Artículo de investigación científica y tecnológica

Psychosocial factors associated with techno-addiction in young people: systematic review of literature[1]

Factores psicosociales asociados a la tecno-adicción en jóvenes: revisión sistemática de literatura

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ABSTRACT

Introduction: The use of technology in everyday life in contemporary society has become a tool of great importance, also bringing with it concern about harmful behaviors in their respective use, with a tendency to abuse or addiction. Vulnerability to this behavior is observed in young people, due to exposure from an early age and lack of awareness. **Objective:** to systematize information derived from empirical studies carried out during the last 5 years on psychosocial factors associated with the risk of addition to technological means. Method: the study of qualitative approach, descriptive level and systematic bibliographic review method, including as a sample 21 articles, began the review methodology based on the PRISMA criteria. **Results**: The emerging categories identified from the analysis were: behavioral characteristics, personality traits, social context characteristics and socio-demographic variables, psychopathological traits, self-esquemas (self-esteem, self-control, self-efficacy)life skills, social and socio-emotional skills, early maladaptive schemes and attachment, life satisfaction. **Conclusions:** the need to implement preventive measures in family and school environments from an early age in order to reduce the risk of technoaddiction is evident.

Keywords: adolescents, risk of addiction, technological means, psychosocial factors.

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RESUMEN

Introducción: El uso de la tecnología en la vida cotidiana en la sociedad contemporánea se ha convertido en una herramienta de gran importancia, trayendo consigo, además, la preocupación sobre conductas nocivas en su respectivo uso, con tendencia al abuso o adicción. La vulnerabilidad hacia este comportamiento se observa en población joven, debido a la exposición desde temprana edad y falta de concientización. **Objetivo:** sistematizar información derivada de estudios empíricos realizados durante los últimos 5 años sobre los factores psicosociales asociados al riesgo de adición a medios tecnológicos. **Método**: el estudio de enfoque cualitativo, nivel descriptivo y método de revisión bibliográfica sistemática, incluyo como muestra 21 artículos, se empelo la metodologia de revisión basada en los criterios PRISMA. **Resultados**: las categorías emergentes identificadas a partir de análisis fueron: características comportamentales, rasgos de personalidad, características del contexto social y variables sociodemográficos, rasgos psicopatológicos, autoesquemas (autoestima, autocontrol, autoeficacia), habilidades para la vida, habilidades sociales y socioemocionales, esquemas maladaptativos tempranos y apego, satisfacción con la vida. **Conclusiones**: se evidencia la necesidad de implementar medidas preventivas en los ambientes familiares y escolares desde las edades tempranas con el fin de disminuir el riesgo de tecnoadicción.

Palabras clave: adolescentes, riesgo de adicción, medios tecnológicos, factores psicosociales.

INTRODUCTION

Technology plays a fundamental role in contemporary society and has had a profound impact on virtually every aspect of human life, revolutionizing communications and enabling instant and global connection; facilitating access to information and transforming education, research and decision-making; contributing to work, economy, health, education, entertainment, mobility and transport, among others (Corti et al., 2023).

However, technology is only a tool, the effect of which depends on its respective use, and it is important, too, to consider and study the negative effects it has caused is on society. These negative effects include the impact on physical health, related to sedentarism, obesity, posture problems and eye problems; social isolation, loneliness and a decrease in the quality of interpersonal relationships; affecting privacy and security through identity theft and virtual crime; loss of jobs due to automation and artificial intelligence; disinformation and fake news; distraction and decreased attention; environmental impact and digital inequality, among others (Spencer, 2023; Küçük, 2023).

Among the negative aspects of technology is the problem of digital addiction, which includes problems such as procrastination, social isolation, loss of productivity and negative impact on people's mental health and well-being (Portilho Carvalho et al., 2023).

In this aspect, currently there has emerged interest in addictive behaviors associated with technology and its use, arising nosological phenomena such as 'nomophobia', defined as a contemporary disorder of the digital and virtual society, where anxiety is referred, nervousness and anguish caused by not being in contact with a mobile phone (Vagka et al., 2023).

This phenomenon is associated with different behaviors of obsessive type; intrusive thoughts such as fear of losing the mobile or not being able to use it, avoid situations where it can not be used, verify notifications, sleep near him, preferring interaction through this medium rather than physically (Díaz Miranda & Extremera Pacheco, 2020).

Likewise, the term 'phubbing' has emerged, formed from the word "phone" (telephone) and "snubbing" (despise), is characterized by prioritizing the mobile device, over any situation of the context, ignoring other subjects and focusing their attention only on their phone or tablet (Capilla Garrido & Cubo Delgado, 2017).

If we analyze the age factor, as a variable associated with the use of technology, it is evident that adolescents are one of the age groups that consume technology most, as they use mobile devices, social media, messaging apps and online games intensively. Technology plays an important role in communication with friends, access to information and entertainment (Moreno et al., 2022).

Excessive or problematic use of social media and the internet in adolescents and young people can pose risks to their well-being and development. In this regard, the negative impact on mental health can be highlighted, generating symptoms such as anxiety, depression and low self-esteem, as well as stress and impairment of self-image, derived from constant online comparison and pressure to maintain a perfect image (Dienlin, & Johannes, 2020); sleep impairment as a result of night use of electronic devices and constant access to social networks; loss of productivity and procrastination, social isolation and development of limited social skills, as well as exposure to cyberbullying and online security: Teens may be exposed to cyberbullying, online bullying and internet exploitation (Benvenuti et al., 2023).

To address these risks, it is important that parents, guardians and educators are involved in the online life of teens and promote a balanced and responsible use of technology. This can include setting screen time limits, encouraging open communication about online life, and modeling healthy online behavior. In addition, it is essential that adolescents receive education about online security and the importance of protecting their personal information on the internet (Steinfeld, 2021).

The growing concern about the problem of harmful behaviors with a tendency to addiction related to technology directs attention to the need to identify characteristics that increase the vulnerability and the risk of acquiring such behaviors. In studies associated with addictive behaviors, it is indicated that the styles of response and personality traits work as predictors in the appearance or maintenance of certain problems, mainly impulsivity, evidenced as absence of control and inhibition, low premeditation of consequences and aimed especially at immediate reward (Pautrat et al., 2022).

In addition, as predictors of the problematic use of technology, traits of extraversion, neuroticism and low openness to experience have been identified. There are also factors such as low self-esteem and social dependence, especially the need for approval, as well as social anxiety as an influence on problematic mobile phone use (De Sola Gutiérrez, 2018).

Similarly, a correlation has been identified between phone addiction and emotional intelligence deficit, emotional distress, presence of traits of emotional instability (neuroticism), stress, compensation or emotional gain. Some papers indicate that teens use their cell phone as an escape for their feelings of loneliness, social interaction problems, in addition to frequenting online interaction, more than personal, triggering problems in social skills (Díaz Miranda & Extremera Pacheco, 2020).

A study in Spain estimated that 11% of young people between 11 and 17 years present a profile associated with alleged internet addiction; 8.1% between 12 and 25 years report using the mobile phone excessively, while 21% claim to be "hooked" to a particular video game (Vicente-Escudero et al., 2019).

On the other hand, the National Institute of Statistics, in surveys of 2018 identified what: 69.8% of the population of adolescents between 10 and 15 years old has high-tech cell phones, being the initial acquisition age of approximately 13 years. They report using them to meet different types of needs; studying, entertaining, interacting socially, among

others. Thus, changes are observed in access to information, interaction mechanisms and lifestyles, associated with new affectations in mental health and behavioral changes (Díaz Miranda & Extremera Pacheco, 2020).

Certainly the digital culture with the internet has taken relevance in different sectors including the family, modifying habits and customs among members and changing the dynamics between parents and children. Within normative crises, adolescence is conceived as a process of seeking identity and building autonomy, where there is difficulty in rules, compliance with duties and respect for schedules. If dysfunctional strategies are generated in psychosocial development, it can impact the mental and emotional health of the subject. For this reason the phenomenon that arises must be taken into account and directed to protective factors from a digital control, with management in times, regulation mechanisms and consequences (Barrera Valencia & Duque Gómez, 2014).

The present study was aimed at systematizing scientific evidence on risk factors associated with the vulnerability of creating addiction to social networks and the internet in adolescents. According to empirical research carried out in the last 5 years, considering the Covid-19 pandemic as precipitating the increase in the use of technological means in most areas; responsibilities, socialization, hobbies. Similarly, adolescents as a population in parallel development with technologies will tend to present symptoms and variables that must be evaluated over time, to generate prevention policies and strategies in their approach.

METHODOLOGY

Type of study

Qualitative approach, descriptive level, bibliographic method of systematic review of literature, based on the criteria of Cochrane Collaboration (Higgins et al., 2022) for systematic reviews evaluating and synthesizing evidence based on research.

Selection criteria for sources

The search for scientific articles was carried out in the Academic Google and in databases of Dialnet, Scielo, PubMed, PsycEXTRA, PsycINFO, Web of Science, EBSCOhost, Scienceus and direct Scopus.

The following keywords connected by Boolean operators were used for the search: "online social networks [and/same/with/near/adj] adolescence", "online social networks [and/same/with/near/adj] risk of addiction ", "online social networks [and/same/with/near/adj] addiction risk factors".

Studies included

For the review, only articles published in peer-reviewed scientific journals presenting results of quantitative and qualitative empirical studies were chosen, whose objective was to study the relationship between the use of virtual social networks and associated psychosocial fates. Included were articles in Spanish and English, published between 2016 and 2022.

Excluded studies

Articles of review, articles of theoretical reflection and books were excluded, although their topic was related to the topic of factors associated with the risk of addiction to social networks; articles dealing with the topic of virtual social networks at different ages than adolescence and youth

Procedure

The initial assessment examined the summary and addressed the texts to identify the variables as a whole. In order to examine the quality of texts, the following were taken into account: research design, sample size, validity of the instruments used and the type of information analysis performed.
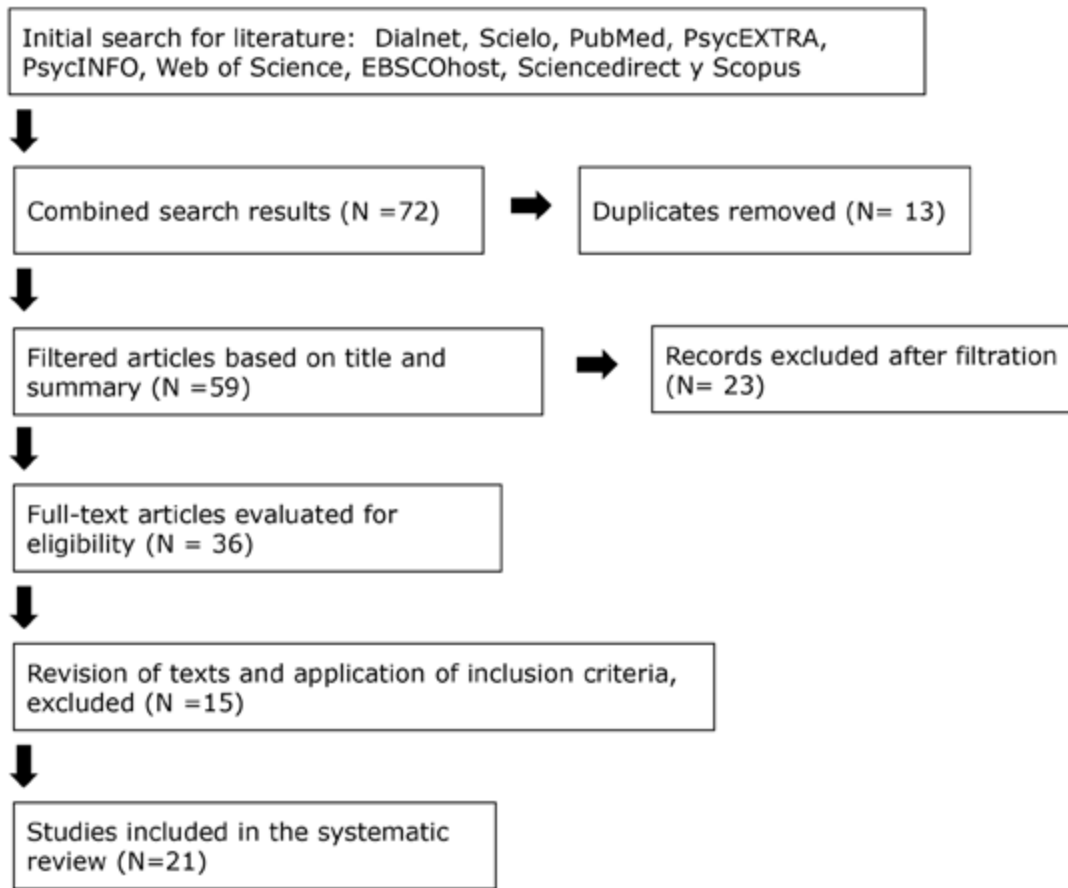
To assess the quality of articles and organize the respective information for the systematization and review of information, an observational guide (checklist) designed based on the STROBE guide was completed (Von Elm et al., 2008; González de Dios et al., 2012) composed of 22 points to verify the main aspects of a research study allowing to assess its validity, used to systematize evidence of scientific studies especially in the field of medicine and epidemiology

For the case of the present study belonging to the field of social sciences, and considering that studies in this field do not always have high-severity designs (experimental, with control of variables, representative and random samples, etc.); an ad hoc observation guide for the present study was designed from the guidelines provided by the STROBE guide, considering the items of: title, objective, variable(s) independent(s) and dependent(s), aspects of methodology used (sample characteristics, instruments used, type of analysis used) and results.

The text selection procedure for the review was performed according to the protocol established in this type of studies (Moreno et al., 2018): establishing keywords to use according to the search engines in the databases chosen; search for articles in databases; selection of articles through titles and elimination of duplicate articles, retrieved in different databases; reading abstracts and discarding articles that did not meet inclusion criteria; flowchart design for text selection; final reading of selected articles and checklist in Excel, made ad hoc for this study, from the STROBE guide; quantitative and qualitative analysis of information regarding items in the analysis guide.

Figure 1.

Article selection flowchart.


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┌─────────────────────────────────────────────────────────┐
│ Initial search for literature: Dialnet, Scielo, PubMed,  │
│ PsycEXTRA, PsycINFO, Web of Science, EBSCOhost,          │
│ Sciencedirect y Scopus                                   │
└─────────────────────────────────────────────────────────┘
                    ↓
┌──────────────────────────────┐      ┌──────────────────────────┐
│ Combined search results      │  →   │ Duplicates removed        │
│ (N =72)                      │      │ (N= 13)                   │
└──────────────────────────────┘      └──────────────────────────┘
                    ↓
┌──────────────────────────────┐      ┌──────────────────────────┐
│ Filtered articles based on   │  →   │ Records excluded after    │
│ title and summary (N =59)    │      │ filtration (N= 23)        │
└──────────────────────────────┘      └──────────────────────────┘
                    ↓
┌──────────────────────────────┐
│ Full-text articles evaluated │
│ for eligibility (N = 36)     │
└──────────────────────────────┘
                    ↓
┌──────────────────────────────────────────────────────┐
│ Revision of texts and application of inclusion         │
│ criteria, excluded (N =15)                             │
└──────────────────────────────────────────────────────┘
                    ↓
┌──────────────────────────────┐
│ Studies included in the      │
│ systematic review (N=21)     │
└──────────────────────────────┘
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Ethical aspects of the study

The present bibliographic review was carried out under the parameters and guidelines established previously, all the revision is supported under the conditions established by the APA standards, thus certifying the respect for copyright. The articles taken into consideration for this review have been selected from peer-reviewed scientific journals, available in databases, ensuring a high degree of reliability of the information.

RESULTS

The following tables list the number of reviews discriminated by: databases where the articles were taken (Table 1), the countries where the studies were carried out (Table 2), the years of publication (Table 3), language of original publication (Table 4), research approach (Table 5), cutting and research level (Table 6) and finally, the categories established for its analysis and final construction of results (Table 7).

Table 1.

Bases de datos.

	Frecuencia	Porcentaje
APA PsycInfo	2	9,5 %
DIALNET	3	14,3 %
Elsevier	5	23,8 %
PubMed	2	9,5 %
Redalyc	2	9,5 %
Repositorio Fundación Universitaria los Libertadores	1	4,8 %
Repositorio Politécnico Grancolombiano	1	4,8 %
Repositorio Universidad Minuto de Dios	1	4,8 %
Repositorio Universidad de la Laguna	1	4,8 %
Scielo	1	4,8 %
Science Direct	1	4,8 %
Scopus	1	4,8 %
Total	21	100 %

Table 2.

Países de los estudios.

	Frecuencia	Porcentaje
Chile	1	4,8 %
China	2	9,5 %
Colombia	4	19 %
España	6	28,6 %
Grecia	1	4,8 %
México	3	14,3 %
México España	1	4,8 %
Perú	3	14,3 %
Total	21	100 %

Table 3.

Año de publicación.

	Frecuencia	Porcentaje
2016	6	25 %
2017	1	4,8 %
2018	5	23,8 %
2019	1	4,8 %
2020	3	14,3 %
2021	3	14,3 %
Total	21	100 %

Table 4.

Idioma de publicación.

	Frecuencia	Porcentaje
Español	13	61,9 %
Inglés	8	38,1 %
Total	21	100 %

Table 5.

Enfoque de investigación.

	Frecuencia	Porcentaje
Cualitativo	5	23,8 %
Cuantitativo	16	76,2 %
Total	21	100 %

Table 6.

Corte y nivel investigativo.

	Frecuencia	Porcentaje
Correlacional transversal	12	57,1 %
Descriptivo comparativo	1	4,8 %
Descriptivo transversal	8	38,1 %
Total	21	100 %

Table 7.

Clasificación de categorías identificadas.

Categories (psychosocial aspects associated with techno-addition risk)	Number of articules
Behavioural characteristics	2
Personality traits	5
Characteristics of the social context and sociodemographic variables	11
Psychopathological features	5
Self-esquemas (self-esteem, self-control, self-efficacy)	3
Life skills, social and socio-emotional skills	4
Early maladaptive schemes and attachment	2
Life satisfaction	1

The establishment of categories of analysis was generated after the identification of the study variables in each article. The description of the results for each identified category is presented below.

Behavioural characteristics

Although the use of the cell phone has been standardized as an instrument of daily life and daily activities, behavioral changes have been perceived as a consequence of the use and abuse of the cell phone. In a study conducted by Barahona Ariza et al. (2019) with 100 technology students, aged 18 to 25 years, they found that 40% of the sample indicated addictive behavior; 20% mild, 14% moderate and 6% severe, although, most of these subjects did not perceive an excessive use of the cell phone, 7% of that sample reported alterations in their sleep, difficulties in interpersonal relationships due to increased use of the cell phone in times that they used to share with family and friends, in addition to reporting that in the absence of the internet they used to present emotions such as boredom, sadness and anxiety.

It is posed from the indicators of addiction, the difficulty for disconnection and the use of technology as escape strategy and evasion of problems, increase in the time of permanence in the network and investment in social networks, in a study with 374 university students, Jasso Medrano et al. (2017) identified a relationship between social media addiction and time spent on the mobile phone, the comparison with computer use was intermediate, what associates risk with mobile and addictive behavior by ease of access and progressive behavior changes, Establishing as a priority to have attention to the growing problem.

Personality traits

The behavioral repertoire or personality traits allow to examine or predict the level of risk to present addictive behaviors. An evaluation established by Muñoz Villegas & Ramírez Cortés (2016), which evaluated the trend of cell phone addiction among students with extroverted and introverted traits, it was found that of a group of 80 students who of 74%

were extroverted 13% of them had levels of addiction, in contrast, 28% with introverted traits only 7% had addiction, However, it does not state whether the dichotomy is associated with probability in the development of addiction.

On the contrary, Álvarez Peláez & Martín Delgado (2020) conducted an evaluation with adolescents between 12 and 16 years of age where extraversion was correlated with increased addiction, since there was a greater need to socialize. He also noted a tendency to hostile/irritable moods, paranoid ideas, low level of responsibility, and prevalence of impulsivity and neuroticism traits that increased addictive behaviors.

Similarly, Malo-Cerrato et al. (2018) evaluated 1102 students between 11 and 18 years of age, in which those who predominated these traits scored with higher levels of addictiveness contrary to the traits of kindness and responsibility.

In other studies, it has been reaffirmed how the traits of neuroticism, extraversion and impulsivity tend to addictive symptomatology, behaviors of nomophobia and phubbing. Adding elements such as social anxiety and presence of insecure attachments (Peris et al., 2018; Vargas Castro et al., 2014).

Characteristics of the social context and sociodemographic variables

The social context is part of the development of the individual, where protective or risk factors are present, preventing or triggering addictive behaviors. Influencing thus modeling that of peers (peers–friends–social area). In relation to this Malo-Cerrato et al. (2018) observed that the presence of relatives (parents or siblings) who abuse the use of Information and Communication Technologies (ICT), promotes normalization and generates the repetition of patterns, in addition to creating the perception of inadequate social support which increases the problem.

In the research carried out by Xin et al. (2018) with 6468 adolescents between the ages of 10 and 18, students of higher grades prevailed, who showed a slight percentage in addictive symptoms. However, it was found that variables such as a negative relationship with teachers and their parents, as well as low academic performance implied an increase in the use of technologies.

At the same time, Solera-Gómez et al. (2022) found in 446 students, adolescents aged 11 to 15 years, that 93.7% of the sample had their own cell phone, with use of 12 hours per week and 10 on weekends, with main use for social networks. Problematic use of the internet was observed. Although use was found in boys at earlier ages, girls had high scores in mobile use and had high scores in interpersonal conflicts and in communicative and emotional use. This study highlights early exposure to mobile devices and the internet, most of them in the absence of parental control.

Finally, in the characteristics of the social context, we observe a abandonment in physical activities, social and other hobbies secondary to the compulsive use of the mobile. Álvarez Peláez & Martín Delgado (2020) identified that virtual social relations are expanding, yet social and communication skills are deteriorating.

Brown et al. (2021) also describes something as an "internet paradox," where the person increases social interaction over the internet by providing greater social connection, yet in offline contexts a greater sense of isolation is perceived.

On the other hand, Jasso Medrano et al. (2017) relates how levels of responsibility are reduced because the abuse of this technology generates substitution of academic activities or assigned tasks.

Identifying sociodemographic variables will allow us to observe the population with the highest prevalence and also with the highest risk. The variables as level of study, age and gender have been widely discussed by different authors. Peris et al. (2018) found in relation to gender more frequent in women of social use of internet; adolescents between 12 and 14 years had a higher level of addiction than adolescents between 15 and 17 years of age, where self-control is mentioned as a trait that modulated behavior.

In contrast, Xin et al. (2018) observed prevalence in men for activities related to internet games, as reported by Araujo Robles (2016), who also identified in men symptoms of anxiety and concern towards social networks, Even so, he observed a significant deterioration in responsibilities in both genders, due to the time invested in the use of social networks.

A study by Cuquerella-Gilabert & García (2020) recorded the sociodemographic characteristics of people who were treated for ICT addiction, also identified prevalence in the male gender. Although different uses have been established according to gender and with this different precipitating or risk factors, in all the authors have not been able to establish accurate results to categorize a gender with higher prevalence or specific characteristics related to cell phone abuse.

Regarding the level of study, in university students there is a correlation between the emotional symptoms and the behavior of abuse to the cell phone. Araujo Robles (2016) conducted an evaluation to discriminate addictive behaviors in different careers. We evaluated students of administration, international business, pharmacy, biochemistry, psychology and obstetrics, finding higher score in international business and administration, the authors refer that it may be due to the use of ICTs as part of the execution of their academic activities, especially in communication and interaction. Even so, deriving addictive behaviors that can be mimicked by the work/academic area, presenting a risk for regulation and/or intervention.

Likewise, Berner et al. (2014) found incidence in medical students of phone abuse and other abuse behaviors, mainly derived from episodes of emotional deregulation.

On the other hand, in a study conducted by Cuquerella-Gilabert & García (2020), where they describe the socio-demographic profile of people treated for ICT addiction, in Valencia Spain, during the periods from 2018 to 2020. An increase in cases of care was reported, coinciding with the times of pandemic was detected an increase in the compulsive use of the internet in all age groups, both adolescents from 11 to 17 years, and in subjects over 30 years. Highlighting how the problematic use of electronic devices is increasing in the population, where only the frequency of use is evaluated, without considering other associated variables that can help guidelines to quantify and characterize the problem.

Psychopathological features

The correlation between psychopathology and symptoms of abuse or technoaddiction co-exist, precipitate emotional problems and psychiatric symptoms, also increasing frequency and intensity of problems. In this way, different psychiatric pathologies have been studied to observe the triggering variables or risk factors associated with abuse behaviors. One of the main elements is the use of dysfunctional coping strategies (escape–avoidance).

One of the events that triggered alterations in mental health was the global phenomenon of the COVID-19 pandemic, where there was a tendency of addiction and generalized psychiatric symptoms and signs. In the study of Cuquerella-Gilabert & García (2020) that was carried out in the Units of Addictive Behaviors (UCA) during the periods from 2018 to 2020, a significant increase in cases in the search for psychological care for problems associated with ICT was observed, reporting depressive and anxious symptoms, many of them with

prior management from psychiatry, although this allowed a relationship between the previous existence and the subsequent emergence of an abuse, the study was not conclusive in its entirety because it did not generate a reliable measurement in the frequency and significant alterations by the use of cellular and internet.

There is mainly an association between mood disorders, anxiety, other addictions (chemical or behavioral) and problematic behaviors to the use/abuse of mobile phones and internet addiction, also identifying difficulties in establishing interpersonal relationships secondary to impulsive, neurotic and anxious behaviors. To counteract the presence of these elements, attempts have been made to generate protective factors, such as the design of extracurricular activities, although no significant results have been achieved in the reduction of symptoms (Berner et al., 2014; Capetillo-Ventura & Juárez-Treviño, 2015).

Álvarez Peláez & Martín Delgado (2020) showed that in the adolescent population high levels of hostility are manifested when the internet connection or cell phone use is interrupted. In addition, there is an excessive investment of time in the activity, the need to update pages, look for new interactions deriving obsessive-compulsive behaviors. In turn, excessive rumination occurs with paranoid content that triggers emotional deregulation in the absence of social networks and the internet. On the other hand, there is presence of somatization, such as headaches or stomach when there are problems in access. It is pointed out the need to deepen the adolescent population and the presence of psychopathology correlated to mobile abuse.

Taking into account the study by Brown et al. (2021), which sought to identify the accentuation of personality traits to predict the risks of creating addiction, two profiles classified as high comorbidity and low comorbidity were identified, which varied in terms of interpersonal sensitivity, depression, anxiety and symptoms of psychoticism; the profile with high comorbidity presented intense psychopathology with problematic use of the internet, which could vary from symptoms at maximum to minimal or continuous levels. The problematic use of the internet is not independent, but there are, in parallel, pre-existing psychopathology, although it can constitute a different symptom for groups of individuals. The difference in symptoms is observed with a quantitative impact (severity) and not qualitative (presence of specific symptoms).

Depressive and anxious symptoms are associated with different types of addictions. Accordingly, subjects with high comorbidity of these symptoms can relate on the basis of addiction, functioning as a strategy of emotional regulation and the escape route of stressful or negative affect. Thus, the profile with high comorbidity can be used to satisfy unmet needs in external contexts, in addition to providing relief to real life problems (Brown et al., 2021).

Other studies observe a high rate of cellular abuse as a sign in dual pathologies related to low impulse control. Vargas Castro et al. (2014) describe anxiety and hyperactivity disorders, however, they highlight eating disorders with higher scores, which are not usually directly related to symptomatology.

Self-esquemas (self-esteem, self-control, self-efficacy)

Self-perception finds a high correlation with the risk of developing addictive behaviors in the use of technology. Studies show that higher rates of addiction identify lower levels of self-esteem and inversely. Likewise, levels of self-control are reduced during the presence of cell phone abuse, as well as increased insecurity and isolation in subjects. On the other hand, the elements associated with self-efficacy and prosocial reasoning correlate with

the decrease in mobile use, also attitudes towards online communication because it allows evading reality with which they are more comfortable in the construction of social reality (Challco Huaytalla et al., 2016; Malo-Cerrato et al., 2018; López-Mora et al., 2021).

Life skills, social and socio-emotional skills

Coping strategies such as assertive decision making, emotional regulation tools and effective communication are some of the psychological skills in the individual that allow adaptation to different contexts. These variables are represented as elements of protection or risk in the presence of addictive behaviors. For example, Klimenko et al. (2021) identified low levels of life skills as indicators of increased psychological and emotional vulnerability, which could predict increased risk of addiction, On the contrary, the development of intrapersonal tools allows to respond adequately to adversities and avoid inappropriate or self-destructive coping strategies. The study by Klimenko et al. (2021) found that skills such as resilience, interpersonal effectiveness (social skills) and greater tolerance to frustration, function as protective factors in addictive behaviors, in the same way as strengthened self-esques (self-esteem, self-efficacy) and life satisfaction.

Also, interpersonal efficacy and relationships established with peers, report a decrease in risk of addiction and elements of mobile abuse, safe attachments with social peers and parental figures function as a protective factor, as well as prosocial reasoning, effective interpersonal and social skills have shown that their greater development is related to a lower risk of addiction or abuse of technology devices (Galindo Rendrón & Reyes Romero, 2015; Zegarra Zamalloa & Cuba Fuentes, 2017; López-Mora et al., 2021).

Early maladaptive schemes and attachment

The definition of 'schema' belongs to cognitive therapy, which starts from an underlying theoretical assumption where a subject's behavior is determined by the way he understands and structures the world, developed through previous experiences. From this line, a scheme constitutes the basis for identifying, differences and codifying the stimulus faced by the individual, categorizing and evaluating their experiences through a matrix of schemes (Beck et al., 2010).

From this line, Duque (2018), in a study with 126 tenth grade students (92 women; 34 men) aged 14 to 17 years, the risks of addiction were evaluated with the presence of early maladaptive schemes, through Young's Schemes tools and the social media addiction questionnaire. In the population it was identified that 38% remained connected and investing a great time and effort in the activity. The most representative factor was the obsession with social networks, triggering anxiety and concern about the lack of access to social networks, presence of rumiative and intense thoughts that generated discomfort. It also identified lack of personal control, difficulty in controlling impulsive actions. The schemes with the highest score were found to be abandonment, distrust/abuse, self-sacrifice and insufficient self-control/self-discipline, being these shared with people who present chemical addictions and associated population with addiction to virtual social networks.

On the other hand, López-Mora et al. (2021) found elements associated with attachments and their direct relationship about the problematic use of mobile phones. This as a consequence of attitudes around communication, including in the risk of mobile addiction. On the other hand, safe attachments are associated with lower symptoms of addiction and lower levels of use, being correlated with models of modeling and attachment with pairs and parental figures.

Life satisfaction

The excessive use of social networks as a strategy of coping with everyday and emotional problems has been considered. Wang et al. (2016) explored the relationship between life satisfaction and moderation of problematic behaviors of ICT use. The study was conducted with 996 university students from China, classified into groups of excessive and not excessive use of social networks. The results allowed us to observe from a regression analysis how satisfaction with life moderates the effect of problematic behaviors of the use of ICTs. Participants with excessive use were less satisfied with life and showed significant motivations in problematic behaviors, unlike the group with greater satisfaction with life.

DISCUSSION

The purpose of this study was to review and synthesize international and recent literature around psychosocial factors associated with the risk of addiction to the internet, mobile and social networks, the identification of predominant population, psychological characteristics, prevalence of psychopathological symptoms and social factors precipitating the problematic use of mobile phones and the internet, as well as protective elements to prevent or reduce their use.

Within the reviewed articles prevalence of use/ abuse was identified in early ages, finding studies mainly in population of 10 to 17 years, studies address early exposure how social and emotional problems appear. Also influencing, contextual elements such as parental modeling and lack of control in times and schedules as a factor that increases exposure and derives the presence of signs and symptoms from moderate to severe.

From the psychological areas there is a close relationship in the presence of impulsivity and neuroticism as a prelude to the harmful use of the cell phone, internet and social networks. Likewise, the precipitation of anxious symptoms, depressive and compulsive obsessive symptoms, which are related, in turn, to the presence of isolation, loss of social skills and decrease in self-examination, promoting insecurity and social anxiety, rumination with the presence of paranoia, which leads to a deterioration in coping strategies and psychological tools, leading to abuse as a avoidance/escape device to problems.

Although many of the articles agree on the above, it has not been possible to establish gender differential elements. Similarly, there are difficulties faced with the relationship between psychopathology and addiction to the mobile phone, because of not knowing whether one drift to the other, coexist or only presents as a sign of another more complex condition. Along the same lines, many studies presented are limited in the study of socio-familial factors that influence the increase in abuse.

Most articles implement the Internet Addiction Test (IAT) to assess the presence and severity of symptoms, however, in the articles evaluated, it does not present elements of self-reporting that allow correlating how affected the person is perceived against the abuse of the devices.

The problem around the abuse of technology involves different factors and variables, although most of the studies mentioned focus common elements, from risk factors to initial symptomatology, It is still necessary to expand studies in different populations, including instruments that allow us to differentiate if the pre-existing symptomatology led to addiction or addiction precipitated the signs and symptoms. Similarly, within family contexts, it is necessary to deepen what are the elements that increase the problematic use, if it is limited to modeling elements or includes the absence of norms and parental control.

Finally, due to the absence of studies in different countries, it allows to identify similar patterns and characteristics to be considered not only as behavioral addiction, but also increase attention to symptoms, a minimization is observed both in family contexts, educational, and in the same subjects immersed in the problem, which minimize the difficulties presented.

CONCLUSIONS AND RECOMMENDATIONS

Problematic behaviors of technology abuse and dependence, especially from early exposure, have begun to impact mental health and development of psychological skills. With the COVID-19 pandemic, an alarming increase was observed that led to increased interest in this phenomenon. However, the absence of studies leading to minimization has limited the development of strategies not only for prevention, but also for addressing this growing problem.

Especially with regard to the family environment, where it should be focused, as an initial strategy, the creation of awareness of the problem to build environments with safe attachments, in addition to strengthening subjects in other development spaces (school, social area, extracurricular environments, among others) that promote mental health and inter and intrapersonal skills.

Finally, it is imperative to increase the assessment in different populations (ages, sexes, cultural and sociodemographic characteristics) causal and impact in areas of adjustment (family, social, academic), psychiatric symptomatology (depression, anxiety, psychosis, eating disorders, among others) and psychological skills (coping strategies, decision making, effective interaction, emotional regulation), considering the limitations both in the design of preventive strategies and in the intervention guidelines.

CONFLICT OF INTEREST

The authors of this brief declare that they do not have any conflict of interest of a labor, contractual or personal nature that could cause an unintended bias in the investigative process.

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