

DOI: <https://doi.org/10.63332/joph.v5i6.2392>

## Social Media Addiction as a Determining Factor in Aggressive Behavior Among Adolescents

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### Abstract

*Background:* Social media addiction has become a major phenomenon in modern life, especially among young people. With the rise of platforms such as Facebook, Instagram, Twitter, and TikTok, communication and social interaction have been radically transformed. Furthermore, a possible link between social media addiction and aggression tendencies has been observed. *Aim:* This study aims to examine the relationship between social media addiction and aggression in young individuals. The research employed a descriptive-correlational design, suitable for exploring the characteristics of the variables without interfering with the natural processes of the data. *Methodology:* Statistical analyses, including exploratory and confirmatory factor analyses, were conducted to validate the proposed theoretical models. Data were also assessed for skewness, kurtosis, and multicollinearity between items. The sample comprised 772 participants from a public higher education institution, of whom 309 were male (40.03%) and 463 female (59.97%). A non-probabilistic purposive sampling method was used, which allowed for an in-depth examination of the phenomenon within a specific group. Two validated questionnaires were used for data collection: the Aggression Questionnaire (AQ) developed by Buss and Perry (1992) and a Social Media Addiction Questionnaire. *Results:* revealed a significant association between social media addiction and aggressive behaviours. As addiction levels increased, a corresponding increase in aggressive behaviours was observed, suggesting that dependence on these platforms may amplify aggression. *Single Contribution:* These findings shall provide insight into how social media addiction is interrelated with aggression and at the same time the emergence in relation to other indicators that could become stronger and more relevant clues in current aggressive tendencies, thereby allowing for further theoretical knowledge. *Recommendations:* Future studies could investigate the influence of demographic factors (e.g., age, gender, socio-economic background) on the relationship between addiction and aggression.

**Keywords:** Social Media, Aggression, Addiction, Dependence, Adolescents.

### Introduction

Over the last decade, social media has radically transformed how people communicate, interact and consume information. Platforms such as Facebook, Instagram, Twitter, and TikTok have become deeply integrated into everyday life, offering unique opportunities for connection and entertainment.

Compulsive and constant use and dependence on different digital platforms are two characteristic aspects of addiction to social media, which has become one of the phenomena currently under study. According to some studies, dependence on the use of social media harms the mental health of individuals (Regalado Chamorro et al., 2022). Dependence on the use of

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social media can affect daily activities, affecting academic and professional performance, as well as interpersonal relationships.

Similarly, the excessive use of social media has given rise to a contemporary social problem, especially among young people. Although the various platforms bring benefits to society, there are still problems related to addiction and hostile behaviour. The research explains the associations between aggression and social media addiction and underpins them with a theoretical framework.

Different hypotheses can be used to explain and understand social media addiction in the context of psychology and neuroscience. Firstly, according to the dopamine-reward theory, the theory states that the neurotransmitter dopamine is vital in the reward process that takes place in the brain. Thus, this neurotransmitter is usually released when the subject receives a type of reaction on the platform through a like or even a comment, giving rise to a type of pleasurable reinforcement.

Equally important, the social reinforcement model, on the other hand, involves positive reinforcement of social approval such as like and comment notifications, which can lead to addictive behaviours similar to pathological gambling (Griffiths, 2013).

In contrast, the theory of self-esteem and body image, according to the study by Andreassen et al. (2016), mentions that low self-esteem and the need for approval are predictive variables in social media addictions, implying that subjects turn to digital platforms to feel a sense of approval from others, which is reinforced through feedback from other people.

### **Theory of Aggression in Social Media**

Addiction to digital platforms (social media) and aggressive behaviours maintain a relationship between the variables, which is explained by different psychological theories. According to Suler (2004) with the theory of online disinhibition, he highlights an anonymous and invisible posture offered by the platforms, where people have the freedom to express their opinions or ideals on social media without exposing their identities, the excessive use of the platforms inhibits social relations, causing an increase in aggressive behaviours in the subjects.

Furthermore, Bandura states in social learning theory (1977), which emphasises that subjects learn behaviours from other people by observing and imitating behaviours in different situations. In the situation of social media, this means that through continuous exposure to aggressive content on digital platforms, people may adopt to normalise those inappropriate behaviours and thus replicate them in their environment.

Likewise, Dollard et al. (1939) mention that poor frustration management will lead to aggressive scenarios in individuals. Excessive use of social networks predisposes to feelings of frustration due to the lack of constructive connections and the different challenges that virtuality offers today, such as cyberbullying, social comparison, leading to disruptive behaviours. All these behaviours help to discern the factors that intervene and trigger aggressiveness in social networks.

### **Relationship Between Social Media Addiction and Aggression**

People who obsessively use social media may reach a point of frustration and thus act aggressively as a product of these expected user expectations (Dewall et al., 2011).

Similarly, by allowing users to express their emotions instantly and without apparent

repercussions, online disinhibition can encourage aggressive behaviour and promote addictive behaviours (Lapidot-Lefler and Barak, 2012).

According to social learning theory, the use of social media can expose users to more violent behaviour, which in turn fosters aggression and addictive behaviours (Gentile et al., 2011).

The excessive and obsessive use of social media platforms that disrupts daily routines and interpersonal interactions is known as social media addiction. The persistent urge to connect and obtain social information is what defines this phenomenon, and can cause symptoms such as anxiety and despair comparable to other types of addiction.

Individuals who obsessively use social networks tend to experience frustration and aggressive behaviour in situations where their expectations are not met, such as when they receive non-positive feedback (Dewall et al., 2011).

Similarly, online disinhibition, where people can express emotions immediately without any consequences, could generate or promote aggressive and addictive behaviour in users (Lapidot-Lefler and Barak, 2012),

In this study problem, it can be explained from the point of view of social learning theory, the interaction of social networking platforms can expose people to violent or aggressive and addictive behaviours (Gentile et al., 2011).

Excessive and obsessive use of social media, which disrupts people's different daily activities, in turn inhibiting the interaction of social relationships, is called social media addiction. This type of problem is characterised by obsessive interaction on digital platforms (social networks), and constant use of interacting and connecting, which generates symptoms of despair (anxiety) comparable to other types of addictions.

Taking into consideration this background and based on the context in which we analyse the addition to social networks as a factor in aggressiveness in adolescents, questions arise such as: Is there a relationship between the addictive use of social media and the development of aggressiveness? Is there a specific type of aggressiveness due to the addictive use of social networks? How do aggressive behaviours manifest themselves in adolescents due to the use of social networks? To answer these questions, the following hypotheses were put forward:

H1. The relationship between the addictive use of social networks develops aggressiveness. In the research of some authors, it can be seen that the excessive use of social media can generate a tendency to aggressive behaviour, which suggests that it is possible that there is a positive relationship between these two variables in the context of the study.

H2. Aggression presents specific types of behaviours due to the addictive use of social media. According to what has been found in the literature Haga clic o pulse aquí para escribir texto., it is highlighted that some of the expressions and types of aggression that can occur online are equivalent to a face-to-face discussion. For this reason, the study highlights that verbal and virtual aggression can generate direct cooling, these references allow us to think that in this research similar results can be obtained where a type or form of aggression will be defined.

H3. Aggressive behaviours in adolescents are caused by the use of social media. As suggested by, he details that as addiction to social media develops, mental well-being decreases and therefore they can present maladaptive characteristics on an emotional and social level, which negatively participates in the mental health of the person, hypothesising that through the results

of this study, aggressive behaviours are mostly caused by the excessive use of social networks.

## **Materials and Methods**

### **Methodology**

In this research study, a quantitative, descriptive-correlational, cross-sectional, non-experimental design approach was used (Cohen et al., 2018), which seeks to analyse characteristics of the study phenomenon without any intention to manipulate the variables. The selection of the research design is characterised by the objective of quantifying the data, detailing and exploring the associations between variables to understand the phenomena and patterns observed (Fraenkel et al., 2011), for which two validated instruments were applied to collect the data, thus guaranteeing the reliability and validity of the measurements (Tabachnick & Fidell, 2018).

### **Participants**

To determine the study sample, some inclusion and exclusion criteria were used to establish the characteristics of the study sample. A sample of 772 participants was obtained.

In accordance with the characteristics of the study, non-probability convenience sampling was used to select a sample of 772 HEI participants, of whom 59.97% (463) were female, while 40.03% (309) were male.

### **Instruments**

#### **AQ Questionnaire (Aggression Questionnaire)**

The Aggression Questionnaire (AQ) is an instrument that assesses aggression covering behavioural, cognitive, and emotional aspects in children and adults and is characterised by being reliable and valid, applied for clinical, and research evaluation. This questionnaire was developed by Buss & Perry (1992), and composed of 40 items that are consolidated into 4 dimensions: hostility, anger, physical aggression, and verbal aggression (Buss & Perry, 1992). Each of the items is scored on a 5-point Likert scale (strongly disagree; to strongly agree) (López del Pino et al., 2009).

#### **Social Media Addiction Questionnaire**

Developed by the ARS, also known as the "Social Network Addiction Questionnaire" (Cuestionario de Adicción a Redes Sociales), as a psychometric instrument to assess social media dependence in various populations, particularly in adolescents and young adults. The 24 items of this instrument, which are divided into three basic categories measuring social media preoccupation, are composed of 23 direct items and 1 reverse item. Each question has a 5-point Likert scale with "never" to "always" as starting points.

The main objective is to find patterns of behaviour that may hinder a person's daily activities and mental health, as well as to measure the degree to which social network management is considered problematic or addictive.

**Results**

Variables	Factors	Cronbach's alpha ( $\alpha$ )
Aggression	Physical aggression	0.903
	Verbal aggression	0.882
	Anger	0.757
	Hostility	0.852
Addiction to social media	OBSM	0.913
	LCSM	0.888
	EUSM	0.852

Table 1: Internal Consistency of the Aggression Instrument

*Note: OBSM: Obsession with social media, LCSM: Lack of personal control over social media, EUSM: Excessive use of social media*

Similarly, similarity values obtained using Cronbach's alpha coefficient for the constructs of the instrument measuring social media addiction ranged from 0.814 to 0.904, covering the specific factors of 'social media obsession', 'lack of personal control over social media use' and 'excessive use of social media'.

**Data Adequacy Tests**

Before proceeding to the confirmatory factor analysis (CFA), data adequacy tests were conducted for each instrument to ensure that the data were adequate for the factor analysis. First, the Kaiser-Meyer-Olkin index (KMO) was calculated to assess the adequacy of the sample. The KMO value obtained was for the aggression questionnaire and for the social media addiction questionnaire as indicated in Table 2, these results indicate a high adequacy of the data for factor analysis. Therefore, it is established that the proportion of variance that could be attributed to common factors is significant, which justifies the application of CFA.

		Aggression	Social Media Addiction
<b>Kaiser-Meyer-Olkin measure of sampling adequacy.</b>		0.95	0.97
<b>Bartlett's test of sphericity</b>	Bartlett's K-square	365.24	78.572
	Df	39	23
	P	p < 0.001	p < 0.001

Table 2: KMO and Bartlett's Test for Aggression and Social Network Addiction

In addition, Bartlett's test of sphericity was performed to assess whether the correlations between the items were large enough to carry out the analysis. The test yielded significant results (Aggression) and (Addiction), indicating that the correlation matrix of the data sets is not an identity matrix. In other words, there are significant correlations between the items, which is a fundamental requirement for factor analysis.

### Loading factor for the Aggression Questionnaire

Factor loadings are the contributions of items to the particular latent constructs being measured; they represent correlations between the items and the underlying factors with which they are associated. A high factor loading represents that the item is a good indicator of the aggression construct, whereas a low factor loading might suggest that the item does not relate sufficiently to the underlying dimension.

#### Aggression Questionnaire

For **Physical Aggression (PA)**, the items are good indicators of the construct, although with different levels of contribution. Similarly, for **Verbal Aggression (VA)**, the factor loadings indicate moderate variability in the relationship of the items to the latent variable.

In the **Anger (ANG)** factor, the factor loadings range from 0.520 (P23) to 0.752 (P32), reflecting that some items are more representative of the construct than others. Finally, the latent variable **Hostility (HSTL)** shows loading factors ranging from 0.660 (P28) to 0.857 (P26), with generally high values, suggesting that the items are strongly related to the hostility construct.

All observed factor loadings were positioned above 0.50 in their inter-item relationships. This allows for reinforcing the internal consistency of the constructs measured, ensuring that each dimension of aggression is well measured by its related items. High factor loadings indicate a well-supported factor structure, with items contributing substantially to the latent variable.

Factor	Item	Item Charge
Physical aggression	P1	0.604
	P5	0.719
	P9	0.626
	P13	0.708
	P14	0.682
	P17	0.679
	P21	0.772
	P22	0.831
	P27	0.733
	P29	0.699
	P30	0.762
	P34	0.736
	P37	0.711
Verbal aggression	P6	0.571
	P4	0.533
	P8	0.538
	P11	0.696
	P12	0.611
	P18	0.725
	P19	0.739
P25	0.706	

	P31	0.731
	P33	0.673
	P35	0.762
	P40	0.710
Anger	P2	0.525
	P7	0.640
	P10	0.745
	P16	0.656
	P23	0.520
	P32	0.752
Hostility	P20	0.743
	P26	0.857
	P28	0.660
	P36	0.808
	P39	0.828

Table 3: Physical Aggression Item Loadings

### Social Media Addiction Questionnaire

Factor loadings were established across three core latent variables: obsession with social media (OBSM), lack of control over social media use (LCSM), and excessive use of social media (EUSM). These latent constructs represent different dimensions of addictive behaviour towards social media, each of which is measured by a set of items that help to capture these behavioural characteristics well.

The factor loadings for the perceived Obsession with Social Media items showed a variance between 0.744 (P22) and 0.837 (P7). High and consistent values indicate that the items are strong indicators of the obsession construct. A loading factor close to 0.80, as observed for several items, suggests a strong correlation between the items and the latent construct, meaning that the selected items effectively capture obsessive feelings and thoughts related to social media use.

The factor loadings of the construct Lack of control over social media show greater variability, ranging from 0.607 (P11) to 0.751 (P4). Although lower values, such as P11, could indicate a moderate correlation. This range of factor loadings reflects that participant may experience varying levels of difficulty in controlling their social media use, which captures a key dimension of addictive behaviour.

Similarly, the construct determined by Excessive use of social media demonstrates through factor loadings a strong relationship between the items and the latent construct reflecting behaviours that are likely to be perceived as problematic or excessive by participants. This construct captures the frequency and intensity of social media use, where high factor loadings reinforce the idea that the questionnaire is effectively measuring this critical dimension of addictive behaviour.

Factor	Item	Item Charge
Obsession with social media	P2	0.753
	P3	0.757

	P5	0.765
	P6	0.818
	P7	0.837
	P15	0.808
	P19	0.780
	P22	0.744
	P23	0.780
Lack of control over the use of social networks	P4	0.753
	P11	0.757
	P12	0.765
	P14	0.818
	P20	0.837
Excessive use of social media	P24	0.808
	P1	0.732
	P8	0.779
	P9	0.751
	P10	0.781
	P16	0.822
	P17	0.847

Table 4. Loads of Social Media Obsession Items

### **Metrics and goodness-of-fit indices of the questionnaire on aggression and addiction to social media.**

To assess the fit of the models, several standard fit indices were calculated, the results of which are presented below in Table 6. In the comparative fit index (CFI) they obtained a value of 0.981 and 0.997, suggesting that the proposed models adequately represent the observed data, significantly outperforming the null model.

Similarly, the Tucker-Lewis index (TLI) and the non-normalised fit index (NNFI) also obtained values of 0.979 and 0.997. Both indices penalise model complexity, meaning that, in addition to fitting the data well, the models are not unnecessarily complex. These values, which exceed the commonly accepted threshold of 0.95, reinforce the conclusion that the model is parsimonious and efficient in capturing the underlying relationships in the data.

	<b>AM</b>	<b>ARS</b>
<b>Indices</b>	<b>Value</b>	<b>Value</b>
Comparative Fit Index (CFI)	0.997	0.981
Tucker-Lewis Index (TLI)	0.997	0.979
Bentler-Bonett Non-Normed Fit Index (NNFI)	0.997	0.979
Bentler-Bonett standardised fit index (NFI)	0.994	0.974
Parsimony-normalised fit index (PNFI)	0.892	0.909
Bollen Relative Fit Index (RFI)	0.993	0.972
Root mean square error of approximation (RMSEA)	0.030	0.066

	AM	ARS
<b>Indices</b>	<b>Value</b>	<b>Value</b>
Normalised root mean squared error of approximation (RMSEA)	0.043	0.061

Table 5: Goodness-Of-Fit Indices of the Aggression Model

**Note:** Goodness-of-fit indices of the models: AM (Aggression Model) and ARS (Addiction to social media).

The normalised fit index (NFI) has a value for the questionnaires of 0.974 and 0.994, indicating a good model fit compared to the null hypothesis, which further confirms the robustness of the fitted models. Although it is below the parsimony-normalised fit index (PNFI = 0.892), it is close to 0.90; therefore, it can be said that the model achieves a viable compromise between fit and simplicity.

As for the error measures, the root mean square error of approximation (RMSEA) was adequate, which is indicative of an excellent fit. Finally, the standardised root mean square error (SRMR) suggests that the discrepancies between the observed and model-predicted correlations are minimal, which reinforces the conclusion that the model fits the observed data well.

### Relationships of Aggression Constructs to Social Media Addiction Constructs

The co-inertia analysis conducted between the aggression and social media addiction questionnaires demonstrates the relationship between these two psychological aspects, allowing us to observe how the latent dimensions of both data sets are aligned. The eigenvalues obtained from the co-inertia analysis were remarkably high for the first axis (Ax1 = 12,260.725), representing 99.61% of the total projected inertia.

Axes	Own values
Ax1	12,257.25
Ax2	48.12
Ax3	0.0858

Table 6: Own Values

This indicates that most of the shared variance between the aggression and social media addiction questionnaires is captured by this first axis. The next two axes (Axis2 and Axis3) contributed marginally to the projected variance, with the second axis capturing an additional 0.391% and the third axis only 0.0006971%, which is evidence that the first axis is predominant in the relationship between these two variables.

Co-inertia **Table 7** shows how the constructs of social media addiction align with those of aggression. For example, obsession with social media (OBSM) has a high correlation with physical aggression (PA), verbal aggression (VA), anger (ANG), and hostility (HSTL), particularly with PA (54.27) and VA (49.21). This strong relationship suggests that social media obsession may be related to both physical and verbal aggressive behaviours. Similarly, lack of control in social media use (LCSM) shows prominent relationships with PA (30.52) and VA (32.04), implying that the inability to control social media use could be associated with an increased propensity for aggression.

**Table 7** shows the individual inertia of the data set corresponding to aggression and social media addiction, as well as their combined co-inertia. The first axis (Axis1) denotes the highest co-inertia (110.71), reinforcing the criterion that the dimensions of the two questionnaires are strongly correlated on this axis.

The correlation observed in **Table 7** is 0.6649 on the first axis (Ax1) that is measured but which establishes a significant relationship between the dimensions of aggression and social media addiction on this axis. However, the correlation decreases drastically on Ax2 and Ax3, indicating that these axes do not contribute significantly to the relationship between the datasets.

<b>Addiction Dimension</b>	<b>Physical aggression</b>	<b>Verbal aggression</b>	<b>Anger</b>	<b>Hostility</b>
Obsession with social media	54.27	49.21	19.12	20.04
Lack of control over the use of social networks	30.52	32.04	14.72	12.32
Excessive use of social media	37.37	42.31	20.67	15.16
<b>Decomposition of Inertia and Co-inertia</b>				
<b>Axes</b>	<b>Inertia X</b>	<b>Inertia AND</b>	<b>Co-inertia</b>	
<b>Ax1</b>	196.45	141.15	110.71	
<b>Ax2</b>	223.51	152.19	6.93	
<b>Ax3</b>	236.01	157.23	0.29	
<b>Correlation and decomposition of inertia</b>				
<b>Axes</b>	<b>Correlation</b>	<b>Decomposition of inertia</b>		
<b>Ax1</b>	0.6649	99.61%		
<b>Ax2</b>	0.4012	0.391%		
<b>Ax3</b>	0.0369	0.0007%		

Table 7: Cross-Co-Inertia Between Constructs, Decomposition of Inertia and Co-Inertia, And Correlation and Inertia Decomposition.

Visualisation through **Figure 1** defines that the **Obsession with Social Media (OSM)** construct has a strong relationship with **Physical Aggression (PA)** and **Verbal Aggression (VA)**. This correlation could imply that people who show high levels of Social Media Obsession may also show tendencies towards aggression, both physical and verbal.

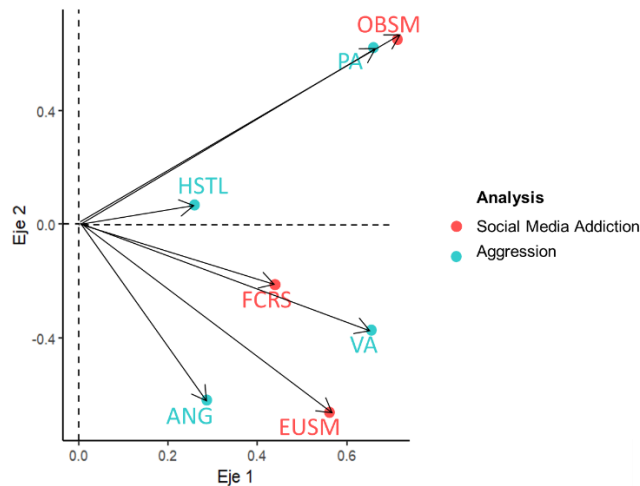


Figure 1: Construct Co-inertia Biplot

**Note:** *OBSM* (Obsession), *HSTL* (Hostility), *FCRS* (Lack of Control in Social Media Use), *VA* (Verbal Aggression), *PA* (Physical Aggression), *ANG* (Anger), *Excessive Use of Social Media (EUSM)*.

Hostility has a less direct relationship with social network addiction. Similarly, Anger (ANG) and Excessive Use of Social Media (EUSM) have been projected in almost opposite directions on the first axis, indicating a negative relationship between these dimensions.

On the other hand, Lack of Control in Social Media Use (FCRS) shows a more guarded relationship with aggression, which contributes to the suggestion that difficulty in regulating social media use may be related to a lower manifestation of hostility and aggression. Taken together, these results contrast that social media addiction and aggression are not only interrelated but that certain aspects of addiction, such as obsession, may be stronger indicators of aggressive tendencies.

## Discussions of the Findings

The technological and internet revolution has significantly improved global access to information and facilitated seamless communication between people across local, national, and international borders, whether with friends, family, or others. This connectivity is mainly achieved through popular social media platforms such as Facebook, X (formerly Twitter), Instagram, TikTok, and others, which people of all age groups widely adopt. However, because of its ease and benefits, it has also brought challenges to society and to each individual who uses them, such as social media addiction in which perceptions of reality are generated or modified affecting well-being, interpersonal relationships, behaviour, productivity whether academic or work-related (Wadsley & Ihssen, 2022).

This study indicates that exposure to social media maintains an association between the aforementioned variables (addiction to social media and aggressiveness), which could indicate a higher level of social media addiction and a higher level of aggressive behaviours (Zainab et al., 2023).

In this case, it was important to assess the reliability and validity of the instruments to support

the factor structure of the instruments used in the study. Thus, the internal consistency was verified using Cronbach's alpha of the Aggression Questionnaire (AQ), designed by the authors Buss & Perry (1992), and the Social Media Addiction Questionnaire established by Escurra Mayaute & Salas Blas (2014).

Subsequently, the validity of the models was assessed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA); for their implementation, tests of adequacy such as the KMO index and Bartlett's test of sphericity were carried out, the purpose of which was to guarantee the continuity of the factor analyses. The results obtained in the analyses (AFE and AFC) were very good, showing adequate fit indices such as CFI, TLI, RMSEA, NNFI, SRMR, and PNFI.

## **Conclusion and Recommendations**

### **Conclusions**

Social media addiction and the tendency towards aggression are interrelated phenomena that pose significant challenges to mental health and social well-being. Over-reliance on these platforms not only interferes with daily activities and interpersonal relationships but can also exacerbate aggressive behaviours, especially in an environment where anonymity and lack of immediate consequences facilitate disinhibition.

Various theories, such as reward and dopamine theory, online disinhibition theory, and social learning theory, provide a comprehensive framework for understanding how and why excessive use of social networks can lead to increased aggression. Constant exposure to positive reinforcement stimuli, the search for social validation, and the imitation of observed behaviours contribute to a cycle of addiction and aggression that can be difficult to break.

Parents, educators, and policy-makers need to recognise these problems and take proactive steps to mitigate them. This could include promoting balanced and conscientious use of social media, enforcing strict anti-cyberbullying policies, and educating about responsible online behaviour.

### **Recommendations**

The following research routes are recommended: 1) extend the research to a larger number of students taking into consideration other regions of the country, to explore antecedents with moderating variables such as age, gender, and socio-economic factors, among others; 2) address studies concerning variables with obsessive behaviours, covering the specific factors of obsession with social media, lack of personal control in the use of social media and excessive use of social media; and 3) conduct a comparative analysis between adolescents from public and private institutions to determine the differences.

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