-CoV-2 coronavirus, which causes COV-19 disease, may have increased the negative effects of excessive use of social networks. Confinement may have induced an increase in consumption, which is also associated with the fact that such an anomalous situation may involve obvious psychological effects [41–46]. There is certainly a high risk of an increase in addictions [47–51], including those related to digital media and social networks [52,53].

The term addiction has traditionally been associated with substance intake. In relation to the conceptualization of addictions, both the Diagnostic and Statistical Manual of Mental Disorders-DSM-5 [54] and the World Health Organization's International Classification of Diseases (ICD-11) [55] recognized the similarities between the different types of addictions, rather than focusing on the differences, representing an emerging problem that may be common, but manifests itself in different ways and through different forms of substance use or addictions without substances [56], such as addiction to shopping, mobile phones, gambling, food, video games, the

Internet, gender, among many others [57–60]. Studies agree that any behavior that produces pleasure can become addictive [61]. People with technological addictions [62] often present loss of self-control, intense desire to connect to social networks, withdrawal symptoms such as anxiety, agitation, depression, irritability when it is not possible to access the network, tolerance (need to progressively extend the time of Internet connection to achieve the same results and feel satisfied), severe interference in daily life with reduced physical activity, and gradual abandonment of other previous pleasures [8,63], criteria that are common to substance abuse and dependence [64,65]. Therefore, different authors have established an equivalence between addiction to substances such as alcohol and drugs and dependence on the Internet, showing the same symptoms [61,66–68].

One relevant aspect is that found in several studies, where certain personality traits, such as neuroticism [69–73] or low self-esteem, great shyness, and depression [61,74–76], are pointed out as factors promoting possible addiction to the Internet, especially to social networks. This psychological dependence affects different spheres of daily life such as work, social and interpersonal relationships, school performance, emotional and family relationships, etc. [77], and therefore has become a public health problem and requires preventive actions [29,78], especially among the student population.

Addiction to social networks is considered a new type of addiction affecting the general population, but with greater intensity among young people. The theoretical review carried out questions the magnitude of the influence that new information and communication technologies may be having on young university students and how it affects their behavior, social habits, forms of relationship, daily tasks, and even in the psychological field, such as stress, anxiety, self-control, confidence, self-concept, etc. Numerous studies have warned of the consequences of Internet addiction in general and of social networks in particular on university students [79–88], affecting them on a personal and social level as well as on academic performance. It has even been determined that it is a determining factor that affects the quality of sleep [89–93], which is fundamental for health and especially for the adequate development of academic activities.

During the period of confinement imposed by the COVID-19 pandemic, messages, chats, or video calls to loved ones have brought family and friends closer together, making social isolation more bearable. The use of ICTs during the state of alarm, especially of social networks as a means of hobbies, information, socialization, and education, has increased notably due to the measures of isolation and limitation of mobility applied, with Spain registering 50 points above the world maximum for web traffic [94], data that could be considered very significant regarding the dependence on social networks that, in certain situations of social isolation, the Spanish university population may have. However, in the face of these benefits of ICT, there are also risks that can be minimized by taking appropriate measures. The preventive and educational approach is crucial to promote the responsible use of ICT.

In a general context, the integration of ICTs into society today is a critical process for sustainability. They lead to the development of smarter cities and organizations, more efficient transport systems, the optimization of electricity networks and energy consumption by other industries, etc. Everything is based on the digitalization of information and communication. And higher education is no exception [17]. The use of digital communication systems, information, and communication networks not only contributes to sustainability, but sometimes, as in the case of the COVID-19 pandemic, has been decisive in continuing the education of students.

An increasingly digitalized university can make a decisive contribution to this. Every training and educational process is a process of communication. Certainly, the use and employment of these new tools and media has many positive elements, but there are also negative ones. We must not forget that the main use of communication networks in the world today takes place in a social and leisure context [27], which can lead to excessive consumption or even addiction. Hence the need to know whether this problem can be found in university students, and to contribute with this information to the improvement of this integration of ICT in society and higher education in order to be able to develop strategies and processes for a responsible use of them. Especially in situations as

critical and exceptional as the COVID-19 pandemic, a phenomenon that can change many social habits in young people—including university students and citizens in general.

2. Materials and Methods

2.1. Objectives

College students have consumed a lot of internet during their confinement, but it is imperative to find out if they have had excessive use or abuse. In this study, we used the Social Networking Addiction Scale (*Adicción a Redes Sociales, ARS*), developed by Ecurra and Salas [77], for university students to determine their internet use during the confinement stage of the COVID-19 pandemic. This scale evaluates social network addiction in university adolescents and young people, for the diagnosis of social network addictions, clinical and educational analysis, or for research.

In this context, this study explores the consumption of social networks in university students, seeking above all to determine the presence of addiction to them. Thus, our research examines the addictions to social networks among Spanish university students during the period of confinement in Spain after the declaration of the state of alarm as a consequence of the first wave of the COVID-19 pandemic. In this approach, we set ourselves a double objective. Firstly, to find out the level of addiction to social networks by young Spaniards at that time. Secondly, to check whether there are sociodemographic variables, related to the consumption of other addictions or family members that may determine the probability of having a high level of consumption to social networks.

2.2. Study Design and Sample

A cross-sectional study was carried out between 1 and 15 June 2020. The protocol followed all the guidelines of the Ethics Committee of the universities to which the members of the research team belong. For the field work carried out in Spain, the official approval of the universities is not necessary if it is a question of descriptive studies, as it has been carried out (it is only required in the experimental ones). However, the Codes of Good Practice for Research on Human Beings, which are collected by the Ethics Committees, were signed, and the study was registered (code No. REPRIN-PEM-04) by the research team that made up the authors.

All participants (N = 310) gave their informed consent in accordance with the Declaration of Helsinki. The instrument used to collect the information, in the form of a confidential anonymous online questionnaire, was transmitted through a tool used by the University of Murcia based on a computerized data collection system. It uses advanced software that allows the design of totally personalized surveys that can be adapted to any device (responsive system). The participants have to accept the ethical conditions and give their consent before accessing the questionnaire and sending their answers.

Due to the special circumstances of confinement and the urgency of obtaining the information, the sample carried out was of convenience, being applied to groups of students of which the researchers are professors, as well as colleagues from other Spanish universities who obtained prior permission from their students to participate in the study. In this way, a sample was obtained from a group of 14 universities in Spain.

The instrument used in the research was the Social Networking Addiction Scale for young students with university studies, built and validated by Ecurra and Salas [77], which consists of 24 items. This scale is divided into 3 subscales that investigate different factors. The first one is Factor I: "Obsession with social networks". This factor consists of 10 items, and is related to mental commitment to social networks, to recurrent thinking or fantasizing about them, as well as to anxiety and the worry and discomfort caused by the lack of access to them. The second factor is called "Lack of personal control in the use of social networks". This factor is composed of 6 items and is related to the lack of control or interruption in the use of social networks, causing a neglect of both the usual tasks and studies. Finally, the third factor is the "excessive use of social networks". It is composed of 8 items and is related to the difficulties in controlling the use of social networks, indicating: Excessive use of time, inability to control when using them, as well as decreasing the time they

spend for this purpose. From the Ecurra and Salas Scale, the addiction to social networks is verified according to factors, as well as a final added value that indicates the general level of addiction of the subjects. In addition, this scale allows us to obtain an added value, and therefore, to know the degree of addiction of the subjects to social networks.

The time interval analyzed in the questionnaire refers to the previous 4 months. In this way, we can consider the conditioning factor of the confinement and the health crisis derived from SARS-CoV-2 in university students. The questionnaire was distributed electronically as a result of the declaration of the state of alarm decreed in Spain due to the health crisis produced by the COVID-19, which meant that it was impossible to carry out the questionnaire in person, given that the university centers were closed and teaching was done online.

2.3. Variables Used

2.3.1. Dependent Variable

The dependent variable of this research is the addiction to social networks based on the before mentioned Social Networking Addiction Scale that we have used [77], considering each of the factors differently: Obsession with social networks (Factor 1), lack of personal control in the use of social networks (Factor 2), and excessive use of social networks (Factor 3).

2.3.2. Independent Variables

The independent variables were grouped into three categories: (a) Sociodemographic, (b) other addictions, and (c) family. With regard to the sociodemographic variables, the following were established: (a) Gender (male/female), (b) age, and (c) branch of knowledge of their degree.

Regarding other addictions, they were divided into two types: Toxic and video games. Based on the ASSIST questionnaire, developed by WHO [95] for the detection of alcohol, tobacco, and substance use, the addiction to the use of the following toxics was established: Tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, inhalants, sedatives or sleeping pills, hallucinogens, opiates and other drugs. On the other hand, from the GASA-Short scale version 24, the addiction to video games by university students was established.

Three types of family variables were included: Related to the educational level of the parents, participation in the parents workforce and finally, addictions of the parents (toxic, social networks, and video games).

2.4. Statistical Analysis

SPSS V.24 was used for the statistical analysis. Initially, a descriptive analysis was performed. Then, a relationship analysis was performed between the dependent variable(s) and the independent ones according to their chi-square significance level ($p < 0.005$). Subsequently, in order to determine the predictive factors of the event, in this case, the addiction to each of the social network factors, a binary logistic regression was performed using the forward method with each of the dependent variables (Factor I, II, and III) which facilitates the identification of the variables that predict the event, automatically eliminating those that are not significant [96,97].

3. Results

Of the total number of university students who participated in the study (Table 1), ($n = 310$), 69.9% self-declared women and 30.1% men. Regarding age, the average stood at 23.7 years old, the median was 22 years old and fashion was 21 years old. Regarding the branch of knowledge of their degree, 47.5% were undertaking studies linked to Social and Legal Sciences, 18.0% in Health Sciences, 16.4% in Arts and Humanities, 12.1% in Sciences, and 5.9% in Engineering and Architecture. Regarding the family variables, in both parents, a majority of basic training was observed: 46.7% in the studies of the mother and 52.0% in the parents. Regarding the work of the

parents, their fathers had a higher level of employment (72.2%) than their mothers (53.3%), in line with the greater presence of men in the workforce in Spain [98].

Moderate/high levels of drug use among university students included alcohol (36.2%), tobacco (33.2%), cannabis (22.9%), and over-the-counter sedatives (10.3%). The high levels of consumption of alcohol, tobacco, and cannabis by university students can be observed, drugs that may limit the performance of the usual tasks, such as studying. In addition, the consumption of sedatives without a doctor's prescription has increased in the Spanish population in general in recent years, also affecting the university population in recent years, where 1 in 10 students have this type of addiction. Finally, in relation to poly-drug use (addiction to 2 or more drugs), this level of addiction is shown in 30.3% of college students.

With respect to the addiction to social networks, university students show an addiction level of 21.9%. According to factors, the following results are obtained. 9.0% presented obsession with social networks (Factor 1), 27.7% lack of personal control in the use of social networks (Factor 2), and 47.1% excessive use of social networks (Factor 3). Based on these results, rather than obsession with social networks, what university students presented was excessive use of them, as well as a lack of personal control to disassociate themselves from them.

Significant differences are observed in relation to the sociodemographic variables related to the study and work of the parents. The percentage of less than basic studies is higher in men (18.3%) than in women (13.6%), the former being almost 5 percentage points lower. In contrast, women have a higher average and higher education. In terms of parents' ties to the workforce, men's employment is much higher than women's, with a difference of almost 20 percentage points. These figures are reversed in relation to inactivity due to the performance of household tasks, in line with other studies [99,100].

Table 1. Descriptive analysis of the variables.

Gender	Women	Men				
	69.9	30.1				
Age	Mean	Median	Mode			
	23.7	22	21			
Consumption Risk	Low	Moderate/High				
Tobacco	66.8	33.2				
Alcohol	63.9	36.2				
Cannabis	77.1	22.9				
Cocaine	95.2	4.8				
Stimulants	96.1	3.9				
Inhalants	97.4	2.6				
Sedatives	89.7	10.3				
Hallucinogens	95.5	4.5				
Opiates	97.7	2.3				
Others	97.4	2.6				
Social Networking Addiction	Yes	No				
Factor 1	9.0	91.0				
Factor 2	27.7	73.3				
Factor 3	47.1	52.9				
Total Scale	21.9	78.1				
Videogame Addiction	14.9	85.1				
Parents' Level Education	< Basic Stage	Basic Stage	Secondary Stage	University Stage		
Mother	13.6	33.1	26.6	26.6		
Father	18.3	33.7	23.2	24.9		
Relationship Parents' Labor Market	Personnel Assignment Employee	Personnel Assignment Unemployed	Inactive Housework	Inactive Retired or Pre-retired	Others Inactive	Others
Mother	53.3	5.2	23.2	8.2	4.9	5.2
Father	72.2	2.9	0.7	14.1	3.6	6.5

Next, taking into account the 3 factors of addiction to social networks defined previously, a binary logistic regression was performed through the forward method to know the influence of the independent variables in the prediction of the addiction to social networks. The independent variables used are described in the Table 2.

Table 2. Variables used in binary logistic regression.

1. Gender	18. Addition Social Networks F1
Ref. Woman	Ref. No
(1) Man	(1) Yes
2. Age (Continue)	19. Addition Social Networks F2
3. Knowledge Branch	Ref. No
Ref. Arts & Humanities	(1) Yes
(1) Science	20. Addition Social Networks F3
(2) Health Sciences	Ref. No
(3) Social & Legal Sciences	(1) Yes
(4) Engineering & Architecture	21. Addition Video games
4. Mother's Formation	Ref. No
Ref. Basic	(1) Yes
(1) Medium	22. Fam. Addiction Tobacco
(2) Advanced	Ref. No
5. Father's Formation	(1) Yes
Ref. Basic	23. Fam. Addiction Alcohol
(1) Medium	Ref. No
(2) Advanced	(1) Yes
6. Mother's Profession	24. Fam. Addiction Cannabis
Ref. Employed	Ref. No
(1) Unemployed/Inactive	(1) Yes
7. Father's Profession	25. Fam. Addiction Cocaine
Ref. Employed	Ref. No
(1) Unemployed/Inactive	(1) Yes
8. Fam. Tobacco	26. Fam. Addiction Stimulants
Ref. No	Ref. No
(1) Yes	(1) Yes
9. Fam. Alcohol	27. Fam. Addiction Inhalants
Ref. No	Ref. No
(1) Yes	(1) Yes
10. Fam. Cannabis	28. Fam. Addiction Sedatives
Ref. No	Ref. No
(1) Yes	(1) Yes
11. Fam. Cocaine	29. Fam. Addiction Hallucinogens
Ref. No	Ref. No
(1) Yes	(1) Yes
12. Fam. Stimulants	30. Fam. Addiction Opiates
Ref. No	Ref. No
(1) Yes	(1) Yes
13. Fam. Inhalants	31. Fam. Addiction Other drugs
Ref. No	Ref. No
(1) Yes	(1) Yes
14. Fam. Sedatives	Ref. No
Ref. No	32. Fam. Addiction Social Networks
(1) Yes	Ref. No
15. Fam. Hallucinogens	(1) Yes
Ref. No	33. Fam. Addiction Video games
(1) Yes	Ref. No
16. Fam. Opiates	(1) Yes
Ref. No	
(1) Yes	
17. Fam. Other drugs	
Ref. No	
(1) Yes	

In the case of addiction to social networks according to Factor 1: Obsession with social networks, the logistic regression presented a statistically significant model $X^2 = 51.113$, $p < 0.005$. The model explains 40.9% (Nagelkerke's R^2) of the variance of high moderate consumption and correctly classifies 92.2% of the cases. The Hosmer–Lemeshow test showed that there were no significant differences between the observed and predicted results in the model with a $p = 0.884$.

The two variables included in the equation were: Factor 2 in the Social Networking Addiction Scale (Lack of personal control in the use of social networks) and video game addiction. The two variables included in the equation were: Factor 2 in the Social Network Addiction Scale (Lack of personal control in the use of social networks) and video game addiction. Lack of personal control in the use of social networks presents an $OR = 22.725$ $IC_{95\%} [6.232 - 82.874]$, $p = 0.000$. In relation to video game addiction, it shows an $OR = 6.712$ $IC_{95\%} [2.270 - 19.844]$, $p = 0.001$. According to these results, we can see how Factor 1 (Obsession with social networks) is very determined by the lack of personal control in the use of social networks, increasing up to 22 the possibility of having addiction according to this first factor. Similarly, video game addiction predicts the risk of Factor 1 by 6 times more than another student who is not addicted to video games.

If we look at the logistic regression made to Factor 2 (Lack of personal control in the use of social networks), we observe a statistically significant model $X^2 = 101.802$, $p < 0.005$. The model explains 48.1% (Nagelkerke's R^2) of the variance of moderately high consumption and correctly classifies 82.7% of the cases. The Hosmer–Lemeshow test showed that there were no significant differences between the observed and predicted results in the model with a $p = 0.722$. In this case, the predictive variables of the event are related to other addictions, including toxic ones as well as addictions of other members of the family unit.

Firstly, it highlights how having an addiction to Factors 1 (Obsession with social networks) and 3 (Excessive use of social networks) determines a greater possibility of addiction in Factor 2, (dependent variable in this logistic regression), evidencing a circular phenomenon of addictions linked to lack of personal control. In the case of Factor 1 it presents an $OR = 11.854$ $IC_{95\%} 3.008$ to 46.719 , $p = 0.000$. If we attend to Factor 2, we observe an $OR = 16.861$ $IC_{95\%} 6.308$ to 45.069 , $p = 0.000$. But in addition, the high consumption of stimulants is in this case, another independent variable that influences the addiction to Factor 2. In this case, its $OR = 14.441$ $IC_{95\%} 2.108$ to 98.942 , $p = 0.007$. Finally, we observe the influence of the toxic consumption, in this case of cocaine, in the prediction of the addiction to Factor 2 of social networks. University students living with a relative addicted to cocaine showed an $OR = 20.270$ $IC_{95\%} 2398$ to 171.323 , $p = 0.006$. Therefore, we can observe an interconnection of the independent variables, both personal and family, in the prediction of addiction in the social network factor 2. In particular, addiction to Factor 1 and Factor 3 increases the possibility of having lack of control over social networks by 11 and 16 times. Additionally, the fact of other addictions, in this case stimulants. In this case, university students who are addicted to this toxic substance see their chances of suffering from addiction in Factor 2 increased by up to 14 times more than a person not addicted to stimulants. In addition, the fact of living in a family unit with a member who consumes cocaine increases the possibilities of being addicted to Factor 2 by up to 20 times.

Finally, the last logistic regression was practiced on Factor 3 (Overuse of social networks whose model was statistically significant $X^2 = 90.085$, $p < 0.005$. The model explains 39.7% (Nagelkerke's R^2) of the variance of moderate-high consumption and correctly classifies 72.5% of the cases. The Hosmer–Lemeshow test showed that there were no significant differences between the observed and predicted results in the model with a $p = 0.865$.

In the case of Factor 3 (Excessive use of social networks), the predictor variables are related to the addiction to social networks of Factors 1 (Obsession with social networks) and 2 (Lack of personal control in the use of social networks) and with sociodemographic variables: Branch of knowledge of the degree and age.

Regarding Factor 1, it shows an $OR = 12.213$ $IC_{95\%} [1.264 - 117.972]$, $p = 0.031$. In second place, Factor 2 shows an $OR = 12.628$ $IC_{95\%} [5.192 - 30.715]$, $p = 0.000$. In relation to the sociodemographic variables, the branch of knowledge of the degree influences the prediction of the dependent variable (Factor 3). In the case of degrees related to Sciences, they show $OR = 4.150$ $IC_{95\%} [1.325 - 13.002]$, $p = 0.015$ in relation to the

branch of reference knowledge that is Art and Humanities. As for Health Sciences, they show an OR = 4.301 ^{IC95% [1.443-12.820]}, $p = 0.009$ with respect to Arts and Humanities. Finally, Social and Legal Sciences show an OR = 3.886 ^{IC95% [1.478-10.218]}, $p = 0.006$. Regarding age, as it increases one year, the possibility of having Factor 3 addiction is reduced by 7.1 times. Once again, we see how the rest of the Factors (1 and 2 in this case) influence the Factor studied as a dependent variable, with very similar figures, around 12 times more. It is also noteworthy that for the first time the branch of knowledge of the degree is shown as a variable that determines the addiction of Factor 3, with Sciences, Health Sciences, and Social and Legal Sciences having the greatest possibility of having an addiction in the factor analyzed. Finally, as age increases, the possibilities of having an addiction to Factor 3 decrease (Table 3).

Table 3. Reading coefficients of binary logistic regressions.

Social Networks F1	e^b
Addiction Video games	6.712 **
Factor 2	22.725 *
Constant	0.010
Social Networks F2	e^b
Factor 1	11.854 *
Factor 3	16.851 *
Addiction Stimulants	14.441 **
Fam. Addiction Cocaine	20.270 **
Constant	0.035
Social Networks F3	e^b
Factor 1	12.213 *
Factor 2	12.638 **
Science	4.150 *
Health Sciences	4.301 *
Social & Legal Sciences	3.886 *
Age	0.929 *
Constant	0.898

* Ns < 0.05/** Ns < 0.001

4. Discussion

This research, whose results are framed within the period of confinement in Spain, has shown, based on the Social Networking Addiction Scale for young students with university studies [77], that there are numerous interconnected variables in the analysis of social network addiction. The fact that addiction to any of the factors on the applied subscale influences the rest of the factors is noteworthy, although the most relevant data are given in Factor 2, “Lack of personal control in the use of social networks” (27.7%) and Factor 3 “Excessive use of social networks” (47.1%). Both the DSM-5 [54] and ICD-11 [55], manuals for the classification of mental disorders, take these factors into account as criteria for the diagnosis of addiction. Furthermore, it has been shown that the consumption of toxins also influences addictions. The high percentage of alcohol (36.2%), tobacco (33.2%), cannabis (22.9%), and sedative use without a doctor’s prescription (10.3%) among university students is significant, as is the high percentage of polydrug use (30.3%).

In addition, the consumption of toxins is a variable that predicts the addiction of Factor 2 to social networks from a personal and family point of view. On a personal level, specifically the consumption of stimulants in young university students increases the risk of having an addiction to this factor by 14 points. On the other hand, from a family point of view, it stands out that the consumption of cocaine in the family environment is the variable that best predicts the addiction of this factor with 20 points above a person who does not live with anyone who consumes cocaine in his or her family nucleus. According to López-Fernández y Kuss [29] there is a strong relationship between substance use disorders (e.g., gambling, alcohol, marijuana, nicotine, and cocaine), eating disorders (e.g., binge eating, bulimia, and obesity), and disorders such as depression, anxiety

disorders, and social phobia, OCD, ADHD, hostility, and certain personality traits and disorders (e.g., impulsivity, or antisocial disorders), which reinforces the comorbidity results found in the present study.

It would be interesting to carry out future research that would go deeper into this, including analyzing the possibility of a dual pathology in certain people, considering as one of them the addiction to social networks or, in general, digital technologies [101]. As presented by Torrens [102], “dual pathology” refers to the concurrence in the same individual of at least one substance use disorder and other psychiatric disorder. These “dual” patients, or those with psychiatric comorbidity, are relatively frequent, and it is certainly of great interest to study their presence among university students, due to their implications for training and prevention measures. In addition to appropriate treatments for comorbidity and multimorbidity in their different dimensions, including addictions to digital technologies (Internet, social networks, video games, etc.) [103–106], for which much progress has been made in recent years [106–113], it is possible to carry out preventive actions. In the field of pedagogy, work has been done for years to achieve media literacy that will allow students at all educational levels, including higher education, to develop critical approaches towards the power of influence of digital media [27,114–118], although unfortunately, educational policies do not have a bearing on this problem. It is also necessary that universities provide clinical and support services to university students [119–121]. For this reason, and given that university students are not unaware of suffering from this pathology, it would be necessary to influence research on the appearance of this behavior and its possible approaches from the university community itself.

Other addictions related to Factor 1 also stand out, the most relevant of which are not toxins, but rather addiction to video games, increasing the chances of being addicted to this factor by almost 7 times compared to a person who does not have this addiction. Therefore, the obsession with social networks is very much connected to video game addiction, and these are not related to the rest of the factors, those related to personal control of social networks, as well as to the excessive use of them. Similar results were found in recent studies where they reflected the connections of video game addiction as a consequence of Internet addiction [101], even though this relationship is problematic 6 to 7 days a week [122].

Finally, age and the type of knowledge of the degree appear as predictive variables in Factor 3 together, as mentioned above that occurs with all the factors, with the addiction to Factor 1 and 2. Age is also a predictive variable, and given that Factor 3 is related to “excessive use,” it is understandable that as age increases, the risk of having addiction to this factor decreases, given that other elements such as obsession or lack of control are not considered.

In short, the use of digital technologies brings countless benefits to individuals, but also brings risks. Human factors must be taken into account in the development of the digital society. Knowledge of this new reality is decisive in developing programs that can minimize these risk factors, especially in exceptional situations such as that produced by the COVID-19 pandemic, which can lead to their intensification.

5. Conclusions

The consumption of social networks is increasing in the general population, but stands out in the millennials and Generation Z. These young people have been born with unusual access to social networks during their childhood and youth, as well as with a rapid learning ability to use social networks. In addition, the socialization patterns of these young people are totally different from past generations, with social networks being a space used for the maintenance of social contacts. In turn, numerous studies are highlighting the risks posed by social networks [123–125] and especially for young university students [57,85,126–129] where they spread feelings of harassment, jealousy, misunderstanding, etc. [130], as well as interference in daily life in general, even not fulfilling their (school) obligations as a result of this addiction [131], and even negative personal self-esteem [132], leading to depression and anxiety [133].

This study shows that there is a link between different addictions, with the diagnostic criteria being the same for both substance addiction and addiction without substances. Some predictive variables stand out in each of the factors in a different way, in addition to the influence of the rest of the factors on the scale, which may help in their analysis and treatment, with the influence of drugs on self-control and of video games on obsession. In relation to the excessive use of social networks, two variables have been found to interfere significantly: The type of knowledge and age.

The excessive consumption of the internet and social networks has influence at a personal level (the way we relate to each other, our performance), social level (socialization skills), psychological level (lack of self-control, obsession, anxiety, and even proximity to toxins because we do not know the direction of the variables: Drug consumption as a consequence of addiction to social networks or vice versa), which leads us to a possible new line of research. In summary, it is necessary to implement university educational programs to redirect these addictive behaviors, as well as preventive recommendations and actions to minimize damage.

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