PSYCHOLOGICAL DISORDERS IN COLLEGE STUDENTS CAUSED BY FACEBOOK

TRANSTORNOS PSICOLÓGICOS EM UNIVERSITÁRIOS CAUSADOS PELO FACEBOOK

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Abstract
The authors ought to investigate the influence Facebook has on lives of young college students in social interaction and the relationships with the development of psychological disorders. We conducted a survey with 376 respondents and analyzed data through exploratory factor analysis and multiple linear regression. In the analysis of the results, we performed a cross analysis of variables for the descriptive part, and three multivariate phases. The findings pointed out that Facebook may worsen symptoms of stress, depression, and anxiety in individuals. This research contributes to the development of a psychometric analysis with two scales adapted to the psychological disorders.
Keywords: Psychological Disorders. College Students. Social Interaction. Facebook.

Resumo
Os autores buscaram investigar a influência que o Facebook tem na vida dos jovens universitários na interação social, e a relação com o desenvolvimento de transtornos psicológicos. Realizamos um levantamento com 376 respondentes e analisamos os dados mediante análise fatorial exploratória e regressão linear múltipla. A análise dos resultados se deus com o cruzamento de variáveis para a parte descritiva e três fases multivariadas. Os resultados apontaram que o Facebook pode piorar sintomas com stress, depressão e ansiedade. Esta pesquisa contribui para com o desenvolvimento de uma análise psicométrica com duas escalas adaptadas aos transtornos psicológicos evidenciados na literatura.
Palavras-chave: Transtornos Psicológicos. Estudantes Universitários. Interação Social. Facebook.

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Introduction

Studies show that Facebook strengthens user's social connectivity by allowing individuals to increase their social connections, as the platform provides the opportunity to establish social connections between peers, professionals and students, which broadens social circles (Lewis et al., 2008; West et al., 2009, Lin & Lu, 2011; Anderson et al., 2012; Sun et al., 2017; Piteo & Ward, 2020; Azhari et al., 2022).

With the changes taking place in Information and Communication Technologies (ICTs), relationship forms have also changed. Despite the numerous advantages of theses technological advances, there are also unfavorable ones that often result in aggressive behavior in virtual environments. Previous studies have identified that some personality traits are related to the behavior of using virtual social media (Amichai-Hamburguer & Vinitzky, 2010), especially Facebook (Kuo & Tang, 2014; Brailovskaia & Margral, 2016).

The frequency of using Facebook is associated with personality traits and the user's psychological state. Previous studies indicate that there is a relationship between the frequency of using the platform and the main psychological disorders evidenced in the literature: stress, depression, anxiety and social anxiety (Kalpidou et al., 2011; Davila et al., 2012; Steers et al., 2014; Van der Aa et al., 2009; Jelenchick et al., 2013; Brailovskaia & Margral, 2016).

Facebook has become one of the primary communication tools for college students. In the Status of Mind study, conducted by the Royal Society of Public Health (RSPH) and the University of Cambridge in 2017, results showed that 91% of young people aged between 16 and 24 years use the internet to browse social networks, while the rates of anxiety and depression in this group have increased by 70% in the past 25 years. Therefore, the results identified that social networks affect the mental health of these young people and that this is due to the increased levels of anxiety and social anxiety generated by the comparisons these users make between their lives and what they see in the profiles of the people they follow.

The World Health Organization (WHO), in 2018, indicated that in Brazil, 5.8% of the population (equivalent to 11.5 million people) suffered from depression linked to mental illnesses, based on excessive media consumption, which is higher than the world average of 4.4% (322 million people). Given the relevance of this social problem, the objective of this research is to understand the influence of Facebook on the lives of young university students in social interaction and, consequently, its relationship with the development of psychological disorders, such as stress, depression, anxiety and social anxiety.

This research contributes to the development of a psychometric analysis with two scales adapted to the psychological disorders evidenced in the literature. For Stress, Depression and Anxiety, the Depression Anxiety Stress Scale (DASS) was used Lovibond and Lovibond (1995) adapted and tested by Bottesi et al. (2015), Wang et al. (2016) and Peris et al. (2023), and for Social Anxiety, Social Anxiety Scale for Children - Revised (SASC-R) by Martins et al. (2014).

Psychological Disorders and Social Media

Virtual social interaction can be defined as the social relationship between users, individually or in groups, on online social networks. The network allows contacts that provide different information; determined by an interest that contributes to the construction and direction of society (Brailovskaia & Bierhoff, 2016; Azhari et al., 2022).

Psychological disorders are evident when using an electronic device to access social networks, which generates several affective responses that are still unknown (Bozionelos, 2001; King et al., 2002). Below are listed the main psychological disorders related to the social network Facebook found in the

literature.

Stress is a process that occurs when an individual evaluates situational demands as exceeding available resources. Stress can also be identified in periods of tension and increased uncertainty (Murray, 2010; Ayyagari et al., 2011). Stress is common among university students, with about a third of those negatively affected in their academic performance; also associated with headache or worsening of depression symptoms (Yang et al., 2010). The relationship between using Facebook and stress is still controversial. It is possible that using Facebook worsens stress, as students are unable to complete necessary tasks or take care of their health due to long periods of using the social network (Sanford et al., 2023). However, some studies indicate that using Facebook can be beneficial in reducing stress, since it allows for the interaction of other people's social network (Moreno et al., 2014).

The concept of depression, with a sense of discouragement, is based on Kraepelin's premise of psychological suffering, such as the cognitive model. In this model, depression can be based on a cognitive triad, functional cognitive schemas and cognitive distortions. The cognitive triad is formed by the patient's persistent pessimistic view of oneself, the world and the future. Cognitive distortions are distortions in the perception and processing of information, leading to the learning of reality to adapt it to pre-established negative systems (Davila et al., 2012).

Anxiety is associated with characteristics of human behavior, such as flexibility in solving problems, emotions and motivation. Thus, anxiety is the "security standard" developed in a threatening situation, generating tension in the individual. Socially anxious individuals are predominantly concerned with negative evaluation from others (Mansell et al., 1999).

Anxiety is also directly linked to the possibility of success. If this possibility is small, the greater the anxiety. One of the factors that enhance the effects that influence such probability is the degree of uncertainty of the occurrence. Therefore, the greater the uncertainty, the greater the people's anxiety to achieve their goals (Wooten, 2000; Peris et al., 2023).

In this case, a negative emotional state is generated, which, if focused on the use of computers or smartphones, impacts access, learning, productivity, social relationships and the well-being of the user. As computational anxiety increases, the user becomes suspicious of their abilities and this ends up weakening the attempt at effective use (Saadé & Kira, 2009; Wilfong, 2006; Thatcher & Perrewe, 2002).

Social anxiety is characterized by the emotional discomfort associated with the awareness of the perspective of other people in relation to themselves. That is, social anxiety is the degree of discomfort that a person feels when in the presence of others. Thus, there are "antisocial" people who often have a high degree of social anxiety, preferring to avoid exposure to public situations (High & Caplan, 2009; Nguyen et al., 2012).

The disclosure of personal and intimate information about oneself can contribute to feelings of intimacy with friends. People with high social anxiety seek to avoid negative social outcomes and can adopt self-protective behaviors, seeking to avoid disapproval (Park et al., 2011; Voncken & Dijk, 2013).

Other methods of communication with people (via the Internet) would be explored as a potential tool for individuals with social anxiety, seeking to satisfy social needs without causing suffering (Mahalingham et al., 2022) and avoidance behaviors, common in physical interactions. Communication alternatives can be sought specifically for engaging in practices to improve relationships (Green et al., 2016).

Mental health on Facebook

There are several positive aspects of virtual communication, however, the excessive or indiscriminate use of the internet, together with social networks, can bring negative results in personal relationships, in communication with the external environment, and to poor professional performance. The negative impact can be so great that some attitudes of this type of communication are that they are viewed as saboteurs of time, since any notification noise on the smartphone immediately takes peoples' concentration from the activities they are performing. So, the ideal is that this notification of receipt is deactivated from the device, especially when working (Ko et al., 2012).

Another factor is the danger of lack of socialization due to the indiscriminate use of social networks. Several studies are focused on the relationship between online activity and depressive disorders in young people (Peris et al., 2023). Some of them suggest that individuals with psychosocial issues have a weaker perception of their social competence, viewing online communication as less threatening than face-to-face communication (Huang et al., 2009; Banjanin et al., 2015; Blachnio et al., 2015).

People can experience euphoria when they are online, and depression and panic when they are away from the devices that provide access. It is also common for these people to feel pressured by the reactions of other individuals regarding their posts (be they photos, videos, texts, news or shares), or even to feel intimidated by divergent opinions, presenting discomfort in expressing themselves.

Another consequence that can occur due to internet addiction is leaving personal life aside, that is, isolating oneself from friends and family, giving preference to activities on the web, leaving the "real world" in the background. There are people who are online the majority of the time they are awake, ending up depressed if they lose access to the internet.

There are studies on the relationship between depression in teenagers, university students and adults, and the use of social networks. Some of these studies show a link between depression and the amount of time spent on social networks. However, several have no direct relationship between time spent online and depressive symptoms (Datu et al., 2012; Jelenchick et al., 2013; Simoncic et al., 2014; Moreau et al., 2015).

The most common disclosures on Facebook profiles are personal information (age, sex, education and relationship status). However, there are non-demographic factors that also influence self-disclosure on Facebook, such as the feeling of trust, feeling for friends on Facebook and the ability to predict behavior (reaction to disclosures, for example). These factors are positively related to self-disclosure (Sheldon, 2009; Nosko et al., 2010; Steijn & Schouten, 2013; Sheldon & Pecchioni, 2014).

Facebook offers a private way to communicate with other users and another more public way. Public communication includes status updates, posts, status comments, and photos. Private communication involves direct messaging, which is an integrated mode of instant messaging with a specific individual or group (Green et al., 2016). The ideal, observed in the literature, is to maintain balance when using these types of communication tools (Tsai et al., 2015). Table 1 shows the features existing on Facebook.

Table 1:

Features of Facebook

Features	Description
Photos visualizations	It allows the user to view photos from his network of contacts of other users, which is available in public mode, in addition to being able to search for several photos using keywords.
Comments and likes on the status	Function that allows you to leave comments on other users' status updates or even leave your impression regarding the post, through the reactions of likes.
Comments and likes on the friends' photos	It allows users to react to their friends' published photos, through comments or reactions, including "like".
Use of notes	It works like a notepad so that the user can make and save notes.
Use of events	It is like a calendar of events shared by all Facebook users. Events can be public or private, to bring together people interested in participating. In addition to bringing people together, it is also possible to share information about the event, such as date, time, location, and other necessary information.
Use of chats	Communication via Facebook chat is carried out through an App called "Facebook Messenger", which can be used separately. All communication between users can be done within the application, with the help of the most varied features present in any other online communication application, such as: text messaging, audio and video calls, and much more.
Use of check-ins	Function that allows the user to communicate to their network of contacts their presence in a specific location.
Status update	It allows users to share photos, videos, texts, an activity they are doing, stickers, live broadcasts, check in at certain locations, and much more with their network of contacts.
Meeting friends	It allows you to locate users by name, phone, e-mail, mutual friends, in addition to the quick and easy compatibility with the user's cell phone making suggestions for friends.
Viewing company pages	Companies have pages on Facebook that are used to increase proximity with customers; it is also widely used to promote promotions and news, and as a more accessible channel for customer service.
Viewing or posting in groups	Groups are widely used in the network, as they help to bring together people with common interests, generating the centralization of information about the purpose of the group. It is possible to have discussions and share notices, photos, videos and events with the other participants in the group.
Use of applications and games	It is a feature that allows users to use various applications and games developed and managed outside of Facebook, but which are available and, in a way, linked to the social network platform.

Source: the authors

Method

Regarding the empirical phase of this study we conducted the application of a survey, in which the data collection instrument was composed of 19 descriptive questions and 26 assertions. The Likert scale used end points anchored at 1=strongly disagree and 5=strongly agree for all statements. Descriptive questions were used to collect the respondents' characteristics, such as age, sex, education, family income and housing.

Scales used

We used a questionnaire based on theoretical aspects, divided and grouped into constructs, that is, questions that deal with the same aspect, with scales adapted to the psychological disorders evidenced in the literature. The authors utilized the Depression Anxiety Stress Scale (DASS), developed by Lovibond and Lovibond (1995) and tested and adapted by Bottesi et al. (2015), Wang et al. (2016) and Peris et al. (2023) for stress, depression and anxiety, for social anxiety, the Social Anxiety Scale for Children - Revised (SASC-R) (Martins, Almeida, & Viana, 2014) was used.

The DASS scale is a depression, anxiety and stress scale originally developed to assess psychometric properties, using the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI). DASS had satisfactory psychometric properties, and the factorial structure was confirmed by both exploratory and confirmatory factor analysis. The implications of the results for the conceptualization of depression, anxiety and stress are considered, and the usefulness of the DASS scale was discussed in the discrimination between the constructs and adapted for Facebook in this study.

The SASC-R scale is a social anxiety scale that was initially created to evaluate the experiences of social anxiety and avoidance of pre-adolescents in their relationships with peers. In this article, the SASC-R scale was adapted to the context of the use of Facebook by young people and university adults. The process of analyzing the variables is presented below (Figure 1).

Figure 1 – Variables
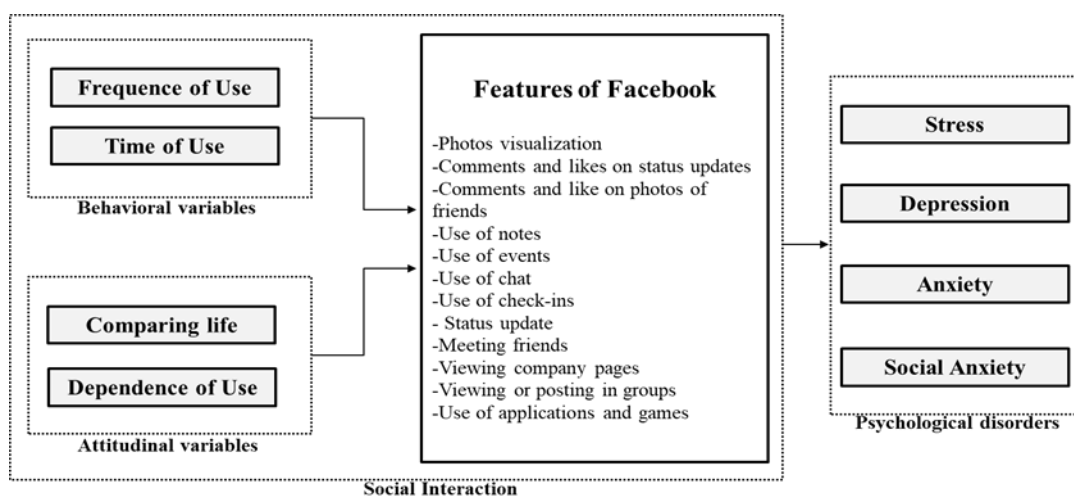
Source: the authors

Collection and sample procedures

For the adaptation of the research instrument and the selected scales to the Brazilian context, we used a reverse translation process. Before applying the questionnaire, a pre-test was performed with 30 individuals, to check if there was an understanding of the instrument of research. After applying the test, 402 questionnaires were obtained. Purifying the database resulted in removing a total of 26 questionnaires, leaving a total of 376 observations in the sample. We carried out data collection by face-to-face means and the criterion for selecting the research subject was in relation to the use of Facebook, with non-users being discarded. In the end, the sample can be classified as non-probabilistic for convenience (Malhotra, 2014).

Data analysis and procedures

Due to the characteristics of the study, descriptive analyzes and three multivariate phases were conducted: a) Exploratory Factor Analysis - to identify the components of each of the groups of the scales under study (stress, depression, anxiety and social anxiety); b) Multiple Regression - to identify the independent variables that, in this case, were the functionalities of Facebook in relation to the dependent variable (stress, depression, anxiety and social anxiety), measured by the average of the components of the scale; and c) Analysis of difference in means between groups to identify the relationship between disorders that influence the dependent variables. These include approximate frequency of using Facebook, approximate length of time using Facebook, comparing your life with that of other people in your Facebook network, and feeling dependent on the use of Facebook).

Data analysis: characterization of respondents

Just over half of the respondents in the sample are female (52.4%/n=197) and most of it are respondents from 21 to 24 years old (42.02%/n=158). As the research was completed within the academic environment, most of the respondents are attending undergraduate courses (93.9%/n=353). According to the responses, 68.4% (n=257) of respondents live with family, and most respondents share a residence with between 3 and 4 people (46.54%/n=175).

Both the male group (15.7%/n=59) and the female group (18.9%/n=71) indicated the highest frequency of using the Facebook network, which is in the range of one to two hours a day. Additionally, in relation to the frequency of use, it was found that, in all classes, the female group uses Facebook more than the male.

Among the benefit options for using Facebook, the most marked by respondents was the ease of communication (73.40%/n=276), followed by access to information (69.15%/n=260), then the possibility of greater sociability (52.66%/n=198), ability to create and maintain contacts (47.61%/n=179), leisure (46.54%/n=175), ability to meet new people (38.03%/n=143), the possibility of carrying out study/work activity (22.34%/n=84), access to culture (16.49%/n=62), and increased self-esteem (9.57%/n=36). The option "there are no benefits in the previous options" (2.13%/n=8) was indicated by those who do not see any benefit in the use.

Among the most frequently declared symptoms, boredom (79.79%/n=300) is the most common among Facebook users, followed by irritability (28.19%/n=106), sadness (18.62%/n=70), tension (16.49%/n=62), insomnia (12.24%/n=46), fear of losing friends (8.24%/n=31), apathy (5.32%/n=20), feeling empty (4.79%/n=18), increased appetite (2.39%/n=9), loss of appetite (1.86%/n=7) and, lastly, the feeling of death (1.06%/n=4).

The moments when users check Facebook are during meals (67.29%/n=253), during classes (64.36%/n=242), when waking up at night (44.68%/n=168), when they are working or interning (34.31%/n=129), in meetings with friends and / or family (32.45%/n=122).

When being notified of the arrival of messages and notifications from Facebook, most are calm and wait for the best time to check the content (61.44%/n=231), followed by those who are tense when they do not see it (19.94%/n=75), which are closely followed by those who are tense when they see the notification and do not respond (18.62%/n=70).

As for the smartphone or tablet usage routine, most reported that the first thing they do when they wake up is to check their smartphone or tablet (55.58%/n=209), followed by those who claimed that checking the smartphone or tablet is the last thing they do before bed (31.12%/ n=117). Those who wake up at night and check messages on their smartphone or tablet are 11.70% (n=44), and a minority use Facebook while driving (1.60%/n=6).

1st Phase: Exploratory Factor Analysis (EFA)

In this phase, we verified the variables that comprise the scales selected for this study. Each of the scales underwent an EFA with its respective variables, in which the interest was primarily centered on the common factors, which are interpreted in relation to the observed variables (Hair et al., 2010).

The first analysis of the scales - stress, depression, anxiety and social anxiety - occurred through their respective commonality matrices. For this analysis, we used the Kaiser-Meyer-Olkin (KMO) criterion and the Bartlett Sphericity Test. In this case, the KMO values were verified, presenting an adequate result for all scales. In Bartlett's sphericity test, the result was significant for all scales, with p<.001. After these procedures, the cross-factor loading was observed, and some variables were excluded in the

Stress (S09 with h^2 extraction value=.366) and social anxiety (AS05 with h^2 extraction value = .188) scales (see Appendix A).

Subsequently, unidimensionality (score> .50 in the factor) and low cross-load (score<.40 in the other factors) (Levin, Fox, & Forde, 2013) were observed. All variables had adjustments due to commonality (h^2<.5) and weak coefficients (<.4). At the end, the loads were adjusted to one factor, for each of the observed scales, with adequate values for explaining the total sample variance, as well as the reliability, confirmed with Cronbach's Alpha (Table 2).

Table 2:

Results obtained in the Exploratory Factor Analysis (EFA)

Psychological Dosorders	Scale items	KMO	Sphericity test	Explanation of the total sample variance	α
Stress	8	.928	p<.001	71.46%	.941
Depression	7	.900	p<.001	71.94%	.933
Anxiety	5	.843	p<.001	69.78%	.890
Social Anxiety	4	.824	p<.001	74.78%	.886

Source: the authors

EFA resulted in the extraction of only one component for each of the psychological factors, which received the same names of origin, to facilitate the other analyzes of this research (stress, depression, anxiety and social anxiety). Measurement variables for the next analyzes were constructed based on the respective averages of each component: Stress ($\bar{x}$=E01, E02, E03, E04, E05, E06, E07, E08), Depression ($\bar{x}$=D01, D02, D03, D04, D05, D06, D07, D08), Anxiety ($\bar{x}$=A01, A02, A03, A04, A05) and Social Anxiety ($\bar{x}$=SA01, AS02, AS03, AS04).

2nd Phase: Multiple regression

In this phase of the analysis, the dependent variable was characterized by the aggregate score of the items of the scales of measurement of psychological disorders (stress, depression, anxiety and social anxiety), obtained in the phase of the EFA. The independent variables encompassed the attributes related to the 13 explanatory variables that indicate the main features of Facebook. The explanatory variables are observed in scientific literature that focuses on psychological disorders; therefore, these independent variables were analyzed as a group, receiving the name of functionalities.

The multicollinearity test was previously performed, which refers to the existence of more than one exact linear relationship, which means the existence of a "perfect" linear relationship between some (or all) explanatory variables of a regression model. Hair et al. (2010) considers that VIFs (variance inflation factor) above 5 or 10 can be considered as the cutoff value. The analysis of this indicator resulted in VIFs below the critical limit established in the literature.

The explanatory variables are presented, as well as their respective descriptions, expected relationships, and outputs of multiple regressions by groupings for psychological disorders (stress, depression, anxiety and social anxiety).

For the analysis of the psychological factor Stress, linear regression was significant ($F_{(13,362)}$=13,057; p<.001). The summary of the regressive model indicated an explanatory power of 29.5% of the Stress declared by the participants, with four significant variables: "use of chat", "status update", "find friends" and "viewing or posting in groups".

The analysis of the psychological factor depression, regression was significant ($F_{(13,362)}$=9,136; p<0,001). The summary of the model provided an adjusted R^2 of .220, with eight significant variables: "photo viewing", "comments and likes on status updates", "use of events", "comment and like on friends'

photos", "update status, "find friends", "using apps and games", and "viewing or posting in groups".

In the case of the analysis of the psychological factor anxiety, the regression was again significant ($F_{(13.362)}$=13.247; p<.001). The independent variables were able to explain 29.8% of the anxiety variable. The significant variables of the model are: "use of chats", "status update", "find friends" and "viewing or posting in groups".

Finally, the regressive model confirmed that social anxiety was significant ($F_{(13,362)}$=7.513, p<.001) and explained 18.4% of this dependent variable. Only three variables were significant for the model: "photo viewing", "comments and likes on photos of friends" and "viewing or posting in groups".

Tables 3, 4, 5 e 6 also indicates the incidence of variables: given their significance for the four estimated models. There was a greater recurrence of the explanatory variable "viewing or posting in groups", which was significant, as it was evident by all four psychological disorders. This is predominantly because when participating in a Facebook group, the individual is there to share all types of information he deems pertinent and, consequently, also to see what other people share. This type of interaction occurs with a larger number of people and the possibilities of comparing themselves with the personal, academic, professional and personal life (for example: loving) of the group participants are endless, according to the theme and purpose of each group. In addition, the information flow can be considerably large (examples observed in Figure 2).

Table 3:

 Linear regression results: Model 1 (DV Stress)

	Model 1 (DV Stress)			
Variable	B	b	t	Sig.
b0	.216		4.830	***
visu_photo	.039	.022	.357	n.s.
comen_status	.045	.076	.990	n.s.
comen_photo	.051	.120	1.501	n.s.
uti_notes	.041	-.025	-.501	n.s.
uti_events	.029	-.022	-.422	n.s.
use_chat	.033	.111	2.271	**
publi_photo	.038	.094	1.414	n.s.
publi_status	.037	.270	4.106	***
encon_fiends	.036	-.178	-2.964	***
visu_compan	.033	-.061	-.996	n.s.
uso_ganes	.047	.004	.079	n.s.
uso_checkin	.048	-.030	-.529	n.s.
visu_group	.028	.120	2.471	***
	R^2 adjusted= .295			

Table 4:

Linear regression results: Model 2 (DV Depression)

Variable	Model 2 (DV Depression)			
	B	b	t	Sig.
b0	.197		6.773	***
visu_photo	.036	-.153	-2.375	**
comen_status	.041	.158	1.957	*
comen_photo	.046	.009	.112	n.s.
uti_notes	.038	.038	.732	n.s.
uti_events	.026	-.100	-1.857	**
use_chat	.030	.119	2.305	n.s.
publi_photo	.034	.242	3.452	**
publi_status	.034	.167	2.415	**
encon_fiends	.033	-.145	-2.292	**
visu_compan	.030	-.043	-.666	n.s.
uso_ganes	.042	.105	1.838	*
uso_checkin	.044	-.083	-1.422	n.s.
visu_group	.026	.126	2.470	**
R² adjusted= .220				

Table 5:

Linear regression results: Model 2 (DV Depression)

Variable	Model 3 (DV Anxiety)			
	B	b	t	Sig.
b0	.196		5.358	***
visu_photo	.035	.033	.541	n.s.
comen_status	.041	.101	1.315	n.s.
comen_photo	.046	.004	.044	n.s.
uti_notes	.038	.007	.147	n.s.
uti_events	.026	-.045	-.871	n.s.
use_chat	.030	.094	1.927	*
publi_photo	.034	-.001	-.008	n.s.
publi_status	.034	.413	6.283	***
encon_fiends	.032	-.182	-3.028	**
visu_compan	.030	-.029	-.466	n.s.
uso_ganes	.042	.033	.608	n.s.
uso_checkin	.044	-.067	-1.211	n.s.
visu_group	.026	.153	3.176	**
R² adjusted= .298				

Table 6:

Linear regression results: Model 2 (DV Depression)

Variable	Model 4 (DV Social Anxiety)			
	B	b	t	Sig.
b0	.225		4.533	***
visu_photo	.041	.132	2.009	**
comen_status	.047	.052	.634	n.s.
comen_photo	.053	.196	2.29	**
uti_notes	.043	-.024	-.457	n.s.
uti_events	.030	-.023	-.421	n.s.
use_chat	.034	-.012	-.237	n.s.
publi_photo	.039	.109	1.528	n.s.
publi_status	.039	.078	1.106	n.s.
encon_fiends	.037	-.040	-.616	n.s.
visu_compan	.034	.097	1.46	n.s.
uso_ganes	.048	-.006	-.109	n.s.
uso_checkin	.050	-.041	-.687	n.s.
visu_group	.030	.110	2.106	**
R² adjusted= .184				
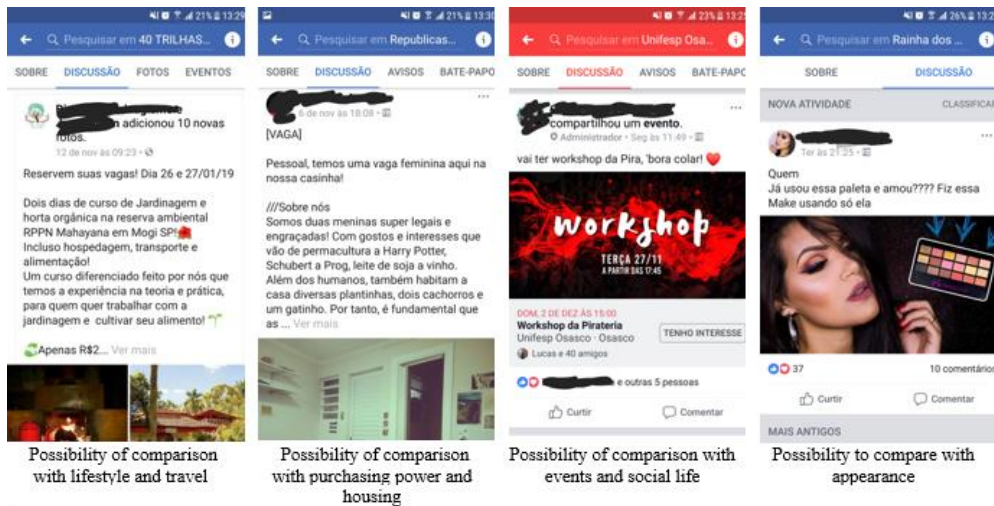
Figure 2: Possibility of Comparison

In this study, it was observed that "stress" occurs when individuals assess situational demands as exceeding available resources. In the case of "depression", there is a persistent pessimistic view about oneself, the world and the future. Thus, the dysfunctional cognitive schemes that occur from the transformation of data into cognitions and the cognitive distortions that affect the perception and processing of information are manifested. These schemes and distortions lead to pre-established negative comparative perceptions, so that, if the individual does not have what others have, for example, does not take the same trips, does not go to the same places and parties, not as well dressed, they feel different or unhappy.

In addition, "anxiety" is associated with behaviors, such as emotions and motivation. If a young person in the sample goes through an obstacle that prevents him from meeting individual needs and achieving desired goals, the tension can generate severe apprehension and generate frustration. The same occurs with "social anxiety", which can be defined as the result of the perspective of interpersonal assessment in real or imagined social contexts. Thus, as individuals are motivated to make a good impression on

other people, they are in constant comparison and competition with other individuals in the search for social approval (High & Caplan, 2009).

3rd Phase: Analysis of difference of means between groups

For the sequence of the analyses, the data of the participants were divided into groups, given the frequencies of each declared behavioral or attitudinal variable. The data on Frequency of Use ($\bar{x}$=2.19), Time of Use ($\bar{x}$=3.66), Compare Life ($\bar{x}$=2.78) and Dependence on Use ($\bar{x}$=2.46) were divided into two groups each (high and low) and separated by the aggregated average of each variable.

Significant differences were observed in the psychological disorders measured for behavioral groups. In all cases, individuals who declared a high frequency of use (n=136) have greater psychological disorders than individuals with a low frequency of use (n=240) from the same virtual social network (all p<.001).

In Figure 3, it is possible to observe a rise in all psychological disorders with the increase in the number of hours spent on Facebook. However, social anxiety was the one that initially presented the greatest exposure in hours when using Facebook, up to "five to eight hours a day", and after that moment, there was a reduction in the frequency of use with this variable. The greater frequency in social anxiety is due to the fact that the individual suffering from this disorder feels greater emotional discomfort in the presence of other people, due to awareness of a possible analysis of other people in relation to oneself, as a social objective. That is, social anxiety presents, in the frequency of use, the degree of discomfort that a person feels when in the presence of others, predominantly in discussion groups (Green et al., 2016).

Figure 3: Analysis of psychological disorders for low and high frequency of use groups
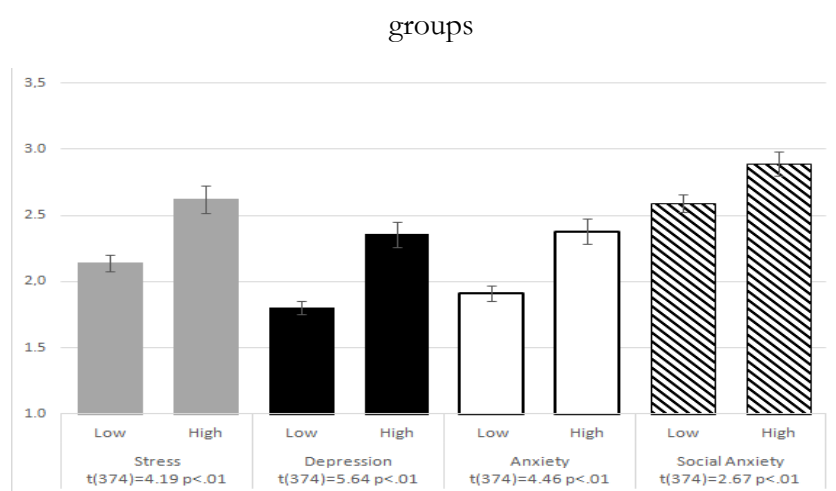
Source: research data

In most cases, individuals who declared high time of use (n=258) have equivalent psychological disorders than individuals who claimed low time of use (n=118) in the same virtual social network. Only in the case of social anxiety was it possible to verify a difference between the groups, with individuals with a high time of use slightly above (p<.10).

In Figure 4, it is possible to observe that the level of application usage in hours on Facebook are indifferent for low and high frequency. This is evidenced in a very similar pattern (Figuerêdo et al., 2022), with an increase in the number of hours on Facebook.

Figure 4: Analysis of psychological disorders for low and high time use groups
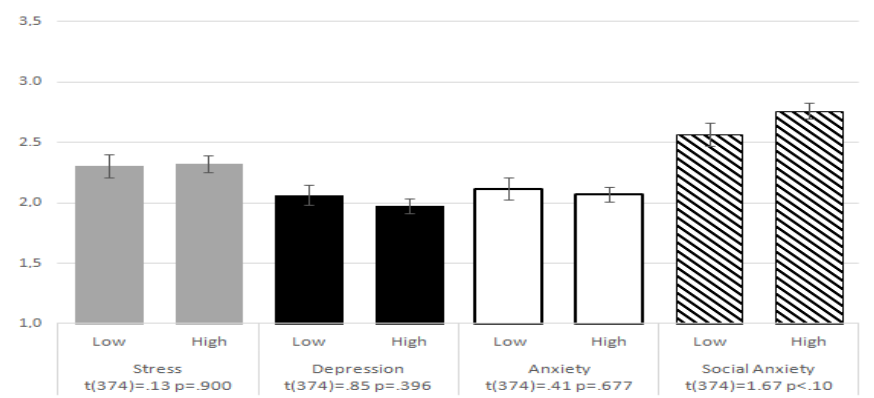
Source: research data.

The only psychological factor that showed a slight growth (between less than one year and two to five years of using Facebook) due to the time of use was social anxiety, which is explained due to the habit that the individual creates a safe and comfortable virtual environment during the hours of use, which end up becoming routine (Wray & Stone, 2005). Over time, the growth of the habit stabilizes, since the use of Facebook ends up being part of the day to day as a way of relating. There were significant differences in psychological disorders measured for behavioral groups. In most cases, individuals who reported high frequency in compare life (n=229) have greater psychological disorders than low frequency individuals in compare life (n=147) from the same virtual social network (see Figure 5). However, in the psychological disorder anxiety, there was equivalence between the groups (all p<.001).

Figure 5: Analysis of psychological disorders for the low and high groups in compare life
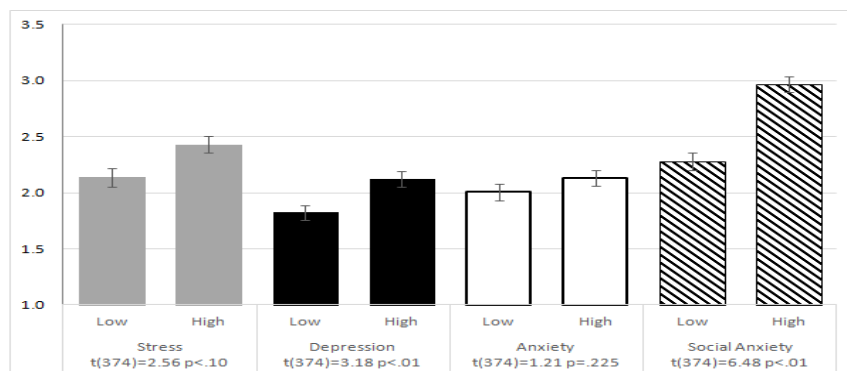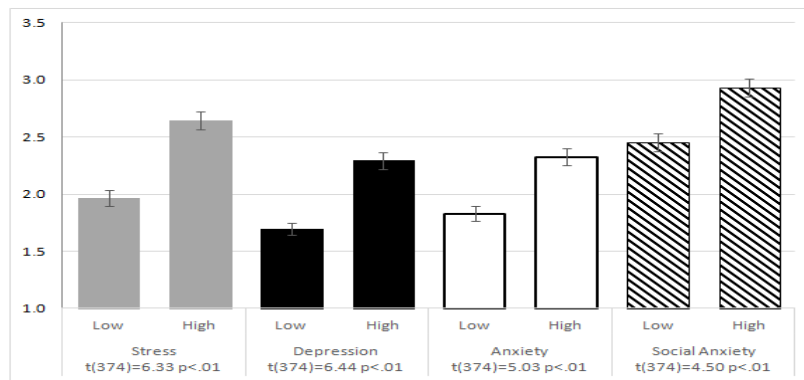

Source: research data

The psychological factor that showed the greatest growth was social anxiety, especially in the high frequency group. This is explained by the perspective that interpersonal assessment, in real or imagined social contexts, is individuals motivated to make a good impression on other people, which is a comparison of people's lives. In contrast to individuals with low social anxiety, those who experience high levels of social anxiety often end up making more comparisons between people's lives, due to their fear that they will do the same to themselves, resulting in a lack of self-confidence (High & Caplan, 2009).

Significant differences were observed in the psychological disorders measured for the behavioral groups when analyzed with dependence on use (see Figure 6). In all cases, individuals who declared high dependence on use (n=193) have greater psychological disorders than individuals with low dependence (n=183) from the same virtual social network (all p<.001).

Figure 6: Analysis of psychological disorders for low and high groups in dependence on use

Source: research data

However, the stress factor was the one that showed a slight growth. This is explained by the fact that stress can be associated with negative health consequences, such as headache or worsening of other negative symptoms (Sanford et al., 2023). It is possible that the use of Facebook worsens stress, since due to their dependence, individuals are unable to complete necessary tasks or take care of their health due to the long periods of using the social network (Moreno et al., 2014).

Conclusions

This article analyzed the impact caused by the use of Facebook among young university students, considering the development of psychological disorders (stress, depression, anxiety and social anxiety) (Kalpidou et al., 2011; Davila et al., 2012; Steers et al., 2014; Van der Aa et al., 2009; Jelenchick et al., 2013; Brailovskaia & Margral, 2016). It was possible to identify the components of each of the groups of the scales under study, to analyze the relationship of Facebook functionalities in relation to each psychological disorder and to identify the relationship between factors described in the literature that influence psychological disorders.

Facebook can be understood through the various representations of functionality, due to having an interface that represents abstract values that are related to interactions and points of interest (Brailovskaia & Bierhoff, 2016; Azhari et al., 2022). The importance of this interpretation is in the search for understanding the purpose of these functions in terms of communication with and about the social world (Schwartz & Mahnke, 2018).

There are certain peculiarities in the case of individuals who develop psychological disorders resulting from the use of Facebook (Bozionelos, 2001; King et al., 2002). Individuals with stress, depression and anxiety can get worse, due to the use of Facebook, since they are unable to complete necessary tasks or even take care of themselves, due to the high frequency of use and long periods using Facebook. In addition, the comparisons they make between their lives and those of other users, and the consequent dependence on the social network, can aggravate depression and anxiety. In the case of individuals with social anxiety, Facebook is a kind of refuge, a safe and comfortable place, far from the judgments and insecurities generated by physical human contact (Azhari et al., 2022).

In this study it was found that women use Facebook more than men, and the highest concentration is in the frequency range of one to two hours a day. The highest frequency of use is also among users who live with family. Almost 75% of respondents have already felt dependent on the use of Facebook to some degree. Only 11.70% never made comparisons of their lives with those of other users. About 73% of respondents see ease of communication as the greatest benefit generated, and the loss to studies as the greatest harm caused by using the social network.

This study brings effects of worsening mental health as students expose themselves for longer. Therefore, extra care is needed, as observed in this study, in which the mental health of Facebook users is just one aspect that allows measuring the more general effect of social networks. Even if there are positive points such as the proximity of connection between individuals, contacts with like-minded groups, and community participation, in light of this, social media companies and the public arena represented by politicians must work to alleviate the potentially harmful effects of networking on emotional well-being.

Students are a portion of the population that has developed an attitude that is repeated several times a day and automatically. The exposure of these students to photos, stories and other digital tools ceases to be a distraction and becomes a daily routine (Sanford et al., 2023). When this access is lost for some reason, some withdrawal symptoms appear, among the main ones observed in this study (anxiety, depression, stress, and social anxiety). The student's comparison of his life with others is constant (e.g., aesthetics, travel, social life), and everything could be a reason for the student to feel inferior (Voncken & Dijk, 2013). The 'timeline seeks happiness,' and as a consequence, students fail to see the joys they have in real life (Azhari et al., 2022).

Injuries due to the influence of social networks are increasingly common. Social networks have algorithms to understand what the user likes, the content that catches the attention of everyone there, and the application uses this subterfuge to prevent the user from leaving the network. This study identifies these behaviors as signs that the strong presence of students on Facebook has become excessive and, together with other factors, can lead to depression and pathological anxiety. In addition, many students begin to show signs of exhaustion and fatigue from maintaining a specific image on Facebook and from having to produce content systematically.

However, it was possible to realize that people with high social anxiety end up not obtaining the benefits of an interaction, since they prefer to 'hide' in the virtual environment and practice only online social interaction, in which they can control how they are perceived, so that they are socially desirable. In this way, social anxiety does not impact the relationship between user interaction and satisfaction in social media environments, as this discrepancy can be reduced by controlling self-presentation.

The debate about the consequences of using social networks on people's mental health became even more critical during the COVID-19 pandemic, reinforcing the behavior change and causing more significant anxiety when isolation opened up more time to digital leisure. Consequently, the pandemic has had deleterious effects on the mental health of university students, reinforcing that the topic must continue to be investigated so that we can understand the mechanisms and psychological reactions underlying such an atypical and challenging period of life.

Finally, we are in a paradigm where social networks harm human behavior, making people more dissatisfied and anxious due to the number of stimuli they receive without being able to process them correctly and leading to the construction of very demanding social ideas.

For future research in the field of psychological disorders generated by the use of Facebook, it would be interesting to test other social groups, with more heterogeneous samples, to see if the results obtained by this study would also be found in scenarios with other particularities. It would also be interesting to conduct a future study to evaluate other social networks, such as Twitter, Instagram, Snapchat, TikTok, Youtube, among others, to verify how the relationships of their various functionalities are triggered when used by individuals with psychological disorders. With regard to the use of social networks and psychological disorders, there is still much to be explored, as this is a very complex relationship that may generate, in the future, several studies that seek to better understand the impacts caused in the lives of user.

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Appendix A: Scales, constructs, items, h^2, assertives and references

Scale	Constructs/Factor		Item	h^2	Assertives	References
DASS	Stress	Difficulty in Relaxing	S01	.574	I find it difficult to calm down after something has disturbed me.	Lovibond e Lovibond (1995), and adapted by Bottesi et al. (2015) and Wang et al. (2016)
			S02	.698	I was in a state of nervous tension.	
		Nervous Excitement	S03	.785	I found myself getting upset quite easily.	
		Easily Upset / Agitated	S04	.631	I found myself getting agitated.	
			S05	.798	I tended to overreact to situations.	
		Irritable / Super-Reactive	S06	.771	I think I was very angry.	
			S07	.745	I felt that I was very sensitive.	
			S08	.714	I was intolerant of anything that prevented me from continuing with what I was doing.	
		Impatient	S09*	.366	I found myself getting impatient when I was late in some way.	
	Depression	Dysphoria	D01	.666	I feel discouraged.	
			D02	.756	I feel sad and depressed.	
		Depreciation	D03	.651	I felt that I was a very useless person.	
		Lack of interest / involvement	D04	.785	I felt that I had lost interest in almost everything.	
		Anhedonia	D05	.762	I couldn't feel any positive feelings.	
			D06	.655	I couldn't enjoy the things I did.	
		Inertia	D07	.761	I just couldn't go on.	
	Anxiety	Situational anxiety	A01	.751	I was concerned about situations where I might panic and make a fool of myself.	
			A02	.809	I found myself in situations that made me so anxious that I was more relieved when they finished.	
		Subjective Experience of Anxious Affection	A03	.673	I felt I was close to panic.	
			A04	.655	I feel scared for no good reason.	
			A05	.601	I find it difficult to relax.	
SASC- R	Social Anxiety	Fear of Negative Evaluation	AS01	.649	I am concerned that I am the target of other people's jokes.	Martins, Almeida and Viana (2014)
			AS02	.794	I worry about what other people think of me.	
			AS03	.84	I care about what other people say about me.	
			AS04	.708	I worry that other people don't like me.	
		Avoidance and Social Distress	AS05*	.188	I get nervous when I meet new people.	

Note: *items removed in the Exploratory Factor Analysis phase by the extraction method - analysis of the main component.