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Assessing Vulnerability to Harmful Internet, Social Media, and Digital Environment Use through the Big Five Model: A Neuropsychosocial Perspective

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Abstract

Background**:** The Big Five model identifies five major personality dimensions: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Openness relates to creativity and curiosity; conscientiousness to organization and reliability; extraversion to sociability and energy; agreeableness to empathy and cooperation; and neuroticism to emotional instability. This study first conducted a literature review on mobile phone use, video game addiction, and social media overuse through the lens of the Big Five model. Then, empirical data from 492 participants were analyzed to evaluate how each personality type is exposed to excessive digital leisure. Results show that individuals with high openness and extraversion are more likely to engage intensively with social media and online entertainment. Conversely, those with higher neuroticism, agreeableness, or conscientiousness display lower exposure levels. These findings align with previous research linking personality traits to neuroanatomical patterns that shape behavioral tendencies. In conclusion, the study suggests that specific personality traits, as defined by the Big Five, influence the use of digital media and advertising channels, potentially fostering addictive behaviors in users with greater openness and extraversion.

Keywords: Big five; addiction; social media; cognition; neuroanatomy

1. Introduction

1.1. Big Five Personality Theory

The Big Five model or theory emerged in the late nineteenth century with the development of the lexical hypothesis (Smits & De Boeck, 2006; Sánchez & Ledesma, 2007; Arterberry et al., 2014), originating from Galton's 1883 work *Inquiry into Human Faculties and Its Development* (Ter Laak, 1996). The concept of personality, as such, has been widely studied throughout history due to the need to explain the diverse ways in which human beings act. The interest of scholars across different periods has focused on understanding the *how*, *why*, and *for what purpose* of the various forms of individual behavior, as a consequence of multiple underlying factors (Montaño et al., 2009).

However, focusing on our object of study, the theory—also known as the trait or factorial theory—has evolved over the years and originated from the so-called "lexical hypothesis." In this regard, several psychologists, such as Allport and Odbert (1936), proposed that everyday language can reflect human personality. They revisited Galton's earlier work, suggesting that the way individuals describe themselves reveals their thoughts, behaviors, and reactions (González Llamas, 2024).

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The first classifications derived from lexical studies provided a basic structure for understanding personality descriptors (Saucier & Srivastava, 2015). In other words, the concept is based on the idea that the language we use to describe people and their actions—emotions and behaviors—can offer valuable insight into their personality.

The lexical hypothesis maintains that the natural and common language used by individuals can identify all types of human personality, since language encapsulates every reality and concept that is relevant to people, including individual differences (De Raad & Mlacic, 2015; Abood, 2019).

From this point onward, various studies and related theories emerged, leading to the development of specific instruments designed to measure personality (John et al., 2008). This demonstrates the relevance attributed to personality in psychology, being considered "one of the most important aspects within the field of psychology, with implications for both research and intervention" (Lara et al., 2021, p. 84).

Focusing on the Big Five theory, several precursors can be identified, among them Raymond Cattell, whose role was decisive in the consolidation of the model, as he believed that the basic dimensions of personality could be both measurable and quantifiable (Cattell & Mead, in Boyle et al., 2008). In 1949, he published for the first time the Sixteen Personality Factor Questionnaire (16PF), which was later revised on several occasions, including by his daughter Heather E. P. Cattell (Rubio, 2022).

Subsequently, other researchers such as Ernest Tupes and Raymond Christal (1961), building upon Cattell's work, were the first to identify five major dimensions of personality based on military studies conducted after the Marshall Plan at Lackland Air Force Base (Texas), which "promoted an objective research program on personality and motivation" (Ruiz, 2002, p. 67). Norman (1963) further reinforced these findings, continuing along the same line of five dimensions (De Raad, 1998).

In 1981, Lewis Goldberg popularized the term Big Five and promoted the idea of the five broad dimensions (Karaman et al., 2010). However, the foundations of the current Big Five theory were established by Costa and McCrae, who had been developing their own inventory and, during the 1980s, identified the five traits that structure the model as it is known today (De Raad, 1998; John et al., 2008). As Wilt and Revelle (2015) note, numerous taxonomies of traits were proposed throughout the history of Big Five research, but the model centered on Extraversion, Neuroticism, Conscientiousness, Agreeableness, and Openness to Experience has achieved the greatest acceptance, consensus, and legitimacy.

According to Lewis Goldberg, the five personality factors can be grouped under the acronym OCEAN, representing: factor O (Openness to Experience), factor C (Conscientiousness), factor E (Extraversion), factor A (Agreeableness), and factor N (Neuroticism). As Ter Laak (1996, p. 136) explains, "the anagram OCEAN aids in memorization, suggesting—whether for better or worse—the unfathomable depth or turbulent surface of the dimensions of personality."

Nevertheless, despite the extensive body of research and studies surrounding the Big Five model, it has not been exempt from criticism. Block (1995) argued that the model is overly simplistic, failing to fully capture the complexity of human personality. De Raad (1998) also pointed out the need to consider alternative approaches, as the model does not encompass all aspects of personality. Along similar lines, Ashton and Kibeom developed the HEXACO model in the 2000s, adding a sixth dimension—Honesty–Humility—while Buss (1991) criticized the Big Five for not adequately integrating evolutionary theory.

More recently, C. G. DeYoung (2020) has defended the validity of the Big Five model over the HEXACO, emphasizing its cross-cultural and contextual validation, which supports its robustness. In earlier work, DeYoung (2015) proposed the Cybernetic Big Five Theory, which retains the five major personality traits but incorporates additional elements such as goals and strategies that individuals develop depending on their circumstances.

Abood (2019) considers that the Big Five theory is currently the most relevant and influential among personality theories, for four main reasons:

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1. Each trait comprises a positive and a negative pole, encompassing attitudes, emotions, cognitions, and behaviors that are diametrically opposed.
2. Among the various theories of personality, the Big Five is the one that has achieved the greatest consensus, collaboration, and recognition.
3. The Big Five approach identifies a large number of traits, allowing for a comprehensive and precise understanding of personality.
4. The Big Five has been applied across a wide range of countries and cultures, consistently yielding positive results, thereby demonstrating its focus on human personality beyond social context.

The Big Five theory, for identifying personality traits, is grounded in a questionnaire that gathers information on emotions, reactions, and attitudes, which may be self-administered or completed by individuals closely acquainted with the subject under study (Novikova, 2013). The results of the test, analyzed through factor analysis, indicate the degree and polarity with which a person manifests each variable, thus providing a general personality structure in which the traits influence and interact with one another.

The factorial tradition identifies personality factors through the statistical analysis of data derived from language, employing factor analysis as the primary methodological tool. This analysis is commonly based on descriptive statements contained in personality questionnaires. Consequently, one version of the model proceeds from data toward the identification of the underlying personality structure (Sánchez & Ledesma, 2007, p. 138).

1.2. Neuroscience of the Big Five

As previously discussed, the Big Five is a highly useful tool for defining personality traits and predicting certain behaviors and conduct patterns. Accordingly, neuroanatomical variations have been observed in association with the traits defined by the Big Five model. In general, while conscientiousness and openness to experience primarily involve the prefrontal cortex, extraversion and neuroticism are associated with the orbitofrontal cortex (Allen & DeYoung, 2017; Restrepo, 2015).

Individuals with high levels of neuroticism exhibit greater cortical thickness and reduced gyrification in the prefrontal and temporal cortices, which affect emotional regulation, impulsivity, and stress control. Conversely, openness to experience is associated with a reduction in cortical thickness and an increase in surface area and gyrification in the prefrontal and parietal cortices, which, in addition to the functions mentioned above, are responsible for abstract thinking, curiosity, and novelty-seeking behavior.

A higher degree of agreeableness correlates positively with lower prefrontal cortical thickness and reduced temporal lobe surface area, the latter being involved in object and face recognition, thereby explaining the empathetic nature associated with this personality trait.

Extraversion, on the other hand, has been linked to a thicker orbitofrontal cortex, a region involved in reward processing and sociability. Finally, individuals scoring high in conscientiousness display a thicker yet smaller prefrontal cortex, which participates in decision-making, action planning, and impulse inhibition (Lewis et al., 2018; Nostro et al., 2017; Riccelli et al., 2017). According to Riccelli et al. (2017), cortical thickness and surface area or gyrification in distinct brain regions are inversely related to different Big Five traits—specifically neuroticism, extraversion, and conscientiousness versus openness to experience—which may reflect maturational brain effects (i.e., reduced cortical thickness accompanied by greater gyrification and surface area). These neural patterns may predispose or protect individuals against psychiatric disorders. (Ricelli et al., 2017)

1.3. Social Networks

Once the foundations of the Big Five model have been established, we move on to briefly discuss social networks and the digital environment. The emergence of Web 2.0 in 2004 marked a paradigm shift in online communication, as it introduced a more social and participatory dimension. As Herreros (2008, p. 346) explains, “whereas in the earlier Internet communicative processes took place

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from one-to-one or one-to-many, in the new web, everything opens so that users themselves can directly develop their own communicative processes". It is therefore not surprising that the term "prosumer" (producer + consumer) began to gain relevance. However, it is worth noting that the concept was originally coined by Alvin Toffler (1979) in his book *The Third Wave*, meaning that it can be applied beyond the digital sphere. As Jordan et al. (2017, p. 178) point out, "one of the characteristics of this group of people is that their opinion matters; since they are proactive, they express what they think with the aim of helping others." This notion closely aligns with social media dynamics, where knowledge is disseminated, exchanged, and used to generate new models of communication.

Thus, by 2012, the National Observatory of Telecommunications and the Information Society reported that, despite the multiple theories that had emerged since their inception, researchers agreed on several definitions that are still in use today, such as "a site on the web whose purpose is to allow users to interact, communicate, share content, and create communities," or as "a tool for the democratization of information that transforms individuals into both receivers and producers of content" (Observatorio Nacional de Telecomunicaciones y de la SI, 2012, p. 13).

In this sense, social networks can be related to the Uses and Gratifications Theory, developed by Elihu Katz, Jay Blumler, and Michael Gurevitch in the 1970s. This theory posits that individuals use media to satisfy specific needs and, in doing so, obtain gratifications. Applied to social media, Martínez (2010) noted that such platforms enable an interaction that fulfills individual needs and exhibits four main characteristics: entertainment, social relationships, personal identity, and surveillance. These characteristics are directly associated with the personality traits defined by the Big Five. As Casado (2018, p. 91) observes, "the Uses and Gratifications Theory is a useful perspective for exploring how people communicate daily across various channels as active users in different mass media."

In more recent studies, such as that conducted by IAB Spain (2024), it is noted that "in a broad sense, a social network is a social structure formed by people or entities connected and linked to each other through some type of relationship or common interest. The term is attributed to British anthropologists Alfred Radcliffe-Brown and John Barnes" (IAB Spain, 2024).

This same study determines the following conclusions:

86% of Spanish Internet users aged 12 to 74 use social networks 2) There is a higher penetration among women (89% women vs 83% men) and especially among young people aged 18 to 24 (94%) and adults aged 35 to 44 (91%). 3) Only 8% of Internet users who are not social network users declare an intention to register on one during the next year. The main barrier to not using any social network is lack of interest, as seen in previous years, followed by privacy concerns or lack of time. This year, respondents mention somewhat more "fear of becoming addicted." (IAB Spain, 2024, 12).

Associated with this study, the conclusion is particularly striking: those who have not registered on any social network cite fear of "getting hooked" as the main reason, which highlights their addictive nature. This finding connects directly with addictive behaviors, as explained by the Big Five theory.

The World Health Organization (WHO) defines addictions as a physical and psycho-emotional illness that creates a dependence or need toward a substance, activity, or relationship. Addictions include dependence on a chemical substance (alcohol, nicotine, cocaine, food, etc.) or dependence on a behavior (gambling, sex, shopping, social networks, eating, physical exercise, work, etc.). During addiction, the reward systems of the central nervous system, such as the limbic system, are activated, producing pleasurable sensations. Addictive substances and behaviors produce changes in these structures and in the levels of certain neurotransmitters (dopamine, serotonin, opioids, etc.) in prefrontal, subcortical (limbic system), and sensory areas of the brain. For example, high consumption of alcohol or carbohydrates stimulates the production and use of dopamine in the brain (Blum et al., 2014). A 2011 study determined that 11% of adolescents aged 11 to 13 in the Community of Madrid could have an Internet addiction, 21% a video game addiction, and 8.1% of young people aged 12 to 25 reported excessive mobile phone use (Verdura et al., 2011).

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Numerous studies have examined the relationship between addictive behaviors and certain behavioral traits with neuroanatomical variations of the brain. For example, impulsivity is associated with alterations in the prefrontal cortex, fundamental for inhibiting impulses and controlling emotions (de Sola Gutiérrez et al., 2013; Méndez-Díaz et al., 2017). Using neuroimaging techniques, changes have been observed in the white matter of the orbitofrontal area and the fronto-occipital fasciculus associated with Internet addiction, the duration of these damages also depending on the time of exposure to the addictive behavior (Lin et al., 2012). In the same vein, other authors associate excessive Internet use with a decrease in gray matter in the prefrontal and orbitofrontal cortices and in association fibers (Yuan et al., 2011).

Thus, there is increasing interest in the study of interpersonal brain anatomical variations according to different personality traits. People with some type of substance addiction (heroin, cocaine, alcohol, or cannabis) show low levels of emotional stability (high levels of neuroticism) and low levels of conscientiousness and openness (Pedrero Pérez, 2017), involving the serotonergic and GABAergic systems (Sen et al., 2004). Other authors have shown that excessive mobile phone use corresponds to high levels of neuroticism and extraversion (Takao et al., 2009) and to sociability (Takao, 2014). In the same line, shopping addiction has been correlated with high extraversion, agreeableness, and neuroticism (Mikolajczak-Degrauwe et al., 2012). It seems that in extraversion the dopaminergic pathways are related to the search for and obtaining of reward in addictive behavior (Becoña, 2002).

Recent studies such as that of Mac Grae et al. (2024) point out among the main findings that extroverted people tend to a greater use of social networks, as do those high in openness to experience, since they seek new forms of communication. Conscientious people tend to establish greater control over their use. Agreeable people, for their part, pursue a positive relationship avoiding conflict, while neurotic people use social networks in search of emotional support, although this may lead them to stressful situations.

1.4. Big Five y Prevención

Since McCrae and Costa established the foundations of the Big Five, its application has been very broad (De Raad, 1998; John et al., 2008; Bainbridge et al., 2022). Bainbridge et al. (2022) specifically identify five broad areas: clinical psychology, personality psychology, organizations / human resources, education, and neuroscience. González (2025), in his meta-analysis, describes the wide implementation of the Big Five in areas of prevention, specifically in:

1. Prevention of psychological disorders generated by stress, situations of anxiety such as those caused by COVID, or coping with other circumstances involving a high level of stress. Even the self-perception of psychological well-being derived from coexistence.
2. Prevention in the area of addictions, with a very broad approach that ranges from drugs or alcohol to addictions to shopping, technologies, and so on.
3. Prevention of antisocial behavior. This area also shows a wide range of applications, as there are studies that address reckless driving, the prevention of criminal behavior, and even youth bullying.

The important role of the Big Five in prevention is fully understood when realizing that personality, as measured through traits, gives us access to the affect, behaviors, cognition, and desires of individuals (Wilt and Revelle, 2015). In this sense, the wide and extensive application of the Big Five in psychological and social prevention is due to the fact that the Big Five, as a tool, allows for understanding and representing, "objectifying," the personality of individuals and, therefore, identifying cognitive, attitudinal, and behavioral patterns that are stable over time (Cervone and Winer, 2010). That is, it allows defining risk profiles. Furthermore, being based on factor analysis, these profiles are objective and scientific (Parrado, 2013). And as Pilch et al. (2021) recognize, by diagnosing the personality factors that activate risk, it is possible to implement prevention actions adjusted to individuals. The same idea is supported by Takao et al. (2009) in the conclusions of their research: "Certain personality traits may predict problematic mobile phone use. Early detection

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would make it possible to promote self-control among young people. The increase in adolescent users requires educational intervention." (Takao et al., 2009, p. 5)

Bunz (2021), specifically in her research on the relationship between the Big Five, self-perceived well-being, and the use of social networks, concludes that the results, which are presented later, are useful for mental health professionals and parents, among other figures. Educators could possibly be included as well. In addition, they consider that these findings will make it possible to launch precise information campaigns on mental health and well-being, given that the role of personality traits in these factors has been identified. In recent years, with the development of social networks and smartphones, the Big Five has also been integrated into studies that analyze people's behavior related to both.

Chittaranjan et al. (2011) assume in their research that the uses, preferences, and application habits of smartphones provide important clues about consumer psychology. For them, the advantage lies in smartphones' ability to collect a large amount of information about consumers, in addition to being devices that offer a wide range of possibilities through Apps. Their research focused on the smartphone use of 83 people over eight months. They found a wide range of results, among which it is worth noting that extroverted and highly agreeable individuals made a greater number of phone calls, and that among extroverts, the calls were longer and developed within a broader network. They also found that individuals with high openness to experience missed fewer calls but also sent fewer SMS messages. On the other hand, the use of Office apps showed higher activity among subjects with high conscientiousness as well as high neuroticism. They also found that introverts were those who used the Internet the most. Beyond the specific usage data, which are broader than those mentioned, the authors demonstrated that there are two traits, at a global level, that influence smartphone use: extraversion and conscientiousness. In addition, they showed that the results analyzed through personality traits measured with the Big Five were more reliable than those obtained by chance.

Marengo et al. (2020) have developed a meta-analysis of 33 studies, selected with important criteria to ensure homogeneity and relevance, based on previous empirical research aimed at detecting disorders (mainly addiction) in mobile phone use from the perspective of Big Five profiling. The results identify subjects with high neuroticism and low conscientiousness as the most vulnerable to developing an unhealthy relationship with mobile phones. Conversely, high conscientiousness acts as a preventive factor. They conclude that the Big Five is a useful tool for identifying patterns of risk behavior.

Balakrishnan et al. (2019) have conducted a very interesting study on Cyberbullying on Twitter, currently X, and the Big Five together with the Dark Triad. The authors identify the traits involved in cyberbullying with 96% accuracy and 95% recall, determining which traits are involved and in what role. An important innovation of this research is that it employed IBM's Watson test, a program that identifies individuals' personality within the Big Five by analyzing their linguistic expressions. Balakrishnan et al. (2019) identified three traits that generate a higher prevalence for being a bully: individuals with high extraversion, who are sociable and active and seek through cyberbullying to increase their self-perceived status; low agreeableness, who tend to despise others and to be selfish in their approach; and high neuroticism, characterized by emotional instability, impulsivity, and subjectivity. It is important to note that these results are consistent with other studies addressing the same issue.

Bunz (2021) carried out a diametrically opposite study: it focuses on the use of social networks, perceived subjective well-being, and their implications in relation to the Big Five. This research is highly comprehensive and efficient in all its aspects, both in its meta-analysis of studies and in its empirical investigation. In her meta-analysis, she develops a global framework of the relationship between each trait and the use of social networks, video games, technology, and the Internet.

1. High openness to experience is a strong predictor of Internet, social media, and video game use. Given the curiosity of this segment, it is consistent that they use these media both to gain knowledge and experiences, thus satisfying their curiosity and their need for new experiences.

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2. Conscientiousness, also in high scores, shows results that may seem contradictory but are not. It shows a high affinity with the Internet and social networks, but not with video games or leisure use. Here, following the analysis of Balakrishnan et al. (2019), it can be noted that highly conscientious individuals embrace technology strongly when it is linked to work, life organization, and efficiency, but not as much as a recreational element.
3. With extraversion, there are currently contradictory studies. Although Bunz (2021) finds a larger number of studies that state that highly extroverted individuals have a greater tendency to use social networks, some research has found no relationship.4. En la misma línea, la autora encuentra que, si bien hay estudios que orientan hacia la tesis de que la cordialidad sí favorece el uso de redes sociales y video juegos, las investigaciones son escasas, por lo que no considera que haya unos resultados concluyentes.
4. Finally, regarding neuroticism, Bunz (2021) states that the results are quite consistent. Highly neurotic men show low use of the Internet and social networks, whereas highly neurotic women show high levels of use in information seeking, overall Internet use, and social media engagement.

The empirical results of Bunz's (2021) research are very interesting because they delve not only into the use of social networks but also into their effects on perceived subjective well-being. Thus, it was found that highly extroverted and agreeable individuals use social networks extensively, but among highly agreeable individuals, this decreases the perception of well-being. Along the same lines, it was found that among highly conscientious and highly neurotic individuals, the use of social networks generated both positive and negative well-being. However, the author concludes that for emotionally unstable, highly neurotic individuals, the use of social networks has little effect, since they already start from an expectation of negative well-being. Finally, in people with high openness to experience, although they do use social networks, these can cause both well-being and frustration, without the research identifying the reason for one effect or the other.

1.5. Study Objectives

In this work, we will analyze the use of social networks based on the personality components of the Big Five model.

O1- *To identify whether there is a prevalence, based on the personality traits measured with the Big Five, of addictions or inappropriate uses of the Internet.*

O2- *To identify whether all the traits correspond to prevalences of addictions and misuse.*

O3- *To relate these personality traits and possible addictive traits to neuroanatomical variations of the brain previously described in other articles.*

2. Materials and Methods

2.1. Research Phases

Initially, the study was based on an article that offered empirical research, to which a diametrically different approach has been given. The original article carried out empirical research on exposure to advertising channels and formats according to personality traits measured with the Big Five, by González Llamas and Ortiz de Guinea Ayala (2025), published in the Revista de Ciencias de la Comunicación e Información. In that article, an analysis was conducted on a large number of advertising formats and channels; however, this new research has been limited to those digital advertising formats or channels that are susceptible to generating addiction.

It is important to emphasize that exposure to advertising can be considered a good indicator of the degree of consumption and attention given to the digital channel. The variables measured included Internet use in the form of YouTube advertisements, Instagram Stories, use of TikTok, following influencers or YouTubers, use of Spotify, overall consumption of social networks (SNS),

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consumption of digital press, advertising on Google, use of online games, games on tablets/mobile phones, and use of SMS/email.

In parallel, a literature review was conducted on addictions in the digital environment, the role of the Big Five in addiction studies in general, and, more specifically, in the digital environment, as well as a study of the psychoneurological implications of the Big Five.

2.2. Empirical Sampel

According to the reference article, the research initially carried out 500 surveys, but 8 were excluded due to low reliability in the social desirability data. The surveys were evenly distributed by gender (50%) and included participants aged 30 to 55 years.

The research was conducted through a digital panel and consisted of two questionnaires: one measuring affinity toward brands, products, and advertising channels and formats, and another being a version of the B.F.Q. (Spanish Big Five Questionnaire). Both were anonymized, and each participant was assigned a code to unify the results. Subsequently, a Pearson correlation analysis was performed using the SPSS software. A significance probability of 95% was considered, and the level of significance deemed relevant was 0.05 or less. In addition, based on the final sample of 492 participants, with a confidence level of 95% and P = Q, the survey's margin of error was 4.31%.

The empirical research received approval from the Research Ethics Committee of Universidad Rey Juan Carlos (URJC), with internal registration number: 090120240192024.

3. Results

According to the results obtained, openness to experience and extraversion are directly related to Internet consumption across all measured variables (see Tables 1 and 2). When these two traits are high, they show a strong correlation with the consumption of different types of Internet media. At low levels, they do not correlate. Conscientiousness appears as an intermediate trait in its correlations. Although a relationship is observed, it is weaker than in the previous traits. Agreeableness, both at high and low levels, as well as neuroticism, only in negative values, show low correlations.

These initial general results do allow us to affirm that the personality traits measured through the Big Five make it possible to establish different degrees of affinity, consumption, and use regarding Internet and social media proposals.

Table 1. Correlation between the personality trait "Openness to Experience" and the consumption of advertising/social networks.

	OPENNESS TO EXPERIENCE		
	Pearson Correlation	**Sig. (bilateral)**	**N**
Youtube Ads	**0,249****	0,001	491
Stories Instagram	**0,201****	0,001	469
TikTok	**0,133****	0,005	451
Influencers youtubers	**0,143****	0,002	480
Spotify	**0,186****	0,001	459
General Social Networks (SNS)	**0,217****	0,001	490
Digital Press	**0,248****	0,001	489
Advertising on Google	**0,241****	0,001	492
Online Games	**0,210****	0,001	473
Tablet/Mobile Games	**0,176****	0,001	474
SMS/E-mail	**0,225****	0,001	493

Abbreviations: Sig: significance; **p<0,01.

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Table 2. Correlation between the personality trait "Extraversion" and the consumption of advertising/social networks.

	EXTROVERSION		
	Pearson Correlation	**Sig. (bilateral)**	**N**
	0,208**	0,001	491
Youtube Ads	**0,193****	0,001	469
Stories Instagram	**0,197****	0,001	451
TikTok	**0,165****	0,001	480
Influencers youtubers	**0,183****	0,001	459
Spotify	**0,186****	0,001	490
General Social Networks (SNS)	**0,232****	0,001	489
Digital Press	**0,218****	0,001	492
Advertising on Google	**0,193****	0,001	473
Online Games	**0,169****	0,001	474
SMS/E-mail	**0,216****	0,001	493

Abbreviations: Sig: significance; **p<0,01.

3.1. Openness to Experience

Openness to Experience (Table 1), at high levels, shows a strong affinity with the Internet and social networks in all their forms. This is very logical, since the trait implies great curiosity, a liking for what is different and surprising, as well as for aesthetics. These results are consistent with other studies such as that of Bunz (2021).

High openness to experience favors avoiding normative realities; individuals with this trait adapt less to them and seek alternatives (Eck and Gebauer, 2022). In this sense, it is evident that the Internet is a great facilitator of ideas and experiences that differ from more normative realities. Moreover, it is a medium with high levels of interaction, which undoubtedly attracts this highly experiential segment. For the same reason, their affinity with games is understandable. These results are also consistent with the research of González (2024), focused on the open television market in Spain, where it is clearly observed that high openness to experience correlates with channels that are less mainstream and standard in their programming.

On the other hand, the fact that individuals with low openness to experience do not show correlations is also to be expected. This is a traditional, practical, and fundamentalist segment that most likely engages with the Internet in its most functional form (out of necessity) but prefers to devote their time to other, more conventional and straightforward media.

3.2. Extraversion

The extroverted profile is usually characterized by being friendly, sociable, and having a positive attitude. However, several studies have indicated that it may also show a tendency to assume a dominant role in social interactions. These individuals often display high levels of energy, which can result in a constant attempt to impose their point of view in different situations. This type of profile, in certain contexts, could lead to behaviors similar to those of so-called haters on social networks, due to their inclination toward confrontation and leadership in group dynamics. According to the above and the data obtained, the extroverted profile shows a strong correlation with intensive use of digital content, presenting particularly high scores in the use of social networks, digital press, and games on mobile devices or tablets. Their high energy and positive attitude make them especially prone to participating in various digital formats, as shown in Table 2. The high scores obtained in overall social media use suggest a marked inclination toward community creation and social interaction, in line with previous studies such as that of Wilt and Revelle (2025).

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3.3. Agreeableness.

Regarding agreeableness, it is more closely related to YouTube ads, the consumption of digital press, advertising on Google, and the use of SMS or email (see Table 3).

Agreeableness, in its positive form, is a trait that initially proves surprising. A limited range of digital media is observed with which it correlates, and—contrary to what might be expected—it does not appear to be particularly aligned with social networks, games, or similar platforms. These results are consistent with what Bunz (2021) points out, where theoretical assumptions suggest greater consumption, but empirical findings do not support this idea. Chittaranjan et al. (2011) identified that highly agreeable individuals, together with extroverts—the two most social segments—showed the highest number of phone calls in their study on smartphone usage habits and the Big Five. This supports the hypothesis that this is a segment that is not highly digital; it seeks sociability, yes, but a more direct, human, face-to-face kind rather than digital interaction.

Table 3. Correlation between the personality trait Agreeableness and the consumption of advertising/social networks.

	AGREEABLENESS		
	Pearson Correlation	**Sig. (bilateral)**	**N**
Youtube Ads	**0,124****	0,006	491
Stories Instagram	0,086	0,062	469
TikTok	0,049	0,298	451
Influencers youtubers	0,011	0,814	480
Spotify	0,070	0,137	459
General Social Networks (SNS)	0,079	0,082	490
Digital Press	**0,126****	0,005	489
Advertising on Google	**0,106***	0,019	492
Online Games	0,050	0,281	473
SMS/E-mail	0,052	0,261	474
Stories Instagram	**0,141****	0,002	493

3.4. Neuroticism

Neuroticism does not show great prevalence within the digital environment. However, low levels of neuroticism correlate slightly but significantly with the consumption of YouTube ads and digital press; that is, the use of these media is possibly linked to the wide capacity for choice and personalization they offer (see Table 4).

Table 4. Correlation between the personality trait "Neuroticism" and the consumption of advertising/social networks.

	NEUROTICISM		
	Pearson Correlation	**Sig. (bilateral)**	**N**
Youtube Ads	**-0,112***	0,013	491
Stories Instagram	-0,063	0,174	469
TikTok	0,030	0,528	451
Influencers youtubers	0,023	0,614	480
Spotify	-0,025	0,591	459
General Social Media	-0,046	0,305	490
Digital Press	**-0,091***	0,044	489
Advertising on Google	-0,068	0,130	492
Online Games	-0,010	0,832	473
SMS/E-mail	-0,074	0,109	474

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Stories Instagram	-0,060	0,182	493

Abbreviations: Sig: significance; *p<0,05.

Observing the table and considering the low correlation established by individuals with low neuroticism, it can be stated that neuroticism is a trait that poorly predicts consumption in the digital environment. Balakrishnan et al. (2019) identify the highly neurotic segment as potential digital haters. Anastasiei and Dospinescu (2018), on the other hand, observed that this segment tended to recommend positively on social networks those brands that exceeded their frustration expectations. In this sense, there do appear to be studies that detect highly neurotic individuals on the Internet, but only when they express extreme emotions, whether positive or negative. Given that this segment is very insecure and distrustful, it probably does use the digital environment, but it is not the one that provides them with greater subjective well-being.

3.5. Conscientiousness

In relation to the profile of conscientious people, this is characterized by a high capacity for organization, self-discipline and a strong sense of duty. These are individuals who tend to generate trust in the different contexts in which they operate, both in the personal and professional spheres. Likewise, they show high levels of self-control and strong self-demand, which translates into sustained commitment to the tasks they undertake as well as to those assigned to them.

Table 5. Correlation between the personality trait "Conscientiousness" and the consumption of advertising/social networks.

	CONSCIENTIOUSNESS		
	Pearson Correlation	**Sig. (bilateral)**	**N**
Youtube Ads	**0,184****	0,001	491
Stories Instagram	**0,110***	0,018	469
TikTok	0,047	0,316	451
Influencers youtubers	0,017	0,716	480
Spotify	**0,104***	0,026	459
General Social Media	**0,091***	0,044	490
Digital Press	**0,181****	0,001	489
Advertising on Google	**0,153****	0,001	492
Online Games	0,056	0,228	473
SMS/E-mail	0,062	0,181	474
Stories Instagram	**0,205****	0,001	493

Abbreviations: Sig: significance; *p<0,05; **p<0,01.

According to the data presented in the table, a particularly high correlation can be observed with the use of email and SMS, which is consistent with the characteristics of the conscientious profile, given its high level of commitment to work-related tasks. This profile also shows a high correlation with various digital formats, which reinforces the hypothesis that conscientious people tend to interact with media in a selective and functional manner. Specifically, a positive correlation is observed with digital press and advertising on Google, which could be interpreted as an interest in informative and utilitarian content, aligned with their need to stay informed and to find usefulness for their tasks. Likewise, although to a lesser extent, slight correlations are also identified with the general use of social networks and the Spotify platform, suggesting a moderate relationship with the consumption of entertainment content, possibly oriented toward moments of personal organization or time management rather than impulsive leisure. This would be consistent with the studies carried out by Mac Grae et al. (2024).

Continuing with the analysis of the table, the results are consistent with what was indicated by Balakrishnan et al. (2019), since the conscientious profile obtains very low scores regarding online

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games and games on mobile devices. This trend can be explained by the limited connection of this type of content with work-related or productive activities, which makes it less aligned with the interests and habits of this profile.

4. Discussion

The results obtained in this study show that high levels of openness to experience (Table 1) and extraversion (Table 2) are significantly related to all measured variables, supporting the findings of other authors (Bunz, 2021; Eck and Gebauer, 2022; González, 2024; Wilt and Revelle, 2025) and consistent with the curious profile, attraction to novelty, and tendency toward social interaction characteristic of these traits. However, the remaining personality traits are related to the measured variables in different ways.

Thus, agreeable profiles in our sample prefer to interact with YouTube ads, digital press, Google advertising, or SMS and email (see Table 3). These results are consistent with those of Chittaranjan et al. (2011), suggesting that these profiles prefer to engage with a closer or more familiar recipient rather than with more impersonal networks such as TikTok. From a neuroanatomical perspective, our results also align with those of Ricelli et al. (2014), who emphasize the importance of brain structures involved in facial recognition in agreeable behavior.

Regarding neuroticism, in our study population, low levels—that is, high values of emotional stability—are associated with the consumption of YouTube ads and digital press, as opposed to other variables such as Google advertising or the influence of YouTubers (Table 4). Although our results did not show statistically significant relationships between high levels of neuroticism and social networks, other studies do associate this personality trait with addiction to certain chemical substances (Pedrero Pérez, 2017), shopping addiction (Mikolajczak-Degrauwe et al., 2012), or excessive mobile phone use (Takao et al., 2009). This difference could be due to behavioral differences related to age or gender. Concerning age, some studies argue that the prefrontal cortex, which is involved in emotional regulation and impulse control, does not fully mature until around 25–30 years of age (Arain et al., 2013). Although our sample includes individuals aged 30 to 55, the findings from previous studies could suggest that greater age correlates with increased maturity of this brain structure. Regarding gender, Bunz (2021) also found differences: while men with high levels of neuroticism show low levels of digital consumption, highly neurotic women use social networks and the Internet extensively, particularly as sources of information. In fact, neuroticism has been linked to left–right microstructural asymmetry of frontolimbic fiber tracts in adolescents, with opposite effects in males and females (Madsen et al., 2018).

With respect to conscientiousness, differences have been found in the thickness and area of the prefrontal cortex in individuals with high levels of this trait—a structure involved in planning, impulse control, and decision-making (Lewis et al., 2018; Nostro et al., 2017; Ricelli et al., 2017). These results are consistent with ours and with those of other authors (Mac Grae et al., 2024), showing that preferences in these cases include the use of email and SMS, digital press, and Google advertising, reflecting their high level of commitment to work-related tasks, productivity, and self-demand, as they rely on more reliable sources of information. As for leisure consumption, individuals with high levels of conscientiousness prefer to use general social networks or Spotify over online or mobile gaming, also in line with Balakrishnan et al. (2019).

In conclusion, it can be stated that high conscientiousness is a protective factor against digital abuse, as suggested by Marengo et al. (2020). The same applies to high agreeableness, due to its greater need for personal contact. High neuroticism plays an ambivalent role, as it generates both pleasurable and stressful situations, with the latter acting as a potential deterrent. High openness to experience creates numerous affinities within digital options, as also found by Bunz (2021), but according to that author, this occurs because of the need to amplify experiences and knowledge, which may make these individuals more dispersed—hence, addiction patterns are not clearly detected despite their strong affinities. Finally, high extraversion, in addition to showing a wide range of affinities, appears to be the trait most vulnerable to addiction or excessive use of social networks,

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digital games, and online leisure, as well as the Internet in general. It is a highly energetic and sociable segment. Mac Grae et al. (2024) note that these individuals have a greater need for communication, and Balakrishnan et al. (2019) observe that this group has a high prevalence of engaging in bullying behaviors as a means of increasing their self-perceived status. In this regard, the abuse of digital options appears to be closely linked to the boost in self-esteem they derive from such use—even if it is inappropriate. Social networks and digital games are environments that foster interaction and self-expression, which are essential needs for extroverts, making them ideal contexts for the development of addictive engagement.

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