

## **INTERNET DEPENDENCE DISORDER INTERNET ADDICTION DISORDER (TDI/ IAD) - STUDY OF THE PATHOLOGICAL USE OF THE INTERNET AND SOCIAL NETWORKS IN UNIVERSITY STUDENTS**

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**Abstract:** Since 2010, Brazil has been the world leader in time spent on domestic connections and has increasingly provided easier access to the internet, which represents the potential for addiction problems. Relationships are found between Internet Addiction Disorder - IAD (known as Internet Dependency Disorder - TDI) and self-harmful behavior (abuse of other substances, suicidal ideations or attempts), poorer school and work performance, problems with interpersonal relationships, social anxiety, depression ADHD, impulsive personality and, finally, physical health problems, such as overweight and obesity, sleep disorders and a sedentary lifestyle.

The decision on the proposed topic came from the recognized scope of the problem by the American Psychiatric Association, which is already considering the inclusion of Internet Addiction Disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), and thus, the importance of regionalized studies that propose the reproducibility of psychological tests such as the IAT (Internet Addiction Test) is evident.

The present study sought to quantify, among a sample of university students, those who were prone to internet addiction or even already established addiction; quantify the proportion of individuals who use it excessively; check whether there are thoughts in anticipation of using the internet; point out the proportion of individuals who end up abandoning social life and work due to this technology. To do this, the Internet Addiction Test instrument was used, which was designed to assess which areas of an individual's life may be affected by excessive use.

The sample consisted of 200 university students from different courses at the same higher education institution. The results demonstrated that 35% (n = 70) of the total were classified as dependent (mild and

moderate), a percentage almost three times higher than the standard estimate. Among these, subjects classified as moderately dependent are those who have the most areas of their life affected, such as: attributing the emptiness and insignificance of life without the internet, anticipation on social networks, expression of concerns and changes in mood and the preference for virtual life to real.

**Keywords:** “internet addiction disorder”, “iad”, “internet dependence disorder”, “tdi”, “vice on the internet”, “social network dependence”, “disturbs de dependence without substance”, “internet”, “university students”, “graduation students”

## INTRODUCTION

The internet, in addition to promoting communication and the search for information, has become an important tool for social contact by enabling new uses and customs and creating a new virtual coexistence space for approximately 500 million people.

[1] The number of internet users grew 257% between 2000 and 2012, according to the Pew Research Center's Internet & American Life Survey, approximately 90% of American young people and adults between the ages of 12 and 30 have access to the internet. [5] Along with the increased popularity of the use of the worldwide web, reports emerged in the lay press and scientific literature of individuals who were “dependent” on virtual reality. Clinical and epidemiological research is useful in tracking this behavior and understanding the magnitude of the problem, today called Internet Addiction Disorder – IAD (Internet Addiction Disorder - TDI, in Portuguese).

Since 2010, Brazil has been the world leader in time spent on domestic connections and has increasingly provided easier access to the internet, which represents the potential for addiction problems. In addition to this fact, the digital generation (known as Generation

D), made up of young people born between 1990 and 2000 who grew up continually exposed to virtual networks, and according to studies, exhibit unique behavior, are those most affected by the IAD/TDI phenomenon, making the fine line between recreational and pathological use of the internet becomes less and less evident. [5]

Several quantitative studies have demonstrated the presence of negative factors associated with IAD, but sometimes fail to contextualize the problem. Relationships are found between Internet Addiction Disorder and self-harming behavior (abuse of other substances, suicidal ideation or attempts), poorer school and work performance, problems with interpersonal relationships, social anxiety, depression, ADHD, impulsive personality and, finally, physical health problems, such as overweight and obesity, sleep disorders and a sedentary lifestyle. Anatomically, studies have discovered changes similar to those found in Pathological Gambling, such as decreased cortical thickness in the orbitofrontal region between boys at high risk for IAD/DID and normal boys. [3]

Several theories attempt to explain the causes of internet addiction, including the compensation theory, proposed by the Institute of Psychology of the Chinese Academy of Sciences, which assumes that young people seek in virtual activities compensation for their self-identity, self-esteem and network. social, since virtually, the individual can create a social network of new relationships, thus acquiring a feeling of community. And as this user becomes more accustomed to the possibilities of compensating for what he lacks in real life, such as conversation for companionship, advice, understanding and romance, the physical world becomes increasingly distant.

A variety of instruments have been developed for the purpose of diagnosing IAD/

DID, based on DSM-IV criteria for chemical dependency and pathological gambling or on cognitive-behavioral models. The most recent studies use tests such as the Internet Addiction Test, Chinese Internet Addiction Inventory and the Generalized Problematic Internet Use Scale to diagnose the disorder and measure its magnitude. Using studies by Goldberg and Young, a prevalence was found in the general population of 6 to 10%, and in university students of 4 to 26.3%. [2]

Today, the addiction is not recognized by the DSM-V, however, new criteria for Online Gaming Disorder (a subtype of internet addiction) have been incorporated into Section III of the DSM, which includes provisional categories of psychiatric disorders that require further investigation. The rapidly growing literature in this area uses different terms to refer to the dysfunctional pattern of excessive internet use. According to theorists, this pattern behaves in several ways [1,5]:

1. Problematic Internet Use: conceptualized using cognitive and behavioral theories, which define it as coping poorly adapted to the mechanism of stress and psychological suffering, resulting in adverse effects on psychosocial functioning;
2. Compulsive Internet Use: compulsive use, understood as something similar to obsessive compulsive disorder (OCD), and not as related to addiction;
3. Internet Addiction Disorder: in its most extreme form, IAD/DDI is defined as “the inability to control the use of the internet network, which leads to negative consequences in daily life. Parallel to substance use disorder and pathological gambling disorder, this disorder includes the following symptoms
  - a) Excessive concern about the internet
  - b) Need to increase time online to get the same satisfaction
  - c) Exhibit repetitive efforts to decrease

internet usage time

- d) Show symptoms of irritability and depression
- e) When use is restricted, there is the presence of emotional lability
- f) Stay online longer than scheduled
- g) Have work and social relationships at risk due to excessive internet use
- h) To lie to others about the number of hours connected or the reason for accessing the network

Dependence on cell phones or smartphones is called nomophobia, a term derived from the English expression mobile phobia, characterized by people's excessive anxiety when they are far from their cell phones or any other mobile device that keeps them connected. Currently, cell phones have countless different functions and applications, making them more similar to a personal portal than a telephone device.

In relation to social and media networks, one of the challenges in understanding the inappropriate use of the internet is that it offers a range of activities, and the global network becomes only a "delivery mechanism" for online games (RPG's, MMORPG), social networks such as Facebook, Twitter, Instagram and Whatsapp, and with the advent of the smartphone, this access becomes increasingly frequent, making the need for studies on this topic more urgent. The adoption of new digital technologies and the population's widespread access to the internet, smartphones and social networks are changing people's way of life and creating new social dynamics.

## GOALS

### MAIN GOAL

- a) To estimate the prevalence of IAD/DDI (Internet Addiction Disorder/Internet Dependency Disorder) in university students at the Faculty in focus of study.

## SECONDARY OBJECTIVES

Describe the sociodemographic profile of the sample studied;

Check the main factors associated with the severity and risk of presenting IAD/TDI;

Understand how the presence of IAD/TDI affects the quality of life of the sample under study.

## MATERIALS AND METHODS

This is a prospective, descriptive, exploratory study, of a quantitative nature, developed with undergraduate students from the Medicine, Nursing, Dentistry and Physiotherapy Course at CEUMA - "Universidade de São Luís" (MA), which is located on Av. Josué Montello, without number, district: Renascença. Data collection was carried out from June/2016 to October/2016, after approval by the Research Ethics Committee. The instrument used for data collection was a questionnaire, divided into two parts, the first referring to the identification and sociodemographic characterization of the participants and the second consisting of closed questions, which contains the standard scale for diagnosing IAD (Internet Addiction Test), the most used instrument, complete, easy to understand, self-administered, which consists of 20 self-completed items with answers given on a Likert scale of points).

To calculate the sample size, the prevalence of IAT/TDI in the target population was estimated at 10%, based on the results of a similar study carried out on undergraduate students by Goldberg and Young. Considering a confidence interval of 95% and an acceptable sampling error of 5%, it resulted in a sample of 197 students from CEUMA University, who are part of the Medicine, Nursing, Dentistry and Physiotherapy courses. We worked with a non-probabilistic convenience sample using a paper questionnaire. Assuming a loss of data, the final sample size was 200 participants.

## **ETHICAL ASPECTS OF RESEARCH**

The development of the study took place in accordance with the rules of resolution 466/12 of the National Health Council/Ministry of Health (MS) and the research project was approved by the Research Ethics Committee (CEP) of Universidade Ceuma, in São Luís – MA, obtaining the CAAE number: 51690615.0.0000.5084 (Annex 1). All participants were informed about the objective of the study and had the free choice to participate or not. Those who agreed to participate in the study signed the Free and Informed Consent Form (TCLE) in two copies. It was not necessary to use secondary sources such as medical records and/or other records.

## **CRITERIA**

- Inclusion Criteria: be over 18 years old, be duly enrolled in the educational institution to which you belong, have regular access to the internet, make regular use of social networks (accessing more than twice a day);
- Exclusion Criteria: being under 18 years old, not being duly enrolled in the educational institution to which they belong, not regularly using the internet and not accessing social networks.

## **RISKS AND BENEFITS**

This study presented the only risk to the interviewee was discomfort during the application of the questionnaire. Regarding the benefits, it is important to mention that the data found in the present study will serve to understand the disorder studied, as well as bring discussions to the academic community, stimulating scientific discussion and the carrying out of more studies, thus aiming at earlier and more effective interventions. in individuals with IAD/DID, which extremely positively affects the quality of life of these individuals.

In addition to these benefits, the study brought reproducibility to the Internet Addiction Test in the Portuguese version.

## **DATA ANALYSIS**

Data were analyzed using Bioestatic 3.5, EPI INFO and Excel 2013 database analysis software.

## **RESULTS**

The parameters used in the first part of the questionnaire to obtain data were chosen with the aim of identifying and describing the sociodemographic profile of the sample and understanding the main factors associated with the severity and risk of presenting Internet Addiction Disorder and how their presence affects the quality of life of the focus sample under study. These parameters were divided in relation to (1) the epidemiological aspect of the sample, (2) internet access, (3) time of use, (4) quality of life and psychological aspects and (5) the Internet Addiction Test itself. said.

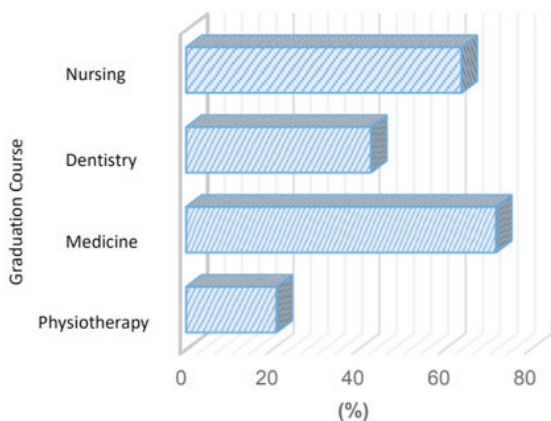
The second part of the questionnaire is composed of closed questions, which contains the standard Likert scale for diagnosing IAD, being the first test validated by the American Psychiatric Association and described in the IAT Manual to classify Internet use in terms of mild, moderate, to various levels of dependence, thus obtaining more information on how to act in the treatment of addiction in practice. The Internet Addiction Center was founded by Dr. Kimberly Young in 1995. She suggests that for treatment for Internet addiction use Cognitive Behavioral Therapy (CBT) specialized for addiction to the world wide web, being the first evidence-based recovery program, which justifies the use of this questionnaire as a means of obtaining data.



## IN RELATION TO THE EPIDEMIOLOGICAL ASPECT OF THE SAMPLE

The sample studied was, on average, around 23 years old (ranging from 16 to 49 years old), with 70% (n = 140) female and 30% (n = 60) male. In relation to marital status, the presence or absence of children, with whom they live, the need to leave their hometown to attend graduation and the fact of having an employment relationship during the course, data that obtained a positive correlation with Internet Addiction Disorder in the studies by Li W et al., 25% (n = 50) were married, 10% (n = 20) have children, 13% (n = 26) of them live alone while 7% (n = 14) live with friends, 63% (n = 126) left their hometown to pursue undergraduate studies and 82% (n = 164) were employed during the course.

Regarding their training, 36% (n = 72) study Medicine, 32% (n = 64) study Nursing, 21.5% (n = 43) study Dentistry and 10.5% (n = 21) study Physiotherapy.



Graph 1.: Epidemiological aspect of the sample submitted to the IAT in relation to the Undergraduate Course, 2017  
(Source: own author)

## IN RELATION TO INTERNET ACCESS

A self-assessment proposed in the first part of the questionnaire used for data collection suggested that access to the internet is considered abusive by the study sample. Half of them (n = 100) consider themselves dependent on the world wide web. Around 97% of them (n = 194) regularly access the internet via cell phone or smartphone, which is the most used means of accessing the internet. When asked about academic or work performance, 77% (n = 154) believe that the way they use the internet is detrimental to maintaining good performance in these areas, however, 97% (n = 194) still believes that it can help with both study and work.

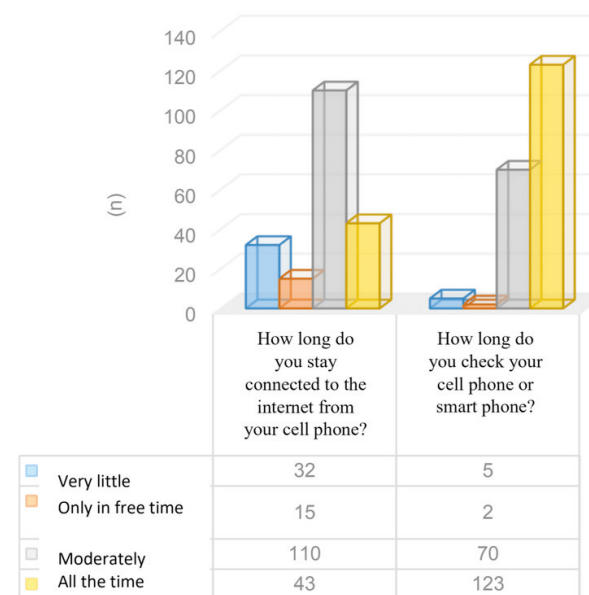
Several studies indicate that the combination of driving and using a cell phone is very dangerous, increasing the risk of accidents with serious injuries as the use of the device causes distracted attention and cognitive overload. Research by Bervique et. al point out that the risk of collision is twice as high when the driver has 0.06% alcohol in his bloodstream. However, it is estimated that the risk of collision is four times greater when the driver is using a cell phone. In relation to this data, 36% (n = 72) of students admitted using their cell phones while driving, even though they were aware of the risks involved in this practice.

## REGARDING TIME OF USE

According to Lucena et. al., the measure of time spent per day watching television, playing video games and using the computer or cell phone/smartphone is called “screen time”, and is one of the most used ways to operationalize sedentary behavior in studies with adolescents and young adults.

In relation to this aspect, 42% (n = 84) admit that they spend a lot of time connected to the internet from their cell phone, where

55% of students (n = 110) believe that they receive/send more than 100 messages daily via the global network of computers. The vast majority admit that they use their cell phone all the time, and do not make a point of reserving use for free time, and in addition, they also admit that they check their cell phone or smartphone quite frequently, leaving the device on, even during work. sleep.



Graph 2.: In relation to time spent using the Internet, 2017 (Source: own authorship)

## IN RELATION TO QUALITY OF LIFE AND PSYCHOLOGICAL ASPECTS

For Bozoglan et. For most users, the internet diminishes and attenuates the levels of attention, interaction, emotional risk, and intimate connection required in social relationships. It reduces the relationship to a tolerable level. For people with learning difficulties, attention deficit disorder, global developmental disorders – such as autism, for example, social anxiety and phobias, the internet becomes a safe, predictable, circumscribed environment.

Despite this, as already described, relationships have been found between Internet Addiction Disorder and self-harming

behavior (abuse of other substances, suicidal ideation or attempts), poorer school and work performance, problems with interpersonal relationships, social anxiety, depression, ADHD, impulsive personality and, finally, physical health problems, such as overweight and obesity, sleep disorders and a sedentary lifestyle.

Although 59% (n= 118) of those interviewed reported that they were satisfied with their living conditions and admitted that they would not change any aspect of it as they had achieved the important things they wanted in life, when asked about events in the last six months, 27% (n= 54) found it difficult to remain calm, 22% (n= 44) felt their heart racing or had difficulty breathing in the absence of physical effort.

Almost half reported not having had the initiative to carry out new activities, 31% (n= 62) felt tremors in their hands or eyelids, 42% (n= 84) felt that they were nervous, anxious or agitated even for no reason at all. Around 36% (n= 72) felt discouraged or even depressed, 35% (n= 70) admitted feeling afraid for no apparent reason and 9% (n=18) believe that their life has no meaning. Finally, an alarming 47% (n=94) of the individuals questioned presented symptoms associated with anxiety or depression.

## IN RELATION TO THE INTERNET ADDICTION TEST

Classification	(%)	(n)
Normal users	65%	130
Light dependents	23%	46
Moderate dependents	12%	24

Table 1.: Classification of the sample submitted to the IAT in relation to the degree of dependence, 2017 (Source: own authorship)

After collection, the numbers were added, which, according to Young et al., classifies as

normal users those who reach a score of 0 to 30. Mildly dependent users score 31 to 49 points. The moderate dependent reaches a score of 50 to 79. Finally, the severe dependent is classified according to the score of 80 to 100.

Subjects classified as normal users occupied the percentage of 65% (n = 130), while mild addicts occupied 23% (n = 46), moderate addicts 12% (n = 24). No individual was classified as seriously dependent. More than half of the sample admitted that they abandon domestic activities to spend more time on the internet. Around 14% (n= 28) prefer the excitement of the internet to intimacy with their partner, 25% (n= 50) create new relationships through the internet, 23% (n= 46) block disturbing thoughts about their life thinking about connecting themselves to calm down, 49% sleep little because they are connected too late, 34% (n=68) fear that life without the internet will be dull or boring, 24% (n=48) lie about the amount of time connected to the internet.

## DISCUSSION

For Young et. al., the internet is not something completely new, what is new, however, is the intensity, accessibility and availability with which all these characteristics are used in the technologies made possible by the internet. To this end, most activities (behaviors) and substances that produce pleasurable effects tend to be repeated. The consequence of a behavior being positively reinforced is what makes it likely to be repeated. Positive reinforcement occurs when the presence of reinforcement increases the probability of the antecedent response, according to Schwartz. This pattern follows basic principles of operant conditioning, described in 1957 by Ferster and Skinner. It is very natural for people to increase their use (and hence abuse) of the internet due to its pleasurable nature and reinforcing structure.

The neurotransmitter that seems to be most associated with the experience of pleasure, according to Hartwell et. al. It's dopamine. It is known that drugs, alcohol, gambling, sex, food and even physical exercise involve changes in this neurotransmitter. In essence, we become dependent on the intermittent and unpredictable rush of dopamine that comes to be classically associated with the substance or behavior we use. This is where the internet fits in.

There is permanent availability and endless access to an overload of information and communication, and at the same time, there are no borders and nowhere to hide and recharge our internal psychological batteries. It is known that many marriages and relationships have been significantly impacted by the use and abuse of the internet and other digital media devices. In France, it was recently reported by Lejoyeux et. al. that 50% of all divorces involved some digital media or internet issue, and it was determined that text messages could be used as evidence in divorce proceedings.

Often, these technologies become digital distractions that take people away from the real effort of relating, maintaining intimacy and communication. Having portability and accessibility can be practical, engaging and fun, but it is highly distracting.

It is likely that dependence on the internet and digital media will increase in the future. As technology becomes faster, cheaper and more portable, abuse and dependence are likely to continue to grow. Some precautions regarding the use of these technologies can help avoid these problems. The less we realize the power that internet technologies have in our lives, the less we will be aware of the negative impact that their use and abuse can have. Our ability to recognize their possible positive and negative impact is what will allow us to deal with them in a more positive and



conscious way. Ultimately, we need to learn to live our lives using computers consciously, and integrate all of our digital media technologies in a more balanced way. It is necessary to control our technology so that it does not control us.

## CONCLUSION

A positive correlation was found between being a woman, living alone or with friends, being single, being young (up to 25 years old) and showing compulsive or internet-dependent behavior. The prevalence of Internet Addiction Disorder was found to be around 35% among undergraduate students studying Medicine, Nursing, Dentistry and Physiotherapy at ``*Universidade CEUMA*`, the number is similar to the world average.

The focus sample of the study was identified according to the classification by Young et al. and, for the most part, they were internet dependent between light (23%) and moderate (12%) levels. Despite listing several subterfuges, those interviewed apparently are aware of the time spent and their online habits and behaviors. The interviewees also confirm the daily presence of the internet and add that, for them, there is no possibility of going without being connected every day, especially in the professional environment. The feeling of those interviewed regarding the lack of internet was nervous and irritated. Most people miss the internet and the main concerns that the lack of it brings are the loss of communication between friends and family

and the functioning of professional life.

Abusive use of the internet, even though it does not reach pathological levels, is affecting students' quality of life. We observed the need for intervention projects aimed at preventing DID, as well as regionalized studies on the subject in order to understand the magnitude of the problem.

In view of the above, it is understood that what most differentiates interviewees between internet dependents and non-internet dependents is self-control in the face of the digital world and the solidity of connections with the real world, which reduces access to the virtual world. The digital world enhances what users want. The way the user views the digital world in their life is what really differentiates them between internet dependent and non-internet dependent. It changes the individual's functions and perceptions and also their worldview. This generation of digital natives raised in the internet world does not know what types of changes they will have in the future.

The limitations of this research are found in the difficulties and weaknesses of the theoretical model that is based on the interviewees' perception of themselves. Despite using the Internet Addiction Test, those surveyed may omit important information when answering the questionnaire or may not realize their behavior. in the face of the digital world and perhaps, one can even include the perception of third parties, such as the people around that user.

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