RELATIONSHIP BETWEEN INTERNET ADDICTION AND FEELINGS OF LONELINESS IN UNIVERSITY STUDENTS FROM A PRIVATE INSTITUTION SOUTHERN BRAZIL

RELAÇÃO ENTRE ADIÇÃO À INTERNET E OS SENTIMENTOS DE SOLIDÃO EM ESTUDANTES UNIVERSITÁRIOS DE UMA INSTITUIÇÃO PRIVADA DO SUL DO BRASIL

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Abstract

The internet is part of everyday life, used primarily for communication and social interaction. It can also be used to fulfill emotional needs (e.g., loneliness, depression, etc.) and, through abusive use, might assist in developing a dependency on social networks. This study is part of a larger research conducted with college students at a private university in southern Brazil. This is a quantitative, correlational, cross-sectional study. It included 124 college students that had a mean age of 23.7 years (SD = 8.1; Min 18; Max 58), and of which 91 (73.4%) were female. The participants were students of six schools of knowledge from the university. As an inclusion criterion, it was considered only users of social media; it was evidenced, however, that 100% of the participants used WhatsApp. The study aimed to analyze possible associations between internet addiction and feelings of loneliness, through the instruments *Sociodemographic* Questionnaire, Internet Addiction Test (IAT) and Brazilian Loneliness Scale (UCLA-BR). The results found a significant positive association between Internet addiction and feelings of loneliness (r_s = .425; p < .01), concluding that problematic Internet use among college students may be a risk factor for developing or enhancing feelings of loneliness and vice versa. Thus, future research and intervention development should pay attention to the effects of Internet addiction on this aspect of mental health.

Keywords: Internet; Loneliness; Solitude; University students.

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Resumo

A internet é parte do dia a dia, usada principalmente para comunicação e interação social. Também pode ser usada para suprir necessidades emocionais (exemplo solidão, depressão, entre outras) e, através do uso abusivo, pode ajudar no desenvolvimento de uma dependência das redes sociais. Este estudo é parte de uma pesquisa maior conduzida com estudantes universitá-rios de uma universidade do sul do Brasil. É um estudo quantitativo, correlacional e transversal. Participaram do estudo 124 estudantes universitários, com média de idade de 23.7 anos (SD = 8.1; Min 18; Max 58), e com 91 (73.4%) eram do sexo feminino. Os participantes eram de seis esco-las de saber da universidade. Como critério de inclusão, os estudantes tiveram que utilizar ao menos uma mídia social, e 100% deles utilizavam o WhatsApp. Este estudo teve como objetivo analisar as possíveis associações entre dependência de internet e sentimentos de solidão, através do Questionário Sociodemografico, Internet Addiction Test (IAT) and Brazilian Loneliness Scale (UCLA-BR). Os resultados encontraram significativas e positvas associações entre dependência de internet e sentimentos de solidão (rs = .425; p < .01), concluindo que o uso problemático de internet dos estudantes universitários pode ser um fator de risco para o desenvolvimento ou potencialização de sentimento de solidão e vice-versa. Estudos futuros e intervenções podem atentar-se para os efeitos da dependência de internet no âmbito da saúde mental.

Palavras-chave: Internet; Solidão; Solitude; Estudantes Universitários.

Introduction

The development of the internet and its uses is unstopping (Carter & Grover, 2015) indicating that the usage of Information and Communication Technologies (ICT) will not decrease. As a matter of fact, especially among university students, it has been growing in the last decade (Car-bonell et al., 2018). In multiple studies, the vast majority of these students stated that they either had a Smartphone or used at least one online social media (Çikrikçi, 2019; Fermann et al., 2021; Lima et al., 2017; Tangmunkongvorakul et al., 2019). This rise in social media usage in undergrad-uates is part of what could be leading to the increase of the internet addiction prevalence among these students (Carbonell, et al., 2018).

As described by Young (1998), the creator of the term, internet addiction is an inability to control excessive and impulsive use of online features, even as it causes problems to one's social, familiar, working and/or academic life – for exemple getting late or not attending to important appointments due to internet usage, constantly thinking about getting online when offline, feel-ing as if life without the internet would be empty, not being able to do housework because of the amount of time spent online. Among university students, this addiction is related to several mental health variables, such as higher depression, anxiety, and stress symptoms (Niero et al., 2019; Ostovar et al., 2016; Younes et al., 2016). As a matter of fact, depression, anxiety and stress appear to be in high levels among such students (Wörfel et al.,2016), along with loneliness (Pelt-zer & Pengpid, 2017). While all four psychological variables are positively associated with each other (Peltzer & Pengpid, 2017; Schmitt et al., 2021), feeling lonely is referred to be one of the most

harmful mental distress for university students, being associated with poorer mental and physical health in general and higher substance abuse (Peltzer & Pengpid, 2017).

It is suggested that, due to poor emotional regulation and lack of healthy ways to deal with unpleasant psychological symptoms, mental distress would cause the person to seek relief online, which would increase such distress overtime, resulting in an internet addiction (Faghani et al., 2020). Most notably, loneliness seems to be regarded as a predictor of internet addiction not only in undergraduates (Eijnden, 2014; Murat, 2019), but also among the general population, since internet use might, momentarily, decrease lonely feelings and that would reinforce such usage in an addictive way (Peltzer & Pengpid, 2017).

Loneliness is defined as the feeling of being emotionally alone, although not necessarily physically isolated from other people (Cacioppo et al., 2010). In 25 countries, feeling lonely was associated with poorer mental and physical health, greater aggressiveness, and a higher risk of substance abuse among university students (Peltzer & Pengpid, 2017). Because loneliness is based on one's perception of the environment, Pittman and Reich (2016) proposed that internet usage might decrease such feelings, especially if online social media is used in order to see or hear other people (e.g., watching videos and seeing photos). Thus, the use of online environments could potentially make one feel as if emotionally close to others, therefore reducing the sense of being lonely. As a matter of fact, other authors suggest that internet use may lower loneliness levels (Facioli & Do Prado, 2018; Pessoni, 2018). Therefore, even though it is indicated that loneliness could predict internet addiction precisely because using online spaces would decrease lonely feelings momentarily and that would reinforce the usage (Peltzer & Pengpid, 2017), internet use in general might be seen as beneficial to mental health. In fact, among university students, it is noted that online social media was perceived as helpful in creating and maintaining relationships with others (Lima et al., 2017).

It is also suggested that the relationship between internet addiction and loneliness among university students varies since such association is very complex (Eijnden, 2014; Murat, 2019; Pontes et al., 2014). Its complexity is apparent through the discrepancy found in literature – perhaps because of not understanding the aspects of the relation between the two variables, it is suggested that internet use, in general, might be beneficial to lonely feelings in undergraduates (Lima et al., 2017), whereas it is also indicated that loneliness would be a predictor of internet addiction among that same population (Eijnden, 2014; Murat, 2019). This implies that it is necessary to study about the subject, since it is needed to understand it further. It is not known what aspects of loneliness, exactly, internet addiction are associated with, nor is it known accurately what aspects of feeling lonely are increased or reduced by the addiction in question. Thus, this research aimed to understand the relationship between these two variables among university students by assessing the construct of loneliness in detail. By separating the Brazilian Loneliness Scale (UCLA-BR) and considering it item by item in a correlational statistical analysis, the present goal was to assess the associations between Internet Addiction and each of the UCLA-BR items in a sample of undergraduates from a private university from the south of Brazil. This subject has become increasingly important to study, as the Covid-19 pandemic, present since the beginning (World Health Organization, 2020), the academic life, especially in Brazil, has suddenly changed and internet use became an even bigger part university students' routine, affecting their mental health because of it (Arruda, 2020; Gundim et al., 2020; Lima et al., 2020).

Material & Methods

This study has a correlational, exploratory, quantitative, and cross-sectional design (Sampieri et al., 2013).

Participants

This study had a sample of 124 university students, in which 33 (26.6%) were male, and 91 (73.4%) were female. The mean age was 23.7 years (SD = 8.1; Min 18; Max 58), and 105 (85.4%) of the participants claimed to be single. As an inclusion criterion, at least one social media should be used, one hundred percent of participants (n = 124) used WhatsApp.

The student's major concentration was in three courses: Law (Law School; n = 23, 18.5%), Psychology (Health School; n = 17, 13.7%) and Journalism (Creative Industries School; n = 10, 8.1%). All Sociodemographic data are shown in Table 1.

TABLE 1
Sociodemografic Data (n = 124)

Variables	n	%
Age		
Between 18 and 22	85	68,5
Above 26 years old	24	19,4
Between 23 and 25	15	12,1
Semester		
3rd and 4th	47	37.9
5th and 6th	33	26.6
1st and 2nd	28	22.6
7th and 8th	16	12.9
University Schools		
Health	41	33.1
Law	23	18.5
Creative Industries	19	15.3
Polytechnic	17	13.7
Business	13	10.5
Humanities	11	8.9
Are you employed?		
Yes	88	71.0
No	36	29.0
Do you do psychotherapy?		
No	104	83.9
Yes	20	16.1
Do you have any psychological or psychiatric diagnosis?		
No	110	88.7
Yes	14	11.3

Procedure

To access university students, data was collected at a Brazilian private university, in the state of Rio Grande do Sul. This study is part of one major survey, which had the University Ethics Committee approval (CEP nº 2.289.637).

The sample of the present study was randomized. During the year of 2018, at the beginning of both semesters, the research group received a list of all graduation classes that were happening, and these were chosen at random by an online software at: sorteador.com. After selecting the classes, according to the percentage of students in each of the six schools of the university, the corresponding professor was emailed about the research, and data collection only started after the professors agreed to let their class participation. If the researcher's request were denied, another class would have to be randomly picked and its professor would have to grant permission for the data collection.

For the data collection, trained researchers would go to each class and invite its students to take part in the study. The ones that gave consent would be given the survey's instruments to answer, as well as a Termo de Consentimento Livre e Esclarecido (Free and Clarified Consent Term – TCLE), a document they would have to sign that attested that, knowing exactly what the survey was, they agreed to participate.

This study had a random sample of 124 university students. Criteria for participation included being at least 18 years old, making use of at least one online social media, being registered in at least one of the university graduation courses, and answering the instruments used in this study to completion. *The Statistical Package for Social Sciences* (SPSS), version 20.0, was used for data analyses. In the present research, only self-report instruments were used.

Instruments

Sociodemographic Questionnaire: developed by the ICCEP research group. It was meant to access sample characteristics, as in sex, age, graduation course and social media usage (as in, which social media is used and for which purposes). It also includes the *Critério de Classificação Econômica Brasil* ("Brazilian Economic Classification Criteria") questionnaire (Associação Brasileira de Empresas de Pesquisa – ABEP, 2015), to identify the sample's sociodemographic data.

The Internet Addiction Test (IAT; Young 1998, adapted to Brazilian population by Conti et al., 2012): this instrument evaluates one's level of Internet Addiction. That is: "no dependence", "mild dependence", "moderate dependence" and "severe dependence". IAT has 20 questions, for example: "*1. Com que frequência você acha que passa mais tempo na internet do que pretendia?*" ("1. How often do you think you spend more time on the Internet than you intended?"), which are answered through a Likert five-point scale: from "1- Rarely" to "5- Always". Its Cronbach alpha for this study was: 0.92.

The Brazilian Loneliness Scale (UCLA-BR; Russell et al., 1978; adapted to portuguese by Barroso et al., 2016): it is an instrument that evaluates feelings of Loneliness through a four-point Likert Scale: from "1- Never" to "4- Always". It has 20 questions, for example: "*3. Eu sinto que não tenho companhia*" ("3. I lack companionship"), and, in the present study, it's Cronbach alpha was: 0,94. For the purpose of this research, to access Loneliness in detail, every item of the UCLA-BR was, separately, taken into account. Therefore, not only was the UCLA-BR total assessed for associations with the IAT total, but each of UCLA-BR questions was also used to evaluate a potential relationship between itself and IAT total.

Data Analysis

First, descriptive statistics were used to describe the sample's characteristics. Then, before the correlation analyses, it was necessary to assess the normality of the sample. Thus, the *Kolmogorov-Smirnov Test* ($p < .05$) was used, with the *Lilliefors* correlation. It was attested that the sample of the present study was not normal, suggesting that, to evaluate the statistical association between the variables, it was best to use the *Spearman* correlation test.

To measure the correlations, the following ranges were adopted: .1 to .3 is a weak correlation; .4 to .7 is a moderate correlation; .8 to 1 is a strong correlation (Dancey & Reidy, 2011).

Results

It was assessed that 56.5% ($n = 70$) of the sample had some level of Internet Addiction. More specifically, 49 (39.5%) had mild Addiction, 19 (15.3%) had moderate Addiction and two (1.6%) had severe Internet Addiction. Regarding Loneliness, 57.3% ($n = 71$) had minimum Loneliness feelings, whereas 30.6% ($n = 38$), 10.5% ($n = 13$), and 1.6% ($n = 2$) had mild, moderate and severe Loneliness feelings, respectively.

Between Internet Addiction and general Loneliness, Spearman correlation test found significant positive correlations ($p < .01$; see Table 2). When assessing possible associations between Internet Addiction and each UCLA-BR item, items 1, 2, and 20, exclusively, did not appear to be related to the addiction in question ($p > .05$; see Table 2).

TABLE 2

Relation Between Internet Addiction and Loneliness

UCLA variables	Internet Addiction
UCLA 6 – There is no one I can turn to	.426*
UCLA Total	.425*
UCLA 8 – My interests and ideas are not shared by those around me	.418*
UCLA 14 – No one really knows me well	.413*
UCLA 15 – I feel isolated from others	.404*
UCLA 19 – People are around me but not with me	.390**
UCLA 18 – I feel shut out and excluded by others	.380*
UCLA 16 – I am unhappy being so withdrawn	.379*
UCLA 7 – I am no longer close to anyone	.371*
UCLA 11 – I am unable to reach out and communicate with those around me	.352*
UCLA 5 – I find myself waiting for people to call or write	.348*
UCLA 9 – I feel left out	.341*
UCLA 10 – I feel completely alone	.341*
UCLA 3 – I lack companionship	.316*
UCLA 13 – I feel starved for company	.315*
UCLA 12 – My social relationships are superficial	.306*
UCLA 4 – I feel as if nobody really understands me	.302*
UCLA 17 – It is difficult for me to make friends	.25*
UCLA 20 – I feel uncomfortable doing activities alone	.119
UCLA 1 – I am unhappy doing so many things alone	.75
UCLA 2 – I cannot tolerate being so alone	.27

Note. *The significative correlation is considering .01.

Discussion

The present study analyzed the possible associations between loneliness and internet addiction, verifying the former in detail. Not surprisingly, the mean age assessed in this study was less than 30 years old, which supports what other researches among university students has found (Carbonell et al., 2018; Purim & Tizzot, 2019). It is also important to point out that 100% of the sample used WhatsApp, an online social media that allows fast and easy conversations with other people through the internet. This might be in line with other studies that suggest that university students use the internet for communication and information exchanges (Purim & Tizzot, 2019; Sancovschi & Kastrup, 2015). Furthermore, this study's results regarding internet addiction may support the claim that such dependence is growing among university students (Carbonell et al., 2018), since more than half of the sample appeared to have some level of internet addiction and every participant made use of at least one online social media.

This study's results regarding university students internet addiction levels are similar to those found in other countries (Carbonell et al., 2018; Çikrikçi, 2019). Regarding loneliness, a substantial part of the present sample seemed to feel loneliness at some level, and such results are similar in other countries too (Peltzer & Pengpid, 2017).

In this study, a statistical association between internet addiction and general loneliness was expected, given that other researchers have already indicated it (Peltzer & Pengpid, 2017; Skues et al., 2016). The present results suggest that, in general, higher internet addiction is related to higher loneliness' feelings. This is supported by the literature (Costa et al., 2018; Pittman & Reich, 2016; Skues et al., 2016) and it can be argued that such association may lead to a vicious cycle among both constructs, with one continuously increasing the other.

Not all UCLA-BR items were associated with the addiction in question. "I am unhappy doing so many things alone", "I cannot tolerate being so alone" and "I feel uncomfortable doing activities alone" were the only ones that had no significant correlation with internet addiction. Each of the other items had a positive statistical association with such dependence, contradicting the literature that indicated that internet use, even if problematic, could decrease loneliness (Facioli & Do Prado, 2018; Pessoni, 2018). Since lonely feelings depend on the interpretation that one has of their environment, using the internet to keep in touch with other people should decrease the sense of loneliness (Pittman & Reich, 2016). Therefore, since all of the participants used WhatsApp, a social media made for online communication; it theoretically would diminish the sample's lonely feelings. This was, however, not the case in the present study. It might be suggested, consequently, that a problematic internet use could be a risk factor regarding loneliness, and its association with such feeling will mostly be a vicious cycle in which internet addiction will increase loneliness and vice-versa, regardless of what facet of lonely feelings is considered. However, it is important to understand why the UCLA-BR items 1, 2, and 20 were not associated with internet addiction.

The only UCLA-BR items that did not correlate significantly with internet addiction were the ones regarding discomfort in doing something, or just being, physically alone. Loneliness is not defined by physical distance, but rather by perceived emotional and/or social isolation (Hawkley & Cacioppo, 2010). Thus, such results suggest that only emotional loneliness, and not actually being alone, is associated with the addiction in question. As a matter of fact, choosing to be physically alone related to another construct, called solitude (Cramer & Lake,

1998). According to previous authors solitude (e.g., intentionally spending time by one's self) may increase self-esteem and decrease loneliness, and such associations were also found in more recent research (Thomas & Azmitia, 2019). Choosing to be alone can be related to one's improved well-being and emotional adjustment, whereas not wanting to be by one's self, as in feeling lonely, can mean poorer social relationships, especially among adults (Burger, 1995; Thomas & Azmitia, 2019). The fact that UCLA-BR items 1, 2, and 20 were not associated with internet addiction may indicate that, although loneliness has a strong relation to such dependence, solitude does not.

Nevertheless, even by assessing lonely feelings in detail, every association found between these and internet addiction was positive. This may indicate that what might influence the relationship between loneliness and internet use is not the former, but, rather, the latter. This is suggested by other theoretical models regarding the subject. For example, it is indicated that, in late adolescents and young adults, different types of internet use result in different relationships with loneliness – whereas using social media to make new friends might reduce lonely feelings over time, using such medias to compensate for poor social skills would increase loneliness; this refers that, while there may be healthy ways to utilize the internet to deal with such feelings, there is also unhealthy and/or addictive manners to do so (Nowland et al., 2018). Therefore, the vicious cycle would begin – the person would feel lonely, and, by using social media by unhealthy means to try and decrease such unpleasant feelings, the loneliness would increase overtime and, by not having other ways of dealing with the situation, the person would resort to the internet again. In fact, research has shown that poor emotional regulation might lead to internet addiction because of such vicious cycles that occur among university students (Faghani et al., 2020). Perhaps healthy or controlled internet usage may reduce lonely feelings, but internet addiction might increase them. This subject has to be researched further in the future, as it could be hypothesized that normal internet use decreases loneliness, which would help develop an internet addiction, therefore long-term increasing loneliness, as was already suggested by other researchers (Peltzer & Pengpid, 2017).

It is also relevant to note that this study's data was collected prior to the Covid-19 situation, and, considering the current pandemic, university students are being physically isolated from their peers in Brazil (Gundim et al., 2020). Therefore, the present results, which suggest that solitude might not be directly associated with internet addiction, are important to take into consideration when investigating undergraduates' mental health in the Covid-19 pandemic context, as it indicates that being alone is probably not what would lead someone to develop the addiction in question. However, it is also known that social isolation is harming university students' mental health (Gundim et al., 2020), indicating that loneliness levels might be increasing among this population. This, along with the rise in internet use due to the online way of having classes and communicating in academic life (Lima et al., 2020), could point to an increase in internet addiction in Brazilian undergraduates. Future researches should elaborate on this aspect of university students' mental health in the context of the current pandemic.

Conclusions

The present study suggests that internet addiction and loneliness are positively associated, and, as long as internet use is problematic, it may represent a risk factor for developing or aggravating lonely feelings. However, it is important to differentiate perceived emotional and/or social isolation from being alone by choice. While the former refers to loneliness and appears to be closely related to internet addiction, the latter describes the construct of solitude, which may not be associated with such addiction.

This study's Brazilian sample of university students appears to have similar internet addiction prevalence as for other countries, suggesting that this might be a worldwide issue. However, such a subject still needs more research to properly understand the associations between loneliness and internet normal use. The present research indicated that loneliness is related to internet addiction, but other researchers suggest that the association between feeling lonely and non-problematic internet usage may vary, which makes it essential to study the subject.

Although the presented results indicated important evidence to the continuous understanding of the subject, this study did not embrace all possible variables on this topic. It would be essential to have newer researches extending on the psychological consequences of internet addiction, to better comprehend this phenomenon. Furthermore, future studies should rely on a more homogeneous sample; it would be best, for example, to have a similar number of men, women and/or non-binary participants, with similar ages and other sociodemographic characteristics. That way, results concerning loneliness and internet addiction could be compared between different groups regarding gender, to continuously further the understanding about such variables.

References

Associação Brasileira de Empresas de Pesquisa [ABEP]. (2018). *Critérios de Classificação Econômica Brasil*. http://www.abep.org/criterio-brasil

Arruda, E. P. (2020). Educação Remota Emergencial: elementos para políticas públicas na educação brasileira em tempos de Covid-19. *EmRede – Revista de Educação a Distância, 7*(1), 257-275. Retrived from: https://doi.org/10.53628/emrede.v7.1.621

Barroso, S., Andrade, V., Midgett, A., & Carvalho, R. (2016). Evidência de validade da escala Brasileiro de Solidão UCLA. *Jornal Brasileiro de Psiquiatria, 60*: 60-75. http://dx.doi.org/10.1590/0047-2085000000105

Burger, J. M. (1995). Individual Differences in Preference for Solitude. *Journal of Research in Personality, 29*(1): 85–108. https://doi.org/10.1006/jrpe.1995.1005

Cacioppo, J. T., Hawkley, L. C., & Thisted, R. A. (2010). Perceived social isolation makes me sad: 5-year cross-lagged analyses of loneliness and depressive symptomatology in the Chicago Health, Aging, and Social Relations Study. *Psychology and Aging, 25*(2), 453–463.

Carbonell, X., Chamarro, A., Oberst, U., Rodrigo, B., & Prades, M. (2018). Problematic Use of the Internet and Smartphones in University Students: 2006-2017. *International Journal of Environmental Research and Public Health, 15*(3). https://doi.org/10.3390/ijerph15030475

Carter, M., & Grover, V. (2015). Theory and review Me, Myself, and I (T): conceptualizing information technology and its implications. *MIS Quarterly, 39*, 931–957. https://doi.org/10.25300/MISQ/2015/39.4.9

Çikrikçi, Ö. (2019). An exploration of the associations among positivity, general distress and internet addiction: The mediating effect of general distress. *Psychiatry Research*, *272*, 628–637. https://doi.org/10.1016/j.psychres.2018.12.147

Conti, M. Jardim, A., Hearts, N., Cordás, T., Tavares, H., & Abreu, C. (2012). Avaliação da equivalência semântica e consistência interna de uma versão em português do Internet Addiction Test (IAT). *Revista Psiquiatria Clínica, 39*, 106-110. http://dx.doi.org/10.1590/S0101-60832012000300007

Costa, R. M., Patrão, I., & Machado, M. (2018). Problematic internet use and feelings of loneliness. *International Journal of Psychiatry in Clinical Practice, 20,* 1–3. https://doi.org/10.1080/13651501.2018.1539180

Cramer, K., & Lake, P. (1998). The preference for Solitude Scale: Psychometric properties and factor structure. *Personality and Individual Differences, 24,* 193-199. https://doi.org/10.1016/S0191-8869(97)00167-0

Dancey, C. P., & Reidy, J. (2011). *Statistics without maths for psycology* (5th ed.). England: Pearson.

Eijnden, V. D. (2014). Depression, loneliness and Internet addiction: How important is low. *Computers in Human Behavior, 34*, 284–290. https://doi.org/10.1016/j.chb.2014.02.009

Facioli, L. R., & do Prado, J. (2018). Usando bem, que problema tem? P nicos morais, mídias digitais e juventude no Brasil. *Interfaces da educação*, 9(25), 158–183. https://doi.org/10.26514/inter.v9i25.2240

Faghani, N., Akbari, M., Hasani, J., & Marino, C. (2020). An emotional and cognitive model of problematic Internet use among college students: The full mediating role of cognitive factors. *Addictive Behaviors, 105*(July 2019), 106252. https://doi.org/10.1016/j.addbeh.2019.106252

Fermann, I., Ledur, B., Beneton, E., Schmitt, M., Goulart Chaves, J., & Andretta, I. (2021). Uso de internet y redes sociales por estudiantes universitarios: un campo de estudio emergente. Ciencias Psicológicas, 15(1), e-2389. https://doi.org/10.22235/cp.v15i1.2389

Hawkley, L. & Cacioppo, J. (2010). Loneliness matters a theoretical and empirical review of consequences and mechanisms. *Annual Behavior Medicine, 40*, 218-27. http://doi.org/10.1007/s12160-010-9210-8.

Lima, A. C. A., Leiva, J. C., & Lemes, S. S. (2017). Viver em rede: uma análise sobre as implicações do uso das mídias sociais por estudantes universitários. *Revista on Line de Política e Gestão Educacional, 21*, 896-912. https://doi.org/10.22633/rpge.v21.n.esp1.out.2017.10459

Lima, C. K. T., Carvalho, P. M. M., Lima, I. A. A. S., Nunes, J. V. A. O., Saraiva, J. S., Souza, R. I., Silva, C. G. L., & Neto, M. L. R. (2020). The emotional impact of Coronavirus 2019-nCoV (new Coronavirus disease). *Psychiatry Research* (287). https://doi.org/10.1016/j.psychres.2020.112915

Murat, M. (2019). The Investigation of Predictive Relationships between Loneliness, Internet Addiction, and Mindfulness through the Structural Equation Model. *Universal Journal of Educational Research, 7*(8), 1635–1642. https://doi.org/10.13189/ujer.2019.070802

Niero, R. G. V., Daros, G. C., Feldens, V. P., & Sakae, T. M. (2019). Associação entre dependência de internet e sintomas depressivos em estudantes de medicina de cidade do sul do Brasil. *Arquivos Catarinenses de Medicina – ACM, 48*(3), 27-36.

Nowland, R., Necka, E. A., & Cacioppo, J. T. (2018). Loneliness and Social Internet Use: Pathways to Reconnection in a Digital World? *Perspectives on Psychological Science, 13*(1), 70-87. http://dx.doi.org/10.1177/1745691617713052

Ostovar, S., Allahyar, N., Aminpoor, H., Moafian, F., Nor, M. B. M., & Griffiths, M. D. (2016). Internet Addiction and its Psychosocial Risks (Depression, Anxiety, Stress and Loneliness) among Iranian Adolescents and Young Adults: A Structural Equation Model in a Cross-Sectional Study. *International Journal of Mental Health and Addiction, 14*, 257–267. https://doi.org/10.1007/s11469-015-9628-0

Peltzer, K., & Pengpid, S. (2017). Loneliness: Its correlates and associations with health risk behaviours among university students in 25 countries. *Journal of Psychology in Africa, 27*, 247-255. https://doi.org/10.1080/14330237.2017.1321851

Pessoni, A. (2018). Narrativas da dor: o Facebook como espaço de discussão de saúde e doença. *Rizoma, 96*, 181-197. https://doi.org/10.17058/rzm.v6i1.11385

Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. *Computers in Human Behavior, 62*, 155-167. https://doi.org/10.1016/j.chb.2016.03.084

Pontes, H. M., Griffiths, M. D., & Patrão, I. (2014). Internet Addiction and Loneliness Among Children and Adolescents in the Education Setting: An Empirical Pilot Study. *Aloma, 32*(1), 91-98.

Purim, K. S. M., & Tizzot, E. L. A. (2019). Analisys of Undergraduate Medical Students' Use of Facebook. *Revista Brasileira de Educação Médica, 43*(1), 187-196. http://dx.doi.org/10.1590/1981-52712015v43n1rb20180139

Russell, D., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment, 42*(3), 290–294. https://doi.org/10.1207/s15327752jpa4203_11

Sampieri, R. H., Collado, C. F., & Lucio, P. B. (2013). *Metodologia de Pesquisa.* (5th ed.). Penso.

Sancovschi, B., & Kastrup, V. (2015). Computador-internet nas Práticas de Estudo Contemporâneas: uma Pesquisa com Estudantes de Psicologia. *Psicologia: Ciência E Profissão, 35*, 83-95. https://doi.org/10.1590/1982-3703001252012

Schmitt, M., Mello, L. T. N., Ledur, B., & Andretta, I. (2021). Saúde Mental em Universitários do Sul do Brasil: Diferença entre os Sexos. *Brazilian Journal of Health Review, 4*(1), 2998–3017. https://doi.org/10.34119/bjhrv4n1-239

Skues, J., Williams, B., Oldmeadow, J., & Wise, L. (2016). The Effects of Boredom, Loneliness, and Distress Tolerance on Problem Internet Use Among University Students. *International Journal of Mental Health and Addiction, 14*, 167-180. https://doi.org/10.1007/s11469-015-9568-8

Tangmunkongvorakul, A., Musumari, P. M., Thongpibul, K., Srithanaviboonchai, K., Techasrivichien, T., Pilar Suguimoto, S., Ono Kihara, M., & Kihara, M. (2019). Association of excessive smartphone use with psychological well-being among university students in Chiang Mai, Thailand. *PLOS ONE, 14*, e02102. https://doi.org/10.1371/journal.pone.0210294

Thomas, V., & Azmitia, M. (2019). Motivation matters: Development and validation of the Motivation for Solitude Scale–Short Form (MSS-SF). *Journal of Adolescence, 70*, 33-42. https://doi.org/10.1016/j.adolescence.2018.11.004

Wörfel, F., Gusy, B., Lohmann, K., Töpritz, K., & Kleiber, D. (2016). Mental health problems among university students and the impact of structural conditions. *Journal of Public Health, 24*(2), 125–133. https://doi.org/10.1007/s10389-015-0703-6

World Health Organization [WHO]. (2020). *Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID-19) (Issue February)*. https://apps.who.int/iris/bitstream/handle/10665/331299/WHO-2019-nCov-IHR_Quarantine-2020.1-eng.pdf?sequence=1&isAllowed=y

Younes, F., Halawi, G., Jabbour, H., El Osta, N., Karam, L., Hajj, A., & Khabbaz, L. R. (2016). Internet Addiction and Relationships with Insomnia, Anxiety, Depression, Stress and Self-Esteem in University Students: A Cross-Sectional Designed Study. *PLOS ONE, 11*, e016112. https://doi.org/10.1371/journal.pone.0161126

Young, K. S. (1998). Internet Addiction: The Emergence of a New Clinical Disorder. *CyberPsychology & Behavior, 1*, 237–244. https://doi.org/10.1089/cpb.1998.1.237