Addiction to Social Networks: An Empirical Study in Higher-Education Students

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Abstract

The purpose of this study was to determine the level of addiction to social networks among higher education students. The Social Network Addiction Scale (adicción hacial asredes sociales or ARS) designed by Escurra-Mayaute and Salas-Blas (2014), with responses ranging from 'never', 'rarely', 'sometimes', 'frequently', and 'always', was used in this empirical study. The participants were students studying in private sector institutions in the city of Veracruz, Mexico. Non-parametric Man–Whitney U tests were used to assess whether gender affected the scores of each of the constructs in the questionnaire. The main findings were that there was no difference between men and women in terms of their scores for obsession with, lack of control regarding, and use of social networks. It is recommended to continue exploring the levels of addiction to social networks in students from public and private sector institutions at all educational levels, with greater emphasis on young people in basic and middle education, of course without neglecting studies. focused on university and postgraduate populations. If the population spectrum expands, a broader coverage and greater representativeness of these populations can be achieved.

Keywords: addiction, social networks, internet, smartphones.

1. Introduction

The emergence and evolution of technology has given rise to the internet and mobile telephony, also generating the various platforms referred to as social networks (SNs). The advancement of technologies has always been associated with changes in human activity as well as with the appearance of certain addictive behaviors including internet addiction, cellphone addiction, and the focus of this specific study, addiction to SNs. Thus, while here we focused on addiction to SNs, the internet and mobile telephony constitute the means to fuel this addiction by providing access to SNs. Therefore, understanding the way human beings interact with technology and how it might affect their behavior is also of particular interest to researchers.

This knowledge could improve our understanding of the phenomenon of addiction to SNs given that addiction is an activity that generates pleasure to the detriment of the addicted person. This is because, whether voluntarily or not, these individuals acquire an inability to regulate their SN activity and feel a persistent need to participate in these damaging activities. Hence, denial of addiction is an interpersonal expression used by addicted individuals as a defense mechanism

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against the mental conflict associated with their addictive behaviors. In other words, addiction would be impossible without denial (Johnson, 1993).

In relation to this idea, in 1995, Griffiths was the first to define technological addictions as those involving excessive use of technology. Later, Young (Young, 1998b) discovered that, many of the 396 students dependent on use of the internet showed personal, family, and occupational problems. More specifically, these individuals could not control their internet use, had difficulty completing homework, studying, and sleeping for long enough to be alert the next day for their classes, resulting in poor grades and even expulsion from school in some cases. Likewise, the same research showed that lonely people or those who felt misunderstood maintained virtual relationships in the search of feelings of well-being and comfort. Furthermore, those dependent on internet use tended to hide or lie about how much time they spent online, thereby generating mistrust among those surrounding them.

A priori, we could say that young people now consider SNs as a means of escape from reality because they can immediately contact other individuals, even if they are thousands of kilometers away, to engage in chat conversations or share multimedia images, videos, and voice recordings. A few years ago, these platforms were only available on personal computers. However, technological advances leading to the widespread availability of smartphones led to the development of applications providing extremely easy access to SNs. Nonetheless, the extent to which this advance is beneficial remains to be determined.

According to a BBVA report from 2018, the boom in SNs arose with the emergence of smartphones and tablets which led to the rise of SN platforms such as Twitter, Facebook, Instagram, and Snapchat which are now highly sought after by users. However, we must remember that all evolving entities have a beginning, with the phenomenon of online connections with family and friends being no exception. For instance, FotoLog is widely believed to have been the first SN, before Facebook and Instagram superseded it. Similarly, other SNs that were immensely popular sites that helped young people to interact were Myspace, Buzz, Second Life, and Hi5, among others, although they never exceeded the current success of Facebook or Instagram (BBVA, 2018).

Various publications have expounded theoretical positions and results related to our current academic knowledge of this phenomenon. Dr. Kimberly Young is one of the most well-respected researchers in this field of psychology. Her work has painted the broad brushstrokes helping to explain the addictions generated by the internet and smartphones as a means to access SNs. Accordingly, Young (Young, 1998b, 1999a) detected that young people experience a pleasant effect when using the internet to escape into a virtual reality. She even compared the magnitude of this effect to that of alcohol, drugs, or gambling. A growing body of scientific evidence related to the frequent and excessive use of the internet led her to establish this addiction as a separate disorder characterized by being connected for excessive periods of time. This leads patients to become isolated from their surrounding contexts, and in the worst-case scenario, to neglect of their personal commitments and work, academic, and social obligations (Young, 1998a).

Besides to addictions, SNs hosted on the internet can also cause severe damage in the form of cyberbullying and several types of verbal violence, including sexual harassment. In this sense, youth constitute one of the most vulnerable groups because their inexperience often leads them to look for new experiences. Thus, Young (Young, 1999a, b) proposed a classification of impulse control behaviors derived from internet addiction: (a) cyber-relationship addiction (online relationships); (b) internet compulsions (gambling obsession); (c) cyber-sexual addiction (excessive use of adult websites); (d) data and information search engine addiction (data searching); and (e) computer addiction (obsessive use of computers).

Thus, considering the aforementioned arguments and theoretical perspectives, and given that the internet and smartphones are gateways to SNs, we studied the extent to which addictions to SNs are present among higher-education students in our geographical area. We also conducted a review of the existing academic literature in this broader field of study.

Research questions, objectives, and hypotheses

Our main research questions were (1) To what extent are university students addicted to SNs? and (2) Are gender differences related to obsession with SNs, lack of control in their use, and their excessive use? Thus, in this study we established the following research objectives:

O_1: Determine the level of addiction to SNs among university students.

O_2: Determine if there were gender differences in obsession with SNs, lack of control in their use, and their excessive use.

Hence, our hypotheses were as follows, where 'o' represents the null hypothesis and 'A' represents the alternative hypothesis:

$H1_0$: Obsession with SNs is equally distributed among the genders ($p > 0.05$).

$H1_A$: Obsession with SNs differs between the genders ($p < 0.05$).

$H2_0$: The feeling of lack of control in relation to the use of SNs is equally distributed among both gender categories ($p > 0.05$).

$H2_A$: The feeling of lack of control in relation to the use of SNs differs between the genders ($p < 0.05$).

$H3_0$: Excessive use of SNs is equally distributed among the genders ($p > 0.05$).

$H3_A$: Excessive use of SNs differs between the genders ($p < 0.05$).

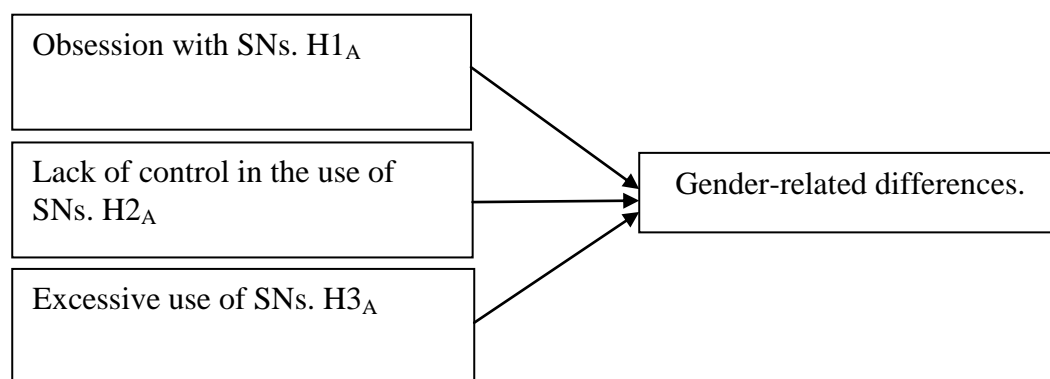These can be summarized as shown in the construct presented in Figure 1.

Fig. 1. Research route used in this empirical study.

Abbreviations: SN, social networks; H1–3, hypotheses 1–3; A, alternative to the null hypothesis

Rationale

Addiction to SNs has now become a prominent issue given that a substantial body of academic research has shown a strong association between their addictive use and psychiatric disorders. Indeed, it appears that smart mobile devices together with their applications, as well as excessive use of the internet (particularly of SNs) affects the personality of users (Marín-Cipriano, 2018). This includes an apparent increase in neurosis (Castillo et al., 2008; Caro, 2017; Kuss et al., 2014; Müller et al., 2013; Wang et al., 2015), extraversion, narcissism, low emotional stability, low responsibility (Caro, 2017); depression (Padilla, Ortega, 2017); and feelings of loneliness (Caro, 2017; Ryan et al., 2014).

In addition to the collection of results that add to the existing empirical evidence, the importance of this type of study lies in the fact that these data may make it possible to suggest strategies to counter the emergence of possible addictions among the population being evaluated. The theoretical contribution is implicit in the evidence obtained and the practical implications are derived from the benefits that the provision of precisely designed support strategies for students entails. Of note, the ongoing health crisis resulting from the COVID-19 pandemic as of the end of 2019 has increased the use of different electronic communication devices. Indeed, the educational sector had to immediately migrate to virtual classes by videoconference, necessitating internet and smartphone use, to deliver and facilitate teaching-learning processes at every educational level.

2. Materials and methods

This was a non-experimental, cross-sectional study without manipulation of the variables (X). We aimed to answer the study question by determining the level of addiction to SNs among higher-education students by analyzing the data using a hypothetical-deductive method. The study type was descriptive and we measured the difference in the means between the two genders for each variable.

The participants were students from a private higher education institution in the Puerto de Veracruz, Mexico. Authorization for the field work was granted by the director of the faculty and, as a condition for the application of the study instruments, all the students agreed to their continued participation. The sample cohort was non-probabilistic and self-determined; a total of 132 students met

the inclusion criteria of being enrolled in an academic program at a private sector institution in the city of Veracruz, Mexico and being up to date with their obligations in terms of schoolwork and the treasury office. In addition, the participants were informed that their identity would always be guaranteed given that the survey was anonymous and its purpose was strictly academic.

For the empirical study, the Social Network Addiction Scale *(adicciónhacialasredessociales* or ARS) designed by Escurra-Mayaute and Salas-Blas (Escurra-Mayaute, Salas-Blas, 2014) was used. The ARS includes questions related to the participant profile such as age and gender and is based on 24 Likert-format response questions with the following options: (1) 'never', (2) 'rarely, (3) 'sometimes', (4) 'frequently', and (5) 'always'. The ARS was converted into an electronic format via Google forms and distributed via email to the participants.

In terms of data analysis, first we validated the data matrix by applying Cronbach's alpha coefficient to verify the reliability and validity of the items and their internal consistency. We subsequently used Mann–Whitney U tests to analyze the independent samples. The null hypothesis was accepted for *p*-values exceeding 0.05, and otherwise, was rejected. Where 'A' and 'B' designate the two samples, 'H$_0$' and 'H$_A$' represent the null and alternative hypotheses, and 'Med' refers to the median value, our assumptions stated that:

H$_0$: MedA = MedB (the central tendency of these two populations did not differ); MedB ≥ MedA; and MedB ≤ MedA.

H$_A$: MedA ≠ MedB (the central tendency of these two populations differed); MedB<MedA; and MedB>MedA.

3. Discussion

This current study was in line with the theoretical proposals of Young (Young, 1998a,b; 1999a,b) who established guidelines and directives to assess internet and smartphone addiction. These theoretical arguments explain the causes and possible damage generated by addiction to excessive internet use resulting in severe damage to this population of internet users. In the same vein, according to the classification also proposed by Young (Young, 1999a, b), we observed patterns of addiction resulting from the excessive use of computers and platforms used to search for information and data as well as excessive time spent connected to SNs.

Addiction to the internet, smartphones, and social networks

Numerous studies have tried to explain the phenomenon of addiction to the internet, smartphones, and SNs in adolescents. Therefore, here we discuss the theoretical and empirical debate in some relevant studies in this field with the aim of substantiating the study and better understanding the study population. Thus, in addition to Young's proposals (Young, 1999a, b), Davis (Davis, 2001) classified internet addiction as either primary (such as computer addictions resulting from uses such as online gaming, excessive searching for information, and the maintenance of virtual relationships) or secondary, in reference to impulses to make online purchases, participate in games of chance, monitor the stock market, or watch pornography or virtual sex.

To test this idea, De Gracia et al. (De Gracia et al., 2002) disseminated an internet-based questionnaire, recruiting the collaboration of 1,664 users who responded to the request to participate. These authors identified recurring thoughts among the cohort, included the desire to stay connected to the internet; feelings of guilt and anxiety when connected or not connected; loss of control; and infrequent direct social interaction which led the participants to access chat pages or pornographic pages, causing them to start presenting problems at work or school.

In turn, Chak and Leung (Chak, Leung, 2004) developed a questionary to assess 722 students electronically, online, or in person. They found that the desire to be connected to the internet was proportional to the shyness and lower self-confidence of the participants. The participants maintained the firm belief that they had control over other people, and they placed their trust in others at random for determining their life path. In addition, these researchers also discovered that full-time students were most likely to be addicted to the internet because they had free and unlimited access to this resource along with a flexible schedule.

Cruzado, Matos, and Kendall (Cruzado et al., 2006) studied 30 patients diagnosed with internet addiction and showed that those who connected for more than six hours a day (spending most of this time playing online games), also presented suicidal thoughts (or had attempted suicide), along with some antisocial characteristics, irritability, and affective disorders. Perhaps even more serious, some had a history of family dysfunction while others had pulmonary

tuberculosis and poor school performance. Indeed, the latter is consistent with data collected by Sánchez-Carbonell et al. (Sánchez-Carbonell et al., 2008) and by Rial et al. (Rial et al., 2015) in terms of family dysfunction and poor academic performance.

Along the same lines, Jiménez and Pantoja (Jiménez, Pantoja, 2007) reported that, like the addictions resulting from the pleasure generated by alcohol or gambling, the internet plays a characteristic role in promoting addictions because its use is also pleasant and it is often used by introverts to help them evade reality. Therefore, such individuals may indirectly satisfy their needs by immersing themselves in SNs. However, being connected to the internet for prolonged periods was also associated with low self-esteem, meaning that this group may relate to reality in a superficial way and the online relationships they engage in are more likely to be short-lived or unstable. Similarly, Castillo et al. (Castillo et al., 2008) discovered that a sample of 392, mainly female (73.9 %), students were connected to the internet for an average of 84.81 minutes a week and that a tendency towards introversion and avoidance of direct social relationships stood out among those connected for the longest periods.

Sometimes there is a tendency to believe that the word addiction implies substance use. However, addiction to the use of technology leads to certain activities that can include a compulsion to excessively use the internet (Balaguer, 2008). Addictions are usually negative and affect the person who suffers from them. In this specific case, internet use makes it easier for certain individuals to show themselves as they really are and from a place of anonymity (Balaguer, 2008; Beranuy et al., 2009; Caro, Plaza, 2016; Cruzado et al., 2006; Echeburúa, 2016; Jiménez,Pantoja, 2007). Likewise, it allows them to establish or maintain fluid virtual relationships even though this implies spending more than an average amount of time using the internet (Araujo, 2016; Balaguer, 2008; Beranuy et al., 2009; Carbonell et al., 2012; Caro, 2017; Luengo, 2004; Marín-Cipriano, 2018; Pérez del Río, 2014; Puerta-Cortés, Carbonell, 2014; Sánchez-Carbonell et al., 2008; Young, 1998a).

Other studies have reported various findings, such as those that identified that the men in their study showed higher internet use than women (Beranuy et al., 2009; Fargues et al., 2009; Marín-Cipriano, 2018; Matalinares et al., 2013; Muñoz-Rivas et al.; Ortega, 2003; Shek, Yu, 2016; Yang, 2001). In contrast, Puerta-Cortés and Carbonell (Puerta-Cortés, Carbonell 2014) reported that the women used the internet more than men and were also more likely to use their cellphones to communicate their emotions (Beranuy et al., 2009; Fargues et al., 2009; Ling, 2002; Mante, Piris, 2002). Later, Matalinares et al. (Matalinares et al., 2013) discovered a correlation between aggression and internet addiction and that men tended to be more aggressive both physically and verbally while women were more likely to be angry and hostile. Therefore, it seems that the more aggressive the behavior displayed by adolescents, the greater their tendency to become addicted to the internet.

Work conducted in the Netherlands by Vink et al. (Vink et al., 2016) showed that their male cohort spent more time playing online games, which also concurred with other research findings (Matalinares et al., 2013; Muñoz-Rivas et al., 2003; Puerta-Cortés,Carbonell, 2014; Tsouvelas, Giotakos, 2011), while the women in their study spent more time on SNs. The latter finding coincides both with research conducted by Ling (2002) and with data collected by Marín-Cipriano (Marín-Cipriano, 2018), however, it differs from the research by Araujo (Araujo, 2016) which showed that the men in their study had a significantly higher level of obsession with being connected to SNs.

Internet addiction usually starts at the age of 14 to 24 years (Araujo, 2016; Echeburúa, 2010; Marín-Cipriano, 2018; Padilla, Ortega, 2017; Rial et al., 2015; Shek, Yu, 2016; Terán, 2019) and according to Lam-Figueroa et al. (Lam-Figueroa et al., 2011), is characterized the level of involvement with the internet. That is, dependence on the internet and a lack of control regarding its use that can lead individuals to feel uncomfortable, exhausted, or distressed, depending on their personal needs. These authors designed the Lima Internet Addiction Scale (*escala de la adicción a internet de Lima* or EAIL) to evaluate two dimensions: (1) symptomatic or 'salient' (preoccupation with internet use), tolerance, withdrawal, and failure regarding control and relapse; and (2) dysfunctional, in relation to school, family, and interpersonal problems.

In their study, they applied the EAIL questionnaire to 248 students with an average age of 14 years and found that dimension 1 was associated with the male sex, length of weekly internet use, a history of poor discipline, and lack of future plans. In turn, dimension 2 was associated with

a poor discipline, a lack of future plans, and missing school with no reason, indicating that both an inadequate family and social environment may be factors that affect internet addiction.

Internet use as a clinical disorder

Cases have been documented in which internet addiction was prejudicial to health or life, including the report by Berner and Santander (Berner, Santander, 2012) which highlighted two such cases. The first was the case of a South Korean couple who spent so much time connected to the internet that they failed to feed their daughter who eventually died of malnutrition. The second was a case of a young man in China who died after spending seven continuous days playing games on the internet. This type of addiction goes far beyond the imaginable, but it is a sad reality in some cases. In their study, Berner and Santander (Berner, Santander, 2012) listed some warning indicators regarding internet addiction, which can be summarized as follows:

- Insomnia caused by being connected to the internet for too long.
- Forgetting family, school, work, and social events, and even personal hygiene.
- People constantly complaining about a family member or friend who spends a lot of time online.
- Having recurring thoughts of accessing the internet or getting upset if prevented from connecting to the internet or if the internet speed is slow.
- Being isolated from the environment.
- Elusiveness about the real amount of time spent connected to the internet.
- A desire to reduce the number of hours spent connected to the internet without success in achieving this goal.
- Demonstration of a sense of well-being when connected to the internet.

Of note, Carbonell et al. (Carbonell et al., 2012) identified that, on the one hand, young people addicted to the internet are more likely to suffer from insomnia, social isolation, anxiety, depression, and negative thoughts, while on the other, those who used their cellphone excessively showed traits of depression, anxiety, insomnia, and excessive alcohol and cigarette consumption. Furthermore, Marco and Chóliz (Marco, Chóliz, 2013) showed that internet addiction appeared with the abuse of technology and a lack of control regarding interactions with technology, aggravating the relationships that the individual maintained with their family, society, and with their work. These effects then generate an emotional maladjustment, disturb individual adaptive behavior, and manifest as a need to continue using the internet. Thus, even when the individual knows that internet use is harmful to them, they cannot abandon the habit, thereby reflecting a dependent behavior towards this technology.

Caro and Plaza (Caro, Plaza, 2016) pointed out that internet addiction is not the only way that extreme amounts of time are spent online; interacting with web pages that incite violence, information sites, SNs, playing online games, and interacting with pornography can all produce conditions in the people using these pages. This has repercussions on their behavior and their social, family, and academic and work relationships, as has been documented in several studies (Caro, 2017; Chak,Leung, 2004; Chóliz et al., 2016; Cruzado et al., 2006; Echeburúa, 2010; Li et al., 2014; Marín-Cipriano, 2018; Terán, 2019; Wang, 2001; Yang, 2001).

To say that a behavior is addictive, Caro (Caro, 2017) clarified that it must be an activity that the individual finds pleasant but they then lose control over. Because, in the early stages, their chosen activity is desirable and pleasant, these individuals perform it repetitively (Chóliz et al., 2016); people enjoy the activity and it relieves their tension, leading them to lose sight of its consequences in terms of the time not spent in their 'real' social environments.

Also of note, new fears and anxieties have arisen with the appearance of technology. These include not being able to leave the house without a cellphone, losing a cellphone, the battery running out, not having coverage leading to feelings of isolation from family and society, work managers demanding that workers always remain available, checking cellphones for new notifications, or wanting to know what others are doing (Caro, 2017). The excessive use of the internet by spending time on SNs has even generated certain personality traits (Marín-Cipriano, 2018) such as neurosis (Caro, 2017; Castillo et al., 2008; Kuss et al., 2014; Müller et al., 2013; Wang et al., 2015), extraversion, narcissism, low emotional stability, low levels of responsibility (Caro, 2017), depression (Padilla, Ortega, 2017), and feelings of loneliness (Caro, 2017; Ryan et al., 2014).

As to the reasons why students tend to become addicted to the internet, Marín-Cipriano (Marín-Cipriano, 2018) pointed out that family represents a fundamental part of the increase its incidence given that adolescents without close communication with their parents, or with a lack of

affection or harmony in the family, were more likely to become addicted to the internet. That is, childhood violence or abuse, or even parents who are separated, can potentially promote excessive internet use, thereby generating internet addiction, an effect that has also been reported elsewhere (Aponte et al., 2017; Barrera, Duque, 2014; Cruzado et al., 2006; Echeburúa, 2010; Li et al., 2014).

Addiction to social networks

In relation to addiction to SNs, Padilla and Ortega (2017) observed that the severity level of the symptoms of depression was directly associated with a remarkably high level of addiction to SNs. They reported that a possible explanation for this phenomenon may be related to certain indicators of depression such as low self-esteem, which is characteristic low levels of social interaction and/or social isolation. As already pointed out at the beginning of this current work, the last two decades have seen major changes resulting from innovations in the areas of information and communication technologies. In turn, these changes brought about the interactivity associated with the internet (Berríos, Buxarrais, 2005; Cho et al., 2014; Cruzado et al., 2006), which mainly influences adolescents who incorporate it into their daily lives as a form of entertainment, socialization, and education (Gomez et al., 2012, Kuss, Griffiths, 2011a, Machargo et al., 2003, Young, 2008).

There are different currents of thought regarding the internet and SNs and the positions of scholars on the subject disagree. For example, Carr (Carr, 2008) maintained that the internet and everything derived from it (including SNs) has made us all more foolish. In contrast, Schmidt (Schmidt, 2018) suggested that the internet and its derivatives actually make human beings more intelligent. Therefore, the debate continues between those who support each of these abovementioned positions. We could also ask ourselves about the factors that most strongly influence addictions. In this sense, here we base our opinions on those of Griffiths (Griffiths, 2005) who pointed out that biological, social, and psychological factors are all involved in studies on social addictions.

The same author also proposed a model of addiction components from the biopsychosocial perspective which includes the characteristics of prominence, mood changes, and symptoms of withdrawal, conflicts, self-esteem problems, and relapses (Griffiths et al., 2014, Pezoa-Jares et al., 2012). Thus, the biopsychosocial model of internet addiction and SNs reassessed various criteria and observations such as social, cognitive-behavioral, and sociocognitive skills to help understand and explain these phenomena (Griffiths, 2013; Turel,Serenko, 2012). Furthermore, sociocognitive theory also indicates that addiction to SNs arise from the hope of positive results combined with the self-efficacy of internet use and lack of regulation of its proper use (LaRose et al., 2003; Turel,Serenko, 2012).

Another theoretical position is that of Castells (Castells, 2008) who stated that social platforms can become the key factor in social change, arguing that feats usually considered 'impossible' can be achieved through communication networks and digital collaboration. Finally, it is also worth citing views such as that of Chomsky (Chomsky, 2020) that postulate the opposite case, that smartphones and SNsisolate the population. This school of thought claims that SNs create a mistaken sense of belonging and autonomy, because building relationships created or based only on digital interactions results in the creation of a false idea of friendship and a superficial life.

All this theoretical debate leaves us with several concerns and open questions. However, the reality is that technology has revolutionized the world of communications, and with it, the internet has further gained strength with the emergence of SN platforms. Tablets and other mobile devices have become the primary means to access these platforms, thereby increasing the chance of individuals falling into addictions to SNs.

The establishment and evolution of technology brought with it the emergence of the internet, mobile telephony and, in parallel, various SNs. As Johnson (Johnson, 1993) pointed out, the phenomenon of addiction to SNs generates pleasure in addicted individuals because, voluntarily or not, they acquire a persistent need to participate in these platforms. A similar argument was made by Griffiths (Griffiths, 1995) who posited that technological addictions are the result of the excessive use of technology. For her part, Young (Young, 1998a) found that students with a greater level of dependence on internet use showed more personal, family, and occupational problems.

The use of technology, and specifically SNs, can lead people who are lonely or misunderstood, to maintain virtual relationships. The results reported in this current study showed that 36 % of

our university student cohort presented an obsession with SNs, 40 % lacked personal control regarding their use, and 34.2 % used SNs excessively.

In addition, we showed that both men and women experienced the same levels of obsession with SNs, lack of personal control over SN use, and the excessive use of SNs. This result seems to align with the theory and empirical evidence suggesting that young people use SNs as an escape from reality and as a means to immediately contact other people. For this reason, addiction to SNs is currently a substantial issue given that many different studies have shown a strong association between the addictive use of SNs and psychiatric disorders, personality affectations (Marín-Cipriano, 2018), neurosis (Caro, 2017; Castillo et al., 2008; Kuss et al., 2014; Müller et al., 2013; Wang et al., 2015), low responsibility and emotional stability (Caro, 2017), depression (Padilla, Ortega, 2017) and feelings of loneliness (Caro, 2017; Ryan et al., 2014).

The internet is the conduit that connects individuals to SNs, encouraging them to present themselves as they are, often from a place of anonymity or, as indicated in previous work (Balaguer, 2008; Beranuy et al., 2009; Caro, Plaza, 2016; Cruzado et al., 2006; Echeburua, 2016; Jiménez,Pantoja, 2007), allowing people to establish or maintain virtual relationships, often leading to excessive internet use (Araujo, 2016; Carbonell et al., 2012; Caro, 2017; Marín-Cipriano, 2018;Pérez del Río, 2014; Puerta-Cortés,Carbonell, 2014; Young, 1998a). Here, our results showed that men and women share the same levels of obsession with SNs, lack of personal control over SN use, and excessive use of SNs, a finding that does not seem to coincide with previous reports. Indeed, some studies have shown greater internet use among men (Beranuy et al., 2009; Fargues et al., 2009; Marín-Cipriano, 2018; Matalinares et al., 2013; Muñoz-Rivas et al., 2003; Shek, Yu, 2016; Yang, 2001) or, as in the case of Puerta-Cortés and Carbonell (Puerta-Cortés, Carbonell, 2014), increased use among women, who also used their smartphones to communicate their emotions more often than men (Beranuy et al., 2009; Fargues et al., 2009; Ling, 2002; Mante,Piris, 2002).

Obsession with SNs, a lack of control over their use, and excessive SN use has already been associated with serious, classified clinical disorders given that severe symptoms of depression are associated with an elevated level of addiction to SNs (Padilla, Ortega, 2017). In addition, these addictions and obsessions more often influence adolescents because they include the use of SNs as part of their means of everyday entertainment and socialization (Gomez et al., 2012).

4. Results

The reliability and internal consistency of the ARS instrument was evaluated by calculating Cronbach's alpha, where values less than 0.6 indicated that the data were not normally distributed and therefore, had to be analyzed using non-parametric statistical techniques. In terms of sociodemographic data, the study sample comprised 31.1 % (n = 41) men and 68.9 % (n = 91) women and the participant ages ranged from 13 to 63 years. The most representative ages were 20, 17, and 19 years old (25. 8%, 10.6 %, and 9.1 % of the population, respectively).

Of note, 75.0 % of the students stated that they only studied, followed by 24.2 % who worked, and 0.08 % that said they studied and worked; 57.6 % were studying for a degree, 29.5 % for a high school diploma, and the remaining 12.9 % for another type of academic title not specified in the ARS. When asked if the participants used SNs, 100 % agreed that they did. Table 1 shows the frequencies of the different means participants used to connect to SNs, their frequency of SN connection, percentage of direct contacts on SN platforms, whether their SN profiles contained their true personal data, and how they used SNs.

Table 1. Uses and means of connection to social networks

Means of connection	Frequency	%
Cellphone	122	92.4
Computer	10	7.6
Total	132	100
Place of connection	Frequency	%
At home	101	76.5
At work	26	19.7
In an internet booth	5	3.8

Total	132	100
Frequency of connection	*Frequency*	*%*
Connected all the time	72	54.5
7 to 12 times a day	54	40.9
3 to 6 times a day	6	4.5
Total	132	100
Direct contacts	*Frequency*	*%*
10% or less	3	2.3
11 to 30%	4	3
31 to 50%	2	1.5
51 to 70%	76	57.6
More than 70%	47	35.6
Total	132	100
Real profile data used	*Frequency*	*%*
No	7	5.3
Yes	125	94.7
Total	132	100
Purpose of social network use	*Frequency*	*%*
Socializing	46	34.8
Work	32	24.2
Both Socializing and Work	49	37.1
Other	5	3.9
Total	132	100

Table 1 shows that 92.4 % of the study participants connected to the SNs via their cellphones, 76.5 % from home, and 54.5 % remained connected all the time, followed by 40.9 % who connected 7 to 12 times a day. Moreover, the participants often had contacts they had never met before; these were contacts of their own acquaintances that had sent them friendship requests which were usually accepted by the SN user. Hence, one of the indicators we included was precisely about the percentage of the participant's contacts they really knew, with 57.6 % indicating that 51 % to 70 % of their contacts were direct contacts, followed by 35.6 % who said they knew more than 70 % of their contacts.

Another very common practice was to maintain SN profiles using different aliases or fictitious names, and so we wondered if the data the participants were registered with were real; 94.7 % of the students in the cohort indicated that they had used their true personal identification data. Finally, when asked about how the participants used the SNs, 34.8 % said they used them for socializing, 24.2 % for work reasons, and 37.1 % used them both for work and socializing.

To test our hypotheses, we examined the scores of each of the constructs assessed in the questionnaire. We conducted these tests exclusively in the undergraduate student population because it was the most frequent group (n = 76) in the study cohort. Thus, Table 2 shows that 36 % of this population presented an obsession with SNs, 40 % lacked personal control regarding the use of SNs, and 34.2 % used SNs excessively.

Table 2. Scores for obsession, lack of control, and social network use

Obsession with SNs Mean = 30; δ = 8.79		Lack of control of SN use Mean = 18; δ = 5.01		Excessive SN use Mean = 24; δ = 8.79	
Score	%	Score	%	Score	%
14-30	64	8-18	60	13-27	65.8
31-50	36	19-30	40	27-30	34.2

Abbreviations: SNs, social networks.

Thus, our findings regarding potential differences between the distribution of the 'obsession with SNs', 'lack of control of SN use', and 'excessive SN use' constructs according to gender categories corroborated the null hypothesis (H_0) in all three cases, as described below.

Hypothesis 1

Mann–Whitney U tests were used to assess independent samples. Figure 2 shows the frequencies of each sex for the 'obsession with SNs' construct. The mean and range of the difference between the groups was 2.83 (35.29–38.12), with a Mann–Whitney U value of 687,500 and a p-value of 0.592. Hence, considering that the value of p exceeded 0.05, the null hypothesis was accepted and we concluded that men and women experienced the same level of obsession with SNs.
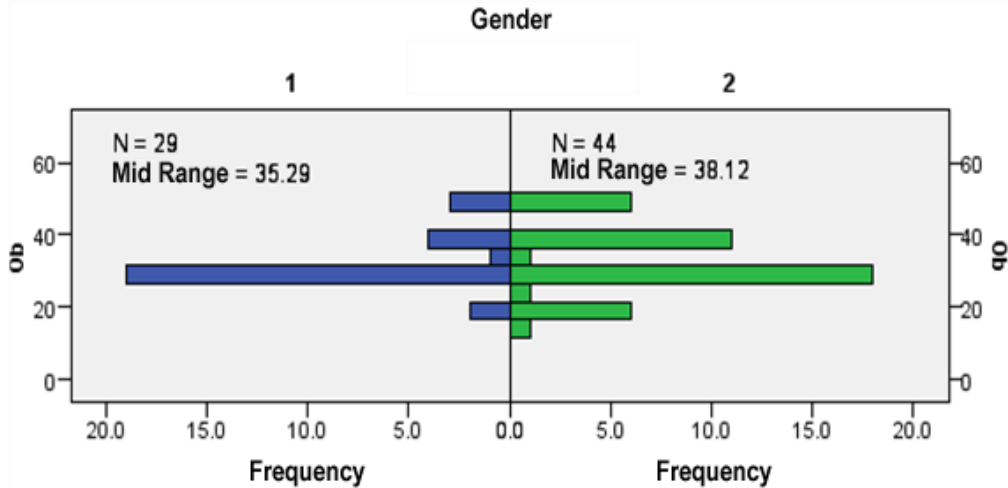

Fig. 2. Mann–Whitney U test results for obsession with social networks.
Mann–Whitney U = 687,500; p = 0.592

Hypothesis 2

Mann–Whitney U tests were similarly used to evaluate independent samples in this case. Figure 3 shows the frequencies of each group for the 'lack of control of SN use' construct. The mean and range of the difference between the groups was 3.37 (34.97–38.34), with a Mann–Whitney U value of 697,000 and a p-value of 0.481. The p-value exceeded 0.05 and so the null hypothesis was not rejected and we concluded that there was no difference between men and women in terms of their lack of personal control regarding the use of SNs.
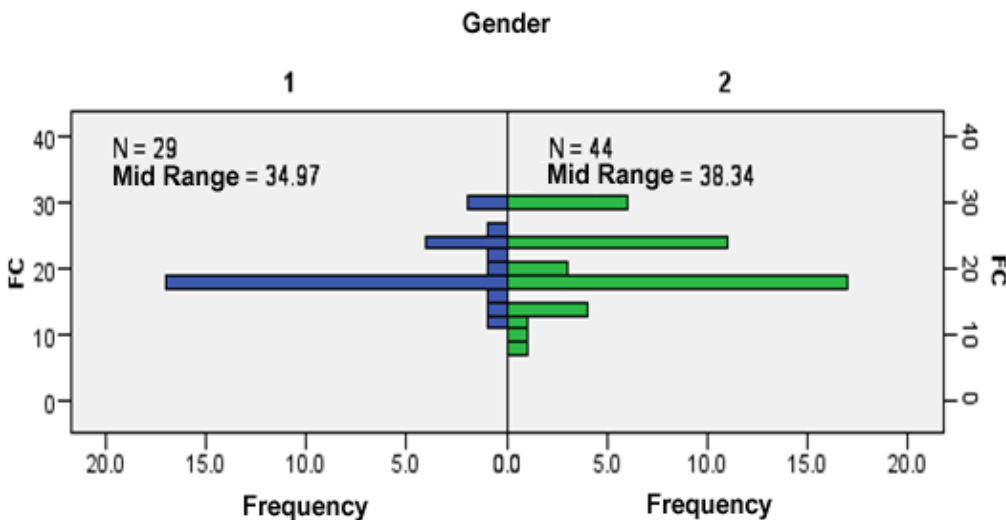

Fig. 3. Mann–Whitney U test for a lack of personal control regarding the use of social networks.
Mann–Whitney U test = 697,000; p = 0.481.

Hypothesis 3

Finally, Mann–Whitney U tests were also used to assess the independent samples for this hypothesis. Figure 4 shows the frequencies of each sex for the 'excessive SN use' construct. The mean and range of the difference between the groups was 3.37 (36.14–37.57), with a Mann–Whitney U value of 663,000 and a p-value of 0.767. The p-value exceeded 0.05 and so the null hypothesis was accepted and we concluded that there was no difference between men and women in terms of the excessive use of SNs.
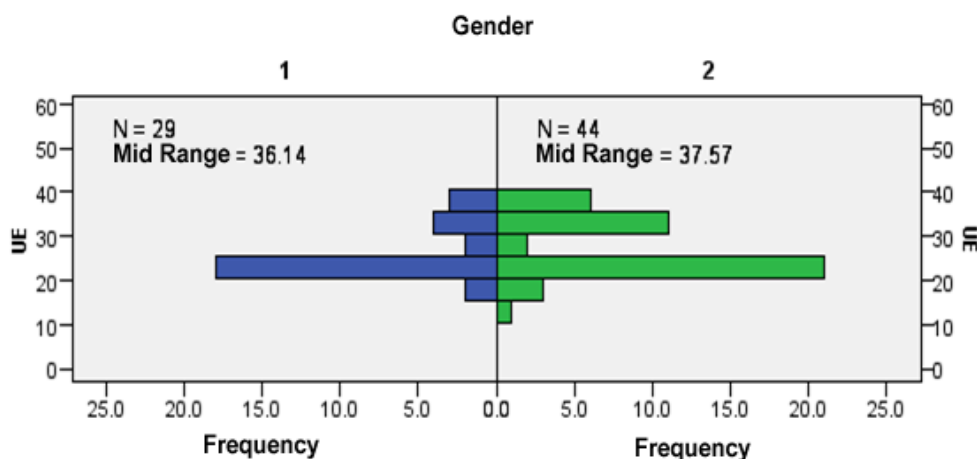

Fig. 4. Mann–Whitney U test for social network use. Mann–Whitney U test = 697,000; *p* = 0.481

5. Conclusion

Our theoretical and empirical review of the existing literature in this field highlighted the fact that people can be affected by a wide variety of addictions when they are not able to control certain activities or actions in their lives. One example of an addiction of this type is the specific use of the internet as a channel to access different SNs, be it via computers, cellphones, or tablets, permitting contact between addicted individuals and other people in real time.

Of course, the technological evolution of the internet and mobile telephony has greatly contributed to humanity, not necessarily in negative ways. On the contrary, these advancements have also ushered in many benefits to modern society. Indeed, there are different schools of thought regarding the internet and SNs. On the one hand, Carr (Carr, 2008) insists that the internet and its derivatives (including SNs) has made fools of us all; on the other hand, Schmidt (Schmidt, 2018) claims that these technologies have made human beings more intelligent.

Thus, the debate remains and relies on the empirical evidence available as the only means to help us better understand this phenomenon. Future research should continue to explore the levels of SN addiction among students at every educational level, especially in adolescents in basic, secondary, and higher education as well as those in continued professional and postgraduate education. This will allow researchers to achieve wider coverage and greater representativeness of these populations.

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