

Internet use and social participation: reality of students before and during the pandemic**Uso de internet e participação social: realidade de estudantes antes e durante a pandemia****Uso de Internet y participación social: la realidad de estudiantes antes y durante la pandemia**** Erika Hiratuka-Soares¹,  Marta Regina Valadares²,  Andrezza Marques Duque¹****Received: 23/11/2022 Accepted: 18/01/2023 Published: 12/04/2023**

Objective: to identify internet use and social participation of High School students before and during the COVID-19 pandemic. **Methods:** quantitative, exploratory and descriptive study, carried out in 2021, in a High School in a municipality in the state of Sergipe, Brazil. Data were collected through an online questionnaire using the Internet Addiction Test and the Social Participation Questionnaire. **Results:** 49 High School students participated and, prior to the pandemic, 73.46% already had mild internet dependence, with an increase in the level of dependence to moderate during the pandemic, from 24.5% to 34.7%. Most had an average level of social participation, with an expected decrease during the pandemic. **Conclusion:** strategies for the continuity of daily activities during the pandemic may have favored increased internet use and dependence, as well as affected social participation.

Descriptors: Technology addiction; Internet; Social participation; High school.

Objetivo: identificar o uso de internet e a participação social de estudantes do ensino médio no período anterior e durante a pandemia do COVID-19. **Método:** estudo quantitativo, de caráter exploratório, descritivo realizado em 2021, numa escola de ensino médio de um município sergipano. Os dados foram coletados com questionário remoto e utilizado o Teste de Dependência de Internet e o Questionário de Participação Social. **Resultados:** participaram 49 estudantes de nível médio e, no período anterior à pandemia 73,46% já apresentavam dependência leve de internet e durante a pandemia houve um aumento no nível de dependência para moderada, de 24,5% a 34,7%. A maioria teve nível médio de participação social com esperada diminuição na pandemia. **Conclusão:** as estratégias para a continuidade das atividades cotidianas durante a pandemia podem ter favorecido o aumento do uso da internet e sua dependência, assim como afetado na participação social.

Descritores: Dependência de tecnologia; Internet; Participação social; Ensino médio.

Objetivo: identificar el uso de internet y la participación social de los estudiantes de escuela secundaria antes y durante la pandemia de COVID-19. **Método:** estudio cuantitativo, de carácter exploratorio, descriptivo realizado en 2021, en una escuela de enseñanza secundaria de un municipio de Sergipe, Brasil. Los datos se recogieron con un cuestionario a distancia y se utilizaron el Test de Adicción a internet y el Cuestionario de Participación Social. **Resultados:** Participaron 49 alumnos de escuela secundaria y en el período anterior a la pandemia. De ellos, 73,46% ya tenían adicción leve de internet y durante la pandemia hubo un aumento del nivel de adicción a moderado, de 24,5% a 34,7%. La mayoría tenía un nivel medio de participación social, con una disminución esperada durante la pandemia. **Conclusión:** las estrategias para la continuidad de las actividades cotidianas durante la pandemia pueden haber favorecido el aumento del uso de internet y su adicción, así como afectado a la participación social.

Descritores: Adicción a la tecnología; Internet; Participación social; Escuela secundaria.

Corresponding Author: Erika Hiratuka-Soares – erika.hiratuka@academico.ufs.br

1. Professor of the Undergraduate Course in Occupational Therapy at the Universidade Federal de Sergipe (UFS), Lagarto/SE, Brazil.

2. Occupational Therapist. Lagarto/SE, Brazil.

INTRODUCTION

In last few decades, it is possible to observe a technological evolution in society, which has been accompanied by the expansion of internet use for: information, socialization and entertainment, becoming important in different contexts of everyday life, such as work, leisure and education¹⁻².

According to the Brazilian National Household Sample Survey (*Pesquisa Nacional por Amostra de Domicílios*), there was an increase in the percentage of households using the internet from 2016 to 2017, from 69.3% to 74.9%, which represents an increase of 5.6%. For 97% of internet users, mobile phones are the main way of access, being present in 93.2% of Brazilian households. Considering the population over 10 years old, the 20 to 29 age group was the one that used the Internet the most, representing 21.7%, followed by the 30 to 39 age group, with 21.4% and 10 to 19 years with 20.5%³.

Nowadays, there is an increase in the presence of the internet in everyday life in society and, with every change in social scenarios, questions arise about its possible consequences, weighing the benefits and harms of such changes. Internet use by young people is a recurring theme, especially among parents, educators and health professionals. Issues and concerns with age when first accessing the internet, daily time of use and possible damage to development have been part of the reality of several families.

Although there is a growing concern on the part of parents regarding their children's internet use, not all are able to identify problematic use and search for regulation strategies.

At the end of the 1990s, when studies on the harmful use of the internet began to appear, and with the increase in the number of researches between 2010 and 2020, clinical observation changed to statistical research with greater scientific basis. Even so, these studies were not able to answer many questions related to this type of use, especially in children and adolescents⁴.

One of the aspects that generates many discussions concerns the definition of diagnostic criteria and nomenclatures for the condition of harmful and unregulated use of the internet, making it possible to identify different names, such as internet addiction disorder, problematic internet use, pathological internet use, compulsive internet use and internet gaming disorder, the latter being present in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V)⁵.

Considering these difficulties and the wide variety of types of harmful use of the internet, such as the different devices used and the various activities carried out, among them, games, social networks, pornography, searching for information and watching videos, it was suggested by researchers from area the term "Problematic Interactive Media Use" (PIMU). This syndrome is characterized by the uncontrolled and compulsive use of interactive media, the use of screens

and increased tolerance, with negative consequences for the person's functioning in physical, mental, cognitive and social aspects. In addition, the person also has negative reactions when forced to restrict its use⁵⁻⁶.

The characteristics of the PIMU are similar to the main criteria used for psychoactive substance dependence (PAS) such as: a behavior that produces pleasure, a pattern of excessive use, tolerance, abstinence and a negative impact on several areas of the person's life⁷. In fact, investigations have identified these similarities, as well as similar neurochemical characteristics, such as increased dopamine in the brain, a neurotransmitter directly linked to the sensation of pleasure, as well as brain activity in the same areas activated when using psychoactive substances⁷⁻⁹.

Although similarities with PAS dependence are identified, including tolerance and abstinence patterns with mood and behavioral changes when interrupting use, the fact that there is no consistent physiological response means that many scholars in the area do not classify this type of harmful use as a form of addiction. This classification difficulty, as well as the fact that PIMU is not seen as a public health problem, prevents parents and health professionals from early identifying problematic internet use by children and young people, delaying a diagnosis and consequent intervention⁵. Studies identify impacts in several spheres, such as quality of life, physical health, mental health, social relationships and cognition¹⁰⁻¹².

Therefore, identifying the risk factors for PIMU can collaborate in preventive processes, as well as providing subsidies for forms of intervention. There have been studies that seek to associate harmful use with aspects such as coping, social support, personality types, self-esteem, parental control, parental education, stress, mental health of parents and the child or adolescent, with some of them finding some type of association¹³⁻¹⁵.

A study¹⁵ with high school adolescents in Taiwan identified that performing outdoor activities, activities with the family and parental control decreased the trend of internet addiction. On the other hand, tedious and social leisure activities related to the Internet itself, such as playing cards, going to the mall, going out to nightclubs and parties with friends increased this trend. Thus, it is possible that there is a relationship between PIMU or internet addiction and the way in which the adolescent participates in leisure, social and family activities, and these activities are related to social participation.

Social participation is the interrelation of occupations that support the person's engagement in the community and in family activities, as well as in the involvement with peers and friends, whichever they desire¹⁶. According to the American Occupational Therapy Association¹⁷, social participation should occur through the person's involvement in activities

that result in successful interaction in the community, neighborhood, workplace, school, religious group, family, through roles one occupies or wants to occupy and with peers and friends, considering the different levels of interaction and intimacy.

Understanding that a successful social participation is related to the process and results of the development of children and adolescents, their context and their experiences and that the problematic use of interactive media can affect this participation or be affected by it, there was a need to investigate how students' relationships with the internet have been, identifying the existence or not of dependence and the levels of social participation, in order to contribute to students' greater knowledge of their relationships with the internet and their social participation, as well as contributing to the promotion of healthier behavior by young people and society.

The pandemic of COVID-19 began in February 2020 in Brazil, and one of the main preventive measures against the virus was social distancing. Studies have identified an increase in the use of media during this period, with possible psychosocial impacts¹⁸⁻²⁰.

Research carried out with 6,146 Chinese identified that 16.6% of the participants had an increase in the time of internet daily use, 46.8% increased internet dependence, considered "severe dependence" when compared to the period before and during the pandemic, which was 4.3% to 23%¹⁸.

METHODS

This is a quantitative, exploratory, descriptive study carried out in 2021 and organized based on the framework proposed by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) tool.

Data were collected through online questionnaires, and considered students of both sexes, from high school in a public, urban school, in a municipality in the state of Sergipe, Brazil. The invitation to participate was sent to all of the school's high school students by the school principal, through the internet. All those enrolled in 2021 and who signed the assent term (for those under 18 years of age) or the consent term (for those over 18 years of age or legal guardians) were included.

Due to the COVID-19 pandemic, all instruments were included in Google forms to be sent to students, namely:

A. *Participants identification form*: with 11 questions referring to general identification data such as age, school, grade, marital status, area of residence, sex/gender, who they live with, family income, work and data on the pattern of use of internet (devices and where they use it),

the type of internet, the activities they carry out and the time they spend, considering the period before and during the pandemic.

B. *Internet Addiction Test*²¹: evaluates which areas of an individual's life may be affected by excessive use of the internet, in the domains: salience, excessive use, abandonment of work, anticipation, lack of control and abandonment of social life. It has 20 self-completion items with responses on a Likert scale of points, ranging from 1 (never) to 5 (always). The higher the score, the greater the severity of dependence. It had its cross-cultural adaptation to Brazilian Portuguese²¹ and, for classification of dependence, three levels are considered: mild dependence (20-49 points), moderate dependence (50-79) and severe dependence (80-100)²².

C. *Social Participation Questionnaire*: instrument developed by the researchers – based on the field of Occupational Therapy and on the instruments that discuss participation and social engagement, to assess the social participation of students. Contains 18 self-completion items with responses given on a Likert scale of points, ranging from 1 (never) to 5 (always). It was analyzed by three expert judges in the area. In the analysis, there were 2.89% of disagreements, 52.17% of agreements and 44.92% of partial agreement. In all disagreements or partial agreements, the judges gave justifications and would suggest changes mainly related to the content, language and order of the items. There was no issue with more than one disagreement. It was also applied to a similar population to identify adequacy needs. Four levels of classification were considered for this study: very low (0 to 18); low (19 to 45); average (46 to 71); high (72 to 90). It appears that the higher the score, the better the level of social participation.

During data collection, there was contact with the school and a request for authorization to carry out the research online, as well as explaining the objectives and procedures of the study. With the acceptance of the board, the school received guidance on how to send the invitation and the link to the online form, with the form available for 30 days.

Data were tabulated and organized using Microsoft Excel™. The filling in of the data was revised and the results presented through absolute and relative frequencies, means and standard deviation in the form of tables or graphs. For the comparison analysis between the two groups (before and during the pandemic) and statistical validation, Student's t-test correlation (p) was used, with alpha of 5% and confidence interval of 95%.

The present study was approved by the Human Research Ethics Committee of the Universidade Federal de Sergipe, according to the terms of Resolution 466/12, under CAAE No: 34240720.2.0000.5546. Underage participants received an Free and Informed Assent Form,

and their parents or guardians and participants over 18 years old received a Free Informed Consent Form, and they must have agreed to those terms.

RESULTS

The participants were 49 students, of both sexes, aged between 14 and 19 years. In Table 1, it was possible to observe that 77.55% of the students identified themselves as female, with a mean age of 16.22 years, 95.91% single and 53.06% attending the 1st year of high school; residing in the urban area (57.14%), with other 5 or more people (40.82%), income between half and one minimum wage (48.98%) and no paid job (83.67%).

Table 1. Sociodemographic characteristics of high school students. Lagarto/SE - Brazil, 2021.

Sociodemographic Characteristics	No	%
Gender		
Female	38	77.55
Male	11	22.45
Age		
Average	16.22	
Standard deviation	±1.46	
Marital status		
Single	47	95.91
Married	2	4.08
Grade		
1 st Year	26	53.06
2 nd Year	9	18.37
3 rd Year	14	28.57
Housing		
Urban area	28	57.14
Rural area	21	42.86
Family composition		
2 people	1	2.04
3 people	10	20.41
4 people	18	36.73
5 people or more	20	40.82
Children		
0	45	91.84
1	1	2.04
2 or more	3	6.12
Family income		
Up to a minimum wage	22	44.92
Between half and one minimum wage	24	48.94
Between half and two minimum wages	3	6.12
Paid work		
Yes	8	16.33
No	41	83.67
Total	49	100.00

In terms of internet use, it was possible to verify that 100% accessed the internet via mobile phone/smartphone, 51.02% used cable internet, and 81.63% from home (Table 2).

About the period of internet use, the main answers varied between games (59.18%), entertainment activities (38.78%) and reading e-mail (12.24%), with predominance between: talking with people (85.71%), watching videos (83.67%), navigating on social networks (73.47%) and studying (75.51%). When asked about the activity in which they were most

involved on the internet, the main answers were between: talking to people (26.53%), studying (24.49%), navigating on social networks (22.45%) and playing games (12.24%) (Table 2).

Table 2. Characteristics of internet use by high school students, Lagarto/SE - Brazil, 2021.

Internet use	No	%
Where do you access*		
Mobile phone/smartphone	49	100.00
Computer	7	14.29
Tablet	3	6.12
Others	2	4.08
Internet type*		
Cable internet	25	51.02
Optical fiber	17	34.69
Internet 3G or 4G	8	16.33
Other	4	8.16
Where do you use it		
Home	40	81.83
Acquaintance's house	8	16.33
Other	1	2.04
What do you do on the internet*		
Talk with people	42	85.71
Watch videos	41	83.67
Study	37	75.51
Navigate on social media	36	73.47
Play games	29	59.18
Read news	22	44.9
Entertainment activities	19	38.78
Read emails	6	12.24
What else do you do on the internet?		
Talk with people	13	26.53
Study	12	24.49
Navigate on social media	11	22.45
Play games	6	12.24
Watch videos	3	6.12
Others	2	4.08
Read emails	1	2.04
Read news	1	2.04
Entertainment activities	1	2.04

* Participants could give more than one answer.

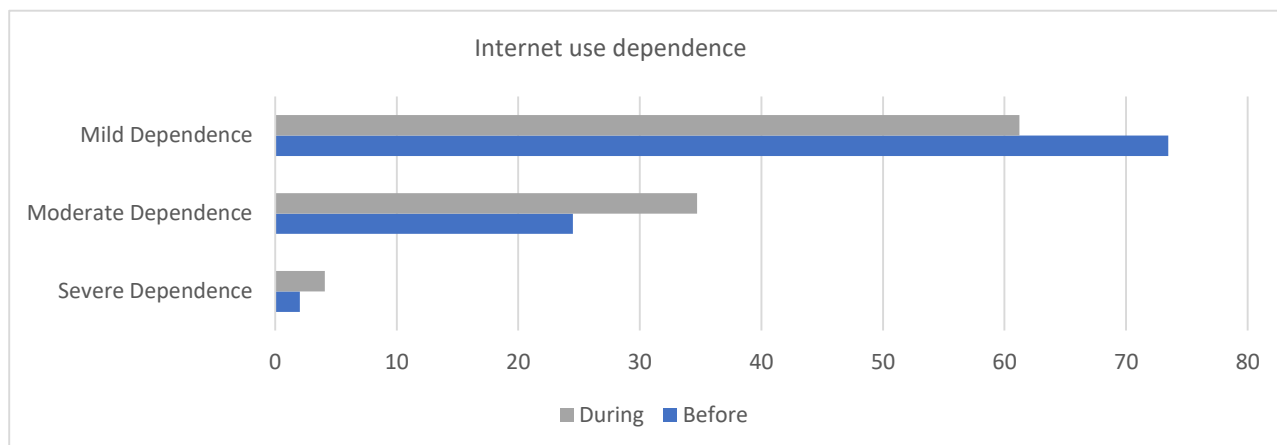
As for the number of hours spent on the internet per day, there was an increase in the number of hours during the pandemic. Prior to the pandemic, 32.65% said that they spent, on average, 6 hours or more per day, and 16, 33% spent less than 1 hour. During the pandemic, 38.78% of students responded that they spent 6 hours or more, and 6.12% reported spending less than 1 hour a day on the internet, as shown in Table 3.

Table 3. High school students regarding internet use before and during the pandemic. Lagarto/SE - Brazil, 2021.

Time of daily use	Internet use	
	Before the pandemic	During the pandemic
Less than 1 hour	16.33%	6.12%
Between 1 and 2 hours	8.16%	12.24%
Between 2 and 3 hours	18.37%	6.12%
Between 3 and 4 hours	8.16%	10.20%
Between 4 and 5 hours	12.24%	12.24%
Between 5 and 6 hours	4.08%	14.29%
6 hours or more	32.65%	38.78%

Regarding the levels of internet dependence, mild dependence was identified both in the period before the pandemic (73.47%) and during it (61.22%). However, there is an increase in moderate dependence during the pandemic (34.69%) compared to the previous period (24.49%). Severe dependence was identified in only one of the students (2.04%) in the period prior to the pandemic. There was an increase during the pandemic (4.08%) (Graph 1).

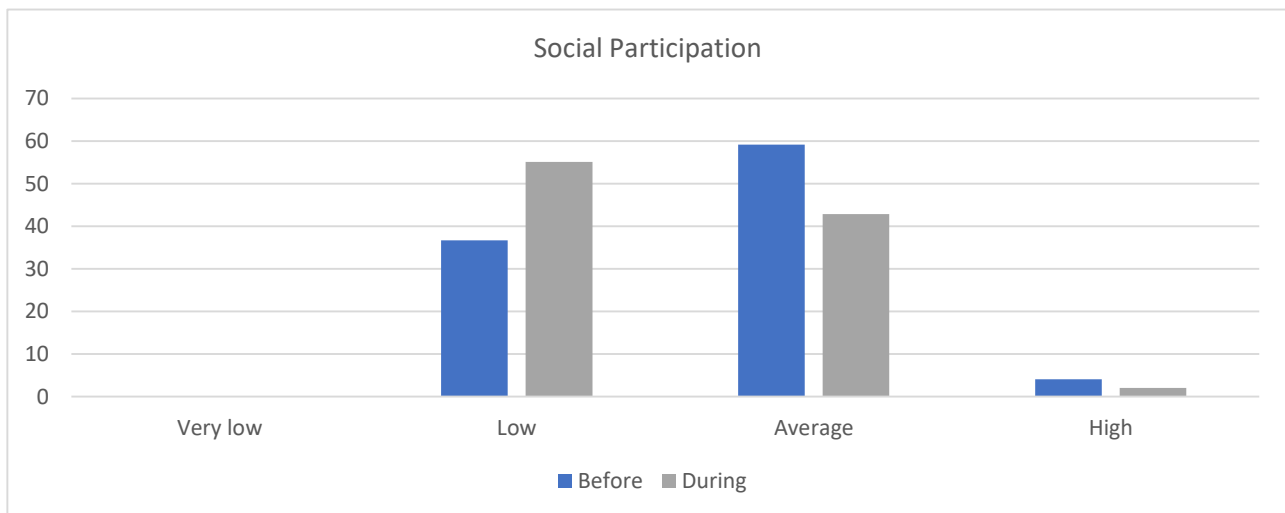
Graph 1. High school students' internet addiction, in the periods before and during the pandemic, Lagarto/SE, 2021.



The average score, considering the period prior to the pandemic, was 44.4, with a standard deviation of 12.7, characterizing mild dependence. During the pandemic, the score on this test increased to an average of 49.6 points, with a standard deviation of 14.6, remaining in mild dependence, although on the threshold for moderate dependence. Through analysis of paired means using the T Test, a p-value < 0.05 was verified, which demonstrates that there was a significant difference between the period before and during the pandemic.

Regarding social participation, in both periods, students showed an average level of social participation. However, the mean score before the pandemic was 51.37 (± 11.6) and during 47.2 (± 11.4) demonstrating that there was a significant difference between the period before and during the pandemic (p-value < 0.05). The different levels of participation are shown in Graph 2.

Graph 2. Social participation of high school students before and during the pandemic, Lagarto/SE, 2021.



DISCUSSION

Most of those surveyed had experienced internet addiction, albeit mildly, since the period prior to the pandemic (average of 44.4), and it has worsened during the pandemic (average of 49.6). Some studies carried out before and during the pandemic had a similar results with young people. In general, there were levels of internet addiction, especially moderate, in addition to significant impacts on a personal, social and psychological level^{1, 23-26}.

The internet has been used by society to obtain information, establish relationships, study and have fun¹ and, in recent decades, there has been a need and recognition of the internet and its derivatives as an essential tool, both in personal and professional life. However, its excessive use can cause negative impacts on people's lives²⁶.

An investigation²⁷ took photographs, taken in different environments, in order to capture the relationships of individuals with digital media devices and demonstrate how the excessive use of the internet has influenced people's daily lives. In the first photographs, there was a “disconnection” with the real world and an interference in social relations when in collective spaces, being connected in virtual means and physically disconnected. Also, the representation of technological dependence rooted in society was observed, and how the use of time in the virtual context has favored that significant moments of physical form are neglected.

When it comes to young people, a study¹ indicated a significant percentage of young people who believe that their condition of using the internet would not be harmful, even if they had characteristics understood as psychopathological. In another study²², factors attributed to internet addiction were identified in high school students who had a moderate level of internet

addiction, with emphasis on: feelings of social inhibition and curiosity, need to escape family and social conflicts, need of social approval and pleasant experiences, and the need to build sociability, demonstrating that the use of the internet provides both positive aspects to the mental health of young people, as well as an alternative to escape from everyday problems.

During the pandemic, many strategies used to maintain the continuity of daily activities involved greater use of the internet. Especially social networks have been used more as a hobby, information, socialization and education. This use had a positive role in the pandemic; however, it is necessary to adopt strategies that incorporate other activities, in addition to the internet, in the daily routine, such as: physical exercises, to help prevent internet addiction^{18, 24}.

There was self-perception about the exacerbated use of the internet during the pandemic, and almost 70% of students said they always or almost always spent more time on the internet than they intended. Added to this, 30.61% said they try to reduce the time and fail. This finding coincides with a research²³, in which 54.2% of the participants had difficulties to reduce the time of access to the internet, even understanding the importance of this control.

There was an increase from 14.28% to 26.53% of participants who reported using the internet as a means of blocking disturbing thoughts about their lives and calming down. Suffering is linked to the feeling of incapacity and immobility, which can lead the individual to seek relief from the tensions experienced in the immediate relaxation provided by digital media²⁹.

Before the pandemic, 26.53% of students feared that life without the internet would be boring, empty and dull, rising to 42.85% during the pandemic. It is understood, then, that students attach great value to the internet and believe that life without it can be bad²³. At the same time, the internet provided a space as close as possible to normality, which could mitigate the negative effects of social distancing²⁹⁻³⁰.

Regarding social participation in the pandemic, it draws attention to the fact that the level of participation was average even before the pandemic. Considering the maximum score of 90 points on the Social Participation Questionnaire, the average of students before the pandemic was 51.37, with an expected decrease during the pandemic period.

Also noteworthy are some results regarding the period prior to the pandemic, such as those about the relationship with classmates outside the school context, in which 53.06% stated that they never or rarely meet with classmates or school friends outside of the school context, 65.30% never or rarely go out to flirt or date, and 49% never or rarely meet friends on weekends. The reasons for this physical social contact limited by this group of young people are

not known, but it is worth pointing out that staying for long periods in a virtual environment can distance a person from face-to-face relationship with their group.

A study³¹ with adolescents on the relationship between internet addiction and social skills found that adolescents who were addicted had greater difficulty in performing skillful social behaviors, in a relationship with a worse repertoire of social skills associated with the presence of internet addiction.

Other aspects such as: violence rates, access and transportation difficulties, lack of leisure environments and the place of residence in the rural area can interfere with these activities. Anyway, the virtual approach does not replace physical social contact, touch, feelings of belonging to the environment in which one is inserted³¹.

During the pandemic, approximately 80% of students stated that they never or rarely met their classmates or friends outside the school context and that they never or rarely went out to flirt or date, which can be justified by the need for social isolation. Regarding the decrease in contact with friends in the pandemic, research³¹ observed social impacts that reduced the physical component of the friendship relationship, trust in others and their interpersonal skills, however, they also believed that distancing could help to realize the importance of relationships and strengthen friendships.

In addition, it was found that students did not take courses online (not including the regular school's online classes). Although the pandemic period was a time when many people used it to deepen their knowledge, enrich themselves on a personal and educational level and favor cognitive aspects, it is worth noting that online classes brought a greater workload at home, which may have hampering other activities³³.

A review³⁰ found that, among the main occupations affected by internet addiction, social participation is the most mentioned, followed by education, work and rest and sleep.

In this research, it was found that most participants are uncertain about how much their level of social participation is related to their use of the internet. This data is similar to a study¹ in which it was observed, in a significant percentage of young people, a difficulty in perceiving internet addiction, which may not be perceived, be denied or be understood as normal, even with psychopathological characteristics and impairments.

CONCLUSION

It was possible to identify that approximately 30% of respondents had moderate to severe dependence in the period prior to the pandemic, with an increase to almost 40% during the pandemic. In social participation, an average level was impaired during the pandemic.

The internet played an important role in the lives of young people, whether for educational, recreational or social purposes, even implying as a fundamental element for better social participation, especially with peers of the same age group.

The notion of excessive internet use was reported, as well as difficulties to control it, which may have interfered with different occupations of daily life, especially social participation. The need for strategies for the conscious and controlled use of interactive media by young people is highlighted, so that they can balance their use and not harm other areas of their lives.

As limitations, there is the aim at a single institution and city, and it is recommended for other studies related to the use of the internet by young people in high school in other regions, with an expansion of the studied sample and the inclusion of students from private schools. Despite this, it is considered that this work contributes to the debate and reflection about the use of the internet and social participation of students.

REFERENCES

1. Tumeleiro LF, Costa AB, Halmenschlager GD, Garlet M, Schmitt J. Dependência de internet: um estudo com jovens do último ano do ensino médio. *Gerai* (Univ. Fed. Juiz Fora) [Internet]. 2018 [cited in 30 Jan 2021]; 11(2):279-93. DOI: <http://dx.doi.org/10.36298/gerais2019110207>
2. Ferreira C, Ferreira H, Vieira MJ, Costeira M, Branco L, Dias Â, et al. Epidemiologia do uso de internet numa população adolescente e sua relação com hábitos de sono. *Acta Med Port*. [Internet]. 2017 [cited in 30 Jan 2021]; 30(7-8):524-33. DOI: <https://doi.org/10.20344/amp.8205>
3. Instituto Brasileiro de Geografia e Estatística. Acesso à internet e posse de telefone móvel para uso pessoal: 2016 [Internet]. Rio de Janeiro: IBGE; 2017 [cited in 30 Jan 2021]. Available from: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv101543.pdf>
4. Young, KS, Abreu CN. Introdução: a evolução da dependência de internet. Dependência de Internet em crianças e adolescentes: fatores de risco, avaliação e tratamento. Porto Alegre: Artmed; 2018. p. 1-4.
5. Rich M, Tsappis M, Kavanaugh JR. Uso problemático de mídias interativas entre crianças e adolescentes: dependência, compulsão ou síndrome? In: Young, KS, Abreu, CN. Dependência de internet em crianças e adolescentes: fatores de risco, avaliação e tratamento. Porto Alegre: Artmed; 2018. p.7-31.
6. Pluhar E, Kavanaugh JR, Levinson JA, Rich M. Problematic interactive media use in teens: comorbidities, assessment, and treatment. *Psychol Res Behav Manag*. [Internet]. 2019 [cited in 30 Jan 2021]; 12:447-55. DOI: <http://doi.org/10.2147/PRBM.S208968>

7. Greenfield D. As propriedades de dependência do uso de internet. In: Young KS, Abreu CN. Dependência de internet: manual e guia de avaliação e tratamento. Porto Alegre: Artmed; 2011. p. 169-90.
8. Brand M, Young KS, Laier C. Prefrontal control and Internet addiction: a theoretical model and review of neuropsychological and neuroimaging findings. *Front Hum Neurosci*. [Internet]. 2014 [cited in 30 Jan 2021]; 8:1-13. Available from: <https://www.frontiersin.org/articles/10.3389/fnhum.2014.00375/pdf>
9. Han DH, Bolo N, Daniels MA, Arenella L, Lyoo IK, Renshaw PF. Brain activity and desire for Internet video game play. *Compr Psychiatry* [Internet]. 2011 [cited in 20 Mar 2020]; 52(1):88-95. DOI: <https://doi.org/10.1016/j.comppsy.2010.04.004>
10. Machimbarrena JM, González-Cabrera J, Ortega-Barón J, Beranuy-Fargues M, Álvarez-Bardón A, Tejero B. Profiles of problematic internet use and its impact on adolescents' health-related quality of life. *Int J Environ Res Public Health* [Internet]. 2019 [cited in 22 Sep 2022]; 16(20):2-17. DOI: <https://doi.org/10.3390/ijerph16203877>
11. Zhou R, Fong PSW, Tan P. Internet use and its impact on engagement in leisure activities in China. *PLOS ONE* [Internet]. 2014 [cited in 30 Jan 2021]; 9(2):e89598. DOI: <https://doi.org/10.1371/journal.pone.0089598>
12. Sharahi BY, Ahmadi A, Goodarzi T, Beigi FH, Joukar J. A Survey of the amount of internet usage among high school students of khafr county and its impacts on students. *Procedia Soc Behav Sci*. [Internet]. 2014 [cited in 30 Jan 2021]; 114:610-6. DOI: <https://doi.org/10.1016/j.sbspro.2013.12.755>
13. Feng Y, MA Y, Zhong Q. The relationship between adolescents' stress and internet addiction: a mediated-moderation model. *Front Psychol*. [Internet]. 2019 [cited in 30 Jan 2021]; 10:2248. DOI: <https://doi.org/10.3389/fpsyg.2019.02248>
14. Servidio R, Gentileb A, Bocab S. The Mediation role of coping strategies in the relationship between self-esteem and risk of internet addiction. *Eur J Psychol*. [Internet]. 2018 [cited in 30 Jan 2021]; 14(1):176-87. DOI: <https://doi.org/10.23668/psycharchives.1284>
15. Lin C, Lin S, Wu C. The effects of parental monitoring and leisure boredom on adolescents' internet addiction. *Adolescence* [Internet]. 2009 [cited in 30 Jan 2021]; 44(176): 993-1004. Available from: https://www.researchgate.net/profile/Chien_Hsin_Lin2/publication/43531762_The_effects_of_parental_monitoring_and_leisure_boredom_on_adolescents'_Internet_addiction/links/557524b208ae7521586a9af1/The-effects-of-parental-monitoring-and-leisure-boredom-on-adolescents-Internet-addiction.pdf
16. Lloyd C, Deane FP. Social participation. In: Brown C. Occupational therapy in mental health: a vision for participation. Philadelphia: F.A. Davis Company; 2019. p. 881-95.
17. Occupational therapy practice framework: domain and process *Am J Occup Ther*. [Internet]. 3rd. ed. 2014 [cited in 30 Jan 2021]; 68(SUPPL 1):s1-s48. DOI: <https://doi.org/10.5014/ajot.2014.682006>
18. Sun Y, Li Y, Bao Y, Meng S, Sun Y, Schumann G, et al. Brief report: increased addictive internet and substance use behavior during the COVID-19 pandemic in China. *Am J Addict*. [Internet]. 2020 [cited in 2 Oct 2020]; 29(4):268-70. DOI: <https://doi.org/10.1111/ajad.13066>
19. Petrella S, Morais R, Silveira P. Dependência da internet e interação nos media sociais durante a pandemia. *Rev Ciênc Hum*. [Internet]. 2022 [cited in 28 Feb 2022]; 15(1):e31. DOI:10.32813/2179-1120.2022.v15.n1.a913
20. Carvalho AGL, Souza ACP. Como a pandemia da Covid-19 vem afetando o cotidiano das comunidades universitárias do nordeste brasileiro?. *Mundo Amazón*. [Internet]. 2021 [cited in 20 Feb 2022]; 129(1):43-64. DOI: <https://doi.org/10.15446/ma.v12n1.88489>
21. Conti MA, Jardim AP, Hearst N, Cordás TA, Tavares H, Abreu CND. Avaliação da equivalência semântica e consistência interna de uma versão em português do Internet.

- Addiction Test (IAT). Rev Psiquiatr Clín (Santiago de Chile) [Internet]. 2012 [cited in 30 Jan 2021]; 39(3):106-10. DOI: <https://doi.org/10.1590/S0101-60832012000300007>
22. Silva VC. Validade e confiabilidade da versão brasileira do teste de dependência de internet (TDI) [Internet]. [dissertação]. Canoas, RS: Centro Universitário La Salle; 2016 [cited in 30 Jan 2021]. 58 p. Available from: <http://hdl.handle.net/11690/692>
23. Bispo A, Vieira T, Euflauzino I, Lopes N, Silva H. Uma análise da dependência de internet em alunos da educação profissional baseada no Internet Addiction Test (IAT). In: III Congresso Nacional de Pesquisa e Ensino em Ciências [Internet]. Campina Grande, PB: Realize Editora; 2018 [cited in 30 July 2021]. 11 p. Available from: <https://www.editorarealize.com.br/index.php/artigo/visualizar/43400>
24. Gómez-Galán J, Martínez-López JÁ, Lázaro-Pérez C, Sarasola Sánchez-Serrano JL. Social networks consumption and addiction in college students during the COVID-19 pandemic: educational approach to responsible use. Sustainability [Internet]. 2020 [cited in 30 July 2021]; 12(18):1-17. DOI: <https://doi.org/10.3390/su12187737>
25. Zanonato ER, Costa AB, Risson AP. Fatores psicossociais relacionados à dependência de internet: estudo quanti-qualitativo com estudantes do ensino médio. Braz J Dev. [Internet]. 2021 [cited in 30 July 2021]; 7(1):5776-97. DOI: <https://doi.org/10.34117/bjdv7n1-393>
26. Assis RA. Dependência de Internet: um estudo das propriedades psicométricas da versão adaptada ao português brasileiro do Internet Addiction Test (IAT) [Internet]. [dissertação]. Recife: Centro de Filosofia e Ciências Humanas, Universidade Federal de Pernambuco; 2014 [cited in 30 July 2021]. 89 p. Available from: <https://repositorio.ufpe.br/bitstream/123456789/29048/1/DISSERTA%c3%87%c3%830%20Raissa%20Almo%c3%aado%20de%20Assis.pdf>
27. Cruz DMC, Bragatto RL. Nomofobia: o telefone celular, o uso do tempo e o desengajamento ocupacional. Revisbrato. [Internet]. 2021 [cited in 30 July 2021]; 5(2):143-52. DOI: [10.47222/2526-3544.rbto34953](https://doi.org/10.47222/2526-3544.rbto34953)
28. Gorza MS, Becher G. Dependência virtual: um olhar fenômeno-estrutural sobre a compulsão digital. Psicopatologia Fenomenológica Contemporânea [Internet]. 2020 [cited in 30 July 2021]; 9(1):73-93. DOI: <https://doi.org/10.37067/rpfc.v9i1.1067>
29. Deslandes SF, Coutinho T. O uso intensivo da internet por crianças e adolescentes no contexto da COVID-19 e os riscos para violências autoinflingidas. Ciênc Saúde Colet. [Internet]. 2020 [cited in 30 July 2021]; 25(Supl 1):2479-86. DOI: <https://doi.org/10.1590/1413-81232020256.1.11472020>
30. Orben A, Tomova L, Blakemore S. The effects of social deprivation on adolescent development and mental health. Lancet Child Adolesc Health [Internet]. 2020 [cited in 30 July 2021]; 4(8):634-40. DOI: [https://doi.org/10.1016/S2352-4642\(20\)30186-3](https://doi.org/10.1016/S2352-4642(20)30186-3)
31. Terroso LB, Argimon ILL. Dependência de internet e habilidades sociais em adolescentes. Estud Pesqui Psicol. [Internet]. 2016 [cited in 30 July 2021]; 16(1):200-19. Available from: <http://pepsic.bvsalud.org/pdf/epp/v16n1/v16n1a12.pdf>
32. Sousa L, Silva NB, Ferreira LS, Costa EF. Dependência de Internet e o desempenho ocupacional de estudantes. Revisbrato [Internet]. 2018 [cited in 30 July 2021]; 2(4):793-815. DOI: [10.47222/2526-3544.rbto18473](https://doi.org/10.47222/2526-3544.rbto18473)
33. Branquinho C, Santos AC, Matos MG. A COVID-19 e a voz dos adolescentes e jovens em confinamento social. Psicol Saúde Doenças [Internet]. 2020 [cited in 30 July 2021]; 21(3):624-32. DOI: [http://dx.doi.org/10.15309/20psd210307](https://doi.org/10.15309/20psd210307)

Associated Publisher: Rafael Gomes Ditterich

Conflict of Interests: the authors declared there is no conflict of interests.

CONTRIBUTIONS

Érika Hiratuka-Soares contributed to the design, data collection and analysis, writing and revision. **Marta Regina Valadares** and **Andrezza Marques Duque** collaborated in data collection and analysis, writing and revision.

How to cite this article (Vancouver)

Hiratuka-Soares E, Valadares MR, Duque AM. Internet use and social participation: reality of students before and during the pandemic. *Rev Fam, Ciclos Vida Saúde Contexto Soc.* [Internet]. 2023 [cited in *insert day, month and year of access*]; 11(1):e6549. Available from: *insert access link*. DOI: *insert DOI link*.

How to cite this article (ABNT)

HIRATUKA-SOARES, E.; VALADARES, M. R.; DUQUE, A. M. Internet use and social participation: reality of students before and during the pandemic. **Rev. Fam., Ciclos Vida Saúde Contexto Soc.**, Uberaba, MG, v. 11, n. 1, p. e6549, 2023. DOI: *insert DOI link*. Available from: *insert access link*. Access in: *insert day, month and year of access*.

How to cite this article (APA)

Hiratuka-Soares, E., Valadares, M.R., & Duque, A.M. (2023). Internet use and social participation: reality of students before and during the pandemic. *Rev. Fam., Ciclos Vida Saúde Contexto Soc.*, 11(1). Retrieved in *insert day, month and year of access* from *insert access link*. DOI: *insert DOI link*.



This is an open access article distributed under the terms of the Creative Commons License