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Mental health and internet use by university students: coping strategies in the context of COVID-19

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Abstract *The aim of this study was to estimate the prevalence of Common Mental Disorders (CMD) among university students and analyze the relation between disorders and internet use and the use of coping strategies in the face of social isolation during the COVID-19 pandemic. We conducted a quantitative cross-sectional study using a non-probability sample of 275 students. Data was collected online using the Self-Reporting Questionnaire, Problematic Internet Use Scale and a coping strategies inventory. We conducted a descriptive and inferential analysis of the data and multiple linear regression was performed to determine the variables that best explained the variation in the problematic internet use. Prevalence of CMD was 58.5% and the presence of CMD was positively correlated with frequency of internet use and the use of avoidant coping strategies, based on confrontation, the search for social support and acceptance of responsibility ($p<0.05$). The presence of CMD and the use of confrontation coping strategies were the variables that best explained problematic internet use ($R2=0.33\%$; $p<0.00$). High levels of digital socialization should be taken into account in mental health care actions aimed at university students in the context of COVID-19.*

Key words *Mental health, Internet, Coping, Students, COVID-19*

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Introduction

The rapid global spread of a new type of pneumonia, Coronavirus Disease 2019 (COVID-19), led the World Health Organization (WHO) to declare the situation a pandemic on 11 March 2020 and encourage countries to adopt a range of measures to contain the propagation of the virus, including social isolation[1]. Although widely recommended by the scientific community, systematic reviews and reflective essays have highlighted the negative impacts of social isolation on mental health[2,3]. In the same direction, although the indirect effects of the pandemic on general mental health are of increasing concern, the secondary psychological and psychiatric effects of this phenomenon tend to be neglected[3,4]. These effects may be even more pronounced in groups vulnerable to mental health problems[3,5].

Studies with Brazilian university students before the COVID-19 pandemic already showed that the prevalence of common mental disorders in this group (characterized by mixed anxiety and depression symptoms associated with intense psychic suffering[6]) was higher than in the general population[7,8]. Recent studies with university students in southeast China highlighted the importance of developing mental health actions directed at university students during the pandemic in light of the effects of economic and daily-life related stressors and delays in academic activities on mental health[9,10].

Given that this is the first pandemic in the online era[11], another aspect to consider is the impact of social isolation on internet use[12]. Although digital socialization, a growing practice in times of social isolation, plays an important role in mitigating the effects of the lack of face-to-face socialization, excessive internet use can have anxiogenic effects and reproduce "global fear", associated with mass exposure to the internet and increased circulation and interaction in digital environments[11,12]. In this regard, various studies in China have pointed to a correlation between psychic suffering and increased exposure to social media during the pandemic among university students[10], the general population and health professionals[13,14]. With specific regard to university students, research prior to the pandemic in India[15] and the United States[16] revealed a strong correlation between mental health problems and excessive internet use, showing that the latter has a harmful effect on activities of daily living.

It is also possible that frequency and type of digital interaction are associated with the type of coping strategies employed by university students. Going against individualizing pathologization, the contextualist approach to the study of coping strategies has sought to understand how we deal with stressful situations, bearing in mind that coping is a dynamic process influenced by the characteristics of the stressful context, individual resources, the ability to assert control and the predictability of the situation[17]. Given that different coping strategies – such as problem-focused coping (characterized by the elaboration of an action plan), emotion-focused coping (oriented towards the expression of emotions), avoidant coping (based on escape and avoidance) and confrontation coping (including the expression of hostility) – depend on the context and aim to promote adjustment to the environment[17], we need to better understand the interaction between these strategies and the current context of high levels of digital socialization.

There is a lack of literature on mental health, internet use and coping strategies and the potential association between these phenomena in the Brazilian context. The study of these phenomena among university students is essential, given the need to develop actions for prevention and promotion in mental health aimed at strengthening capacities to cope with adversity. This study therefore aims to estimate the prevalence of common mental disorders among university students and analyze the relation between these disorders and internet use and the use of coping strategies in the face of social isolation during the COVID-19 pandemic.

Method

Participants

We conducted a descriptive cross-sectional study in a university in Juiz de Fora, a medium-sized city in the State of Minas Gerais. We used a *convenience* sample consisting of 275 students of both sexes aged over 17 years.

All students studying at the university were invited to participate in the study. The sample was made up predominantly of psychology students (52.7%), followed by electrical engineering (13.5%), architecture (12%), philosophy (7.6%), biological sciences (5.5%), software engineering (2.9%), information systems (2.2%), administration (1.8%) and marketing (1.8%) students. Over half of the sample were evening students (52.4%), 39.6% were daytime students and 8%

full-time students. With regard to length of study, 16.7% were in the first period, 6.9% in the second, 11.6% in the third, 8.7% in the fourth, 8.7% in the fifth, 9.8% in the sixth, 9.8% in the seventh, 8% in the eighth, 9.8% in the ninth, and 9.8% in the tenth.

Assessment instruments

Data was collected using a sociodemographic questionnaire and survey divided into five sections assessing the following aspects: (1) mental health; (2) internet use; (3) coping strategies; (4) use of services and perception of the need for help coping with mental health problems; and (5) measures of social complexity. The questions referred to either the last 30 days or the period of social isolation during the pandemic, which was in its second month (around 40 to 60 days) at the time of data collection. The assessment instruments and questionnaires are described below.

Mental health was assessed using the Self Reporting Questionnaire-20 (SRQ-20), which screens for mood disorders, anxiety and somatization, otherwise known as common mental disorders (CMD)[18], characterized by the presence of symptoms such as insomnia, fatigue, irritability, forgetfulness, difficulty concentrating and somatic symptoms[6]. Validated for use in Brazil, the SRQ-20 can be self-administered and is low cost, easy to use and has high discriminatory power, meaning it has the capacity to correctly differentiate between cases and non-cases. The instrument consists of 20 items referring to the last 30 days with yes/no answers. Each affirmative response is scored as 1 and the final score is the sum of the scores of all items. The final scores indicate the probability of the presence of CMD, ranging from 0 (none) to 20 (extreme probability). A score of 8 or more indicates a possible case of CMD, while a score of 7 or less means the respondent is not a suspected case[18].

The second section used the Problematic Internet Use Scale. Developed originally in Spanish and validated for use in Brazil by Fonsêca et al.[19], this screening instrument assesses level of internet use in the last 30 days. The scale consists of eight items responded on a five-point Likert scale ranging from 0 ("totally disagree") to 4 ("totally agree"). The scale has a *unifactorial structure* and the results are interpreted based on the general factor, which can be used to compare groups and/or other constructs[19].

The third section consisted of a coping strategies inventory adapted from an instrument originally created by Lazarus and Folkman[20] in 1984. The inventory assesses the thoughts and actions people use to cope with the internal and/or external demands generated by a specific stressful event. For the purposes of the present study, the respondents were asked about the strategies they use to cope with social isolation during the pandemic. The inventory consists of 66 items including thoughts and actions. The intensity of use of the strategies is measured on a scale of 0 (not used) to 3 (*used a great deal*). After assessing the reliability and validity of the instrument for use in Brazil, Savóia et al.[21] reorganized the items into eight factors: (1) confrontation, (2) withdrawal, (3) self-control, (4) social support, (5) acceptance of responsibility, (6) escape and avoidance, (7) problem-resolving, and (8) positive reappraisal. The relative scores represent the proportion of effort made for each type of strategy, being expressed as a percentage from 0 to 100. The higher the score the more the person uses the strategy. The overall score is the sum of all the items of each factor corresponding to a particular type of strategy, obtaining a summary of the responses for each type of strategy used[22].

For the fourth section, we used a question taken from the Composite International Diagnostic Interview developed by the World Health Organization[23] asking the participants whether they had felt the need for help coping with their emotions in the last 30 days.

The fifth section consisted of two questions concerning measures of social complexity: one related to socioeconomic needs during the pandemic (such as unemployment and homelessness) and one addressing mistreatment by someone important to the respondent in the last 30 days, including physical, sexual, patrimonial and psychological violence.

Procedures

The data collection process was conducted online. After obtaining the approval of the research ethics committee, we initiated a pilot study with 24 participants in order to evaluate study viability and the instrument interface used in the Google Forms platform. After confirming study viability, we initiated data collection on 27 April 2020, finalizing the process on 15 May 2020. As social isolation was introduced by various states in Brazil in the second two weeks of March 2020, the present study encompasses the second month of measures in the country, when the social isolation index stood at 54.4%[24].

The study's email address was forwarded to professors and course coordinators, who were requested to ask students to participate in the study during web conferences. Participation was voluntary and the confidentiality of responses was assured. The average response time was 16 minutes, which included the reading of the online informed consent form.

The answers to the instruments and questionnaires were tabulated in a database. A descriptive analysis of the data was performed using absolute and relative frequencies, measures of central tendency and the distribution of the variables of interest. Inferential analysis was performed to measure the strength of correlation between variables in order to determine the association between CMD and internet use and coping strategies. The groups were compared using the independent samples t-test. In addition, multiple linear regression (stepwise) was performed to determine the variables that best explained the variation in the problematic internet use scores, where greater probability of presence of CMD and the eight factors of the coping strategies scale were the independent variables and problematic internet use was the dependent variable. All analyses were conducted using SPSS for Windows (Version 20.0).

Results

Table 1 shows the sociodemographic characteristics of the sample. The students were predominantly female, aged up to 21 years, white and single. Most students lived with their family and had a monthly family income of over R$ 3,000.00.

Over half of the students (58.5%) showed intense psychic suffering, indicating high prevalence of CMD. Table 2 shows the affirmative responses by the symptom groups screened by the SRQ-20.

Table 3 shows that there was a statistically significant difference in mean problematic internet use between students with possible absence of CMD and those with possible presence of CMD, with students with possible presence of CMD reporting higher levels. Students with greater psychic suffering reported a higher decline in academic and work performance and decreased quality of sleep and interpersonal relations, which was associated with internet use.

With regard to coping strategies for dealing with social isolation, the relative scores reveal that the strategy most used by the sample was escape and avoidance, with 34.5% of students reporting that they used this strategy *a great deal*. Other strategies that were used a *great deal* were self-control (35.6%), social support (32.7%) and withdrawal (31.5%). This means that, with the exception of social support, where the subject shares the emotional meaning of the stressful event with other people, the strategies predominantly used by the students were those used to create emotional distance from the problem, characterized by avoidance.

In terms of the association between degree of psychic suffering and coping strategies, the findings show statistically significant differences in mean overall scores between students with possible absence of CMD and those with possible presence of CMD (Table 4). Students with possible absence of CMD used coping strategies based on positive reappraisal and problem-resolving more frequently than those with possible presence of CMD. These strategies are used to extract meaning from personal experiences, learn and mobilize resources to improve adaptation, being based around an action plan or purpose. University students with a higher degree of psychic suffering used avoidant coping strategies such as escape and avoidance and withdrawal more frequently. They also resorted more to the expression of hostility, using confrontation coping, sharing emotions (coping based on social support) and acceptance of responsibility, denoting a certain level of submissiveness.

Multiple linear regression (stepwise) allowed us to determine the variables that best explain problematic internet use (Table 5). The findings show that higher probability of presence of CMD and greater use of confrontation coping strategies were the variables that best explained problematic internet use. The strength of association between these variables and problematic internet use was moderate (multiple R=0.57). Together, these two variables explained 33% of the variance in problematic internet use.

With regard to the use of services to help deal with mental health problems in the last 30 days, the findings show that a significant proportion of the students felt the need for professional help to deal with their emotions, but did not seek support. This gap between perceived need and use of services was greatest for mental health services (39.6%), followed by online services (19.6%), support from religious organizations (18.9%), telephone support (17.5%) and general hospitals (10.9%).

With regard to social complexity, 30.9% of the participants reported having a socioeco-

Table 1. Sociodemographic characteristics of the university students (n=275).

Variable	N	%
Sex		
Female	175	63.6
Male	100	36.4
Age		
17 to 21 years	108	39.3
22 to 24 years	80	29.1
25 to 27 years	31	11.3
28 to 30 years	13	4.7
Over 30 years	43	15.6
Color		
White	203	73.8
Brown	46	16.7
Black	23	8.4
Yellow	3	1.1
Marital status		
Single	238	86.5
Married	28	10.2
Separated	8	2.9
Widow	1	0.4
Monthly family income		
Up to R$ 1,000.00	25	9.1
R$ 1,000.01 to R$ 2,000.00	71	25.8
R$ 2,000.01 to R$ 3,000.00	61	22.2
More than R$ 3,000.00	118	42.9
Residence		
With family	147	53.5
With relatives	40	14.5
Alone	51	18.5
Student accommodation	30	10.9
Boarding house	7	2.5

Source: Authors' elaboration.

Table 2. Prevalence of common mental disorders and proportion of affirmative answers to the questions in the Self Reporting Questionnaire-20 among university students in the second month of social isolation.

CMD	Possible absence of CMD	Possible presence of CMD
Cutoff point for CMD[a]	**41.5**	**58.5**
SRQ-20 items by symptom groups[b]	**Affirmative answers**	
Depression/anxiety		
Do you feel nervous, tense or worried?	58.8	99.4
Are you easily frightened?	17.5	63.4
Do you cry more than usual?	5.3	47.8
Have you felt unhappy recently?	11.4	67.7
Somatic symptoms		
Do you have uncomfortable feelings in your stomach?	11.4	59
Do you sleep badly?	28	73.9
Is your digestion poor?	14	53.4
Do you often have headaches?	25	67.1
Do your hands shake?	5.3	36.6
Is your appetite poor?	9.6	29.8
Decrease in vital energy		
Are you easily tired?	35.1	91.9
Do you feel tired all the time?	21.9	85.1
Do you find it difficult to make decisions?	36.8	80.7
Do you have trouble thinking clearly?	24.6	70.2
Do you have trouble getting satisfaction out of your tasks s	14.9	75.8
Is your daily work suffering?	9.6	69.6
Depressive thoughts		
Have you lost interest in things?	10.5	70.2
Has the thought of ending your life been on your mind?	10.5	38.5
Is it easy to feel useful/ important?	14.9	62.7
Do you feel that you are a worth less person?	4.4	31.7

CMD: common mental health disorders; SRQ-20: Self Report Questionnaire-20. aCutoff point for CMD was 7/8 affirmative answers to the items of the SRQ-20 and values are expressed in percentages; bValues expressed in percentages.

Source: Authors' elaboration.

nomic need in the last 30 days, while 11.3% of the sample had suffered psychological violence, such as threats, shaming, emotional blackmail, intimidation, discrimination, exploitation and criticism of sexual performance. The findings show that 14% of the female students reported experiencing psychological violence, compared to only 5% of men.

Discussion

Our findings show a high prevalence of CMD among the study sample and that the presence of disorders was associated with a higher level of internet use. In addition, there was a significant

difference in the use of coping strategies according to the degree of psychic suffering experienced by the students.

With regard to the prevalence of CMD, for comparison purposes, it is important to consider the results of other studies using the SRQ-20. An integrative literature review conducted by Graner and Cerqueira[8] reported that the prevalence of CMD in university students ranged between 33.7% and 49.1%. In the studies with Brazilian students, prevalence ranged between 33.7% and 44.9%, showing that the prevalence rated found by the present study (58.5%) is higher than the estimates reported in the literature[8]. In a recent study in Brazil focusing on nursing students in the final year of their studies, the prevalence of psychic suffering was similar to that of the present study (55.3%)[25]. Another study in Brazil, this time with medical students, found that the prevalence of CMD varied from 35.8% and 51.5% between the beginning and end of the semester, meaning that it is possible for prevalence to vary over a relatively short period of time[26].

It is possible that prevalence of CMD was influenced by the period in which the study was conducted, which was the second month of the social isolation measures in Brazil. In this regard, the findings may depict a period in which negative emotions had reached a plateau among students experiencing higher levels of psychic suffering and difficulties adapting[27]. Similar trends were reported by Chi et al.[27], who carried out a nationwide survey of mental health among Chinese university students also in the second month of social isolation. The authors showed that the COVID-19 pandemic had a considerable psychological impact on students, especially in terms of anxiety and depressive symptoms, which is consistent with other studies undertaken in China[9,10,27,28], the United States[29,30], Ethiopia[31] and Poland[32].

It is important to highlight that higher levels of psychic suffering may constitute an expression of a process of individual recovery, living

Table 3. Association between common mental disorders and problematic internet use among university students in the second month of social isolation.

CMD[a]	Mean internet use score	SD	P-value*
Possible absence of CMD	14.6	8.0	0.00*
Possible presence of CMD	21.4	6.6	

CMD: common mental health disorders; SD: standard deviation. *Significant p-value with 99% confidence interval. aCutoff point for CMD was 7/8 affirmative answers to the items of the SRQ-20.

Source: Authors' elaboration.

Table 4. Association between common mental disorders and coping strategies among university students in the second month of social isolation.

Coping strategies	Possible absence of CMD[a]		Possible presence of CMD[a]		P-value*
	M	SD	M	SD	
Confrontation	4.1	2.7	6.5	3.3	0.00*
Withdrawal	7.8	3.5	9.5	3.6	0.00*
Self-control	6.7	2.6	7.1	3.1	0.28
Social support	8.0	3.8	9.1	3.9	0.02*
Acceptance of responsibility	7.3	4.7	9.3	4.2	0.00*
Escape and avoidance	3.2	1.8	4.5	1.7	0.00*
Problem-resolving	6.6	2.6	4.7	2.6	0.00*
Positive reappraisal	13.1	5.9	10.6	5.2	0.00*

CMD: common mental health disorders; M: mean; SD: standard deviation. *Significant p-value with 99% confidence interval. [a]Cutoff point for CMD was 7/8 affirmative answers to the items of the SRQ-20.

Source: Authors' elaboration.

Table 5. Multiple linear regression analysis with variables with greater explanatory power for problematic internet use score.

Variables	R	R^2	F	Sig(F)	Beta	T	p
Probability of CMD	0.50	0.25	90.98	0.00	0.50	9.53	0.00
Confrontation-based coping	0.47	0.22	78.83	0.00	0.47	8.87	0.00

CMD: common mental health disorders. R2 accumulated and adjusted.

Source: Authors' elaboration.

through symptoms in an attempt to establish a new normality in the face of adverse life events[33]. The concept of CMD as a biopsychosocial construct reflects the manner in which life events can trigger episodes of greater psychic suffering, emphasizing the influence of environmental factors not only on the vulnerability of individuals, but also the recovery process[6]. By assessing the association between CMD and internet use in times of pandemic, this study considers the influence of the virtual environment and cyberspace on mental health, going beyond environmental factors in general, insofar as digital socialization has become a basic necessity for dealing with physical distancing in the area of education, work and leisure.

A pressing question raised by this study is the positive correlation between CMD and level of internet use by university students. The frequency of digital socialization, and the role it plays in these students' lives, may be factors that contribute to the maintenance of psychic suffering, competing with the recovery process. Further research is needed to investigate the role of the internet and its association with psychic suffering, focusing on specific online activities rather than general use[34], although the correlation between problematic internet use and social media[35], especially in relation to leisure use[36], stands out. While the problematic internet use scale used in this study allowed us to identify a preference for online interaction to the detriment of usual forms of social interaction and other activities of daily living, it does not show exactly which online activities are harmful.

The positive correlation between CMD and specific coping strategies shown by the present study suggests that excessive internet use may serve the function of promoting "escapism"[37] (reflected in escape and avoidance coping strategies), maintaining mood regulation[38] (indicated by confrontation-based strategies), and searching for social support[39] to deal with isolation. Although these coping strategies are not necessarily pathological, when driven by excessive use of the internet these habits can become insidiously difficult to break, creating a vicious circle that contributes to the maintenance of psychic suffering, especially in vulnerable individuals.

Studies have shown that there has been a sharp increase in internet use for interaction via social media and access to games and pornography during social isolation[40,41]. Experts suggest that excessive involvement in these types of online activities during the pandemic may become difficult to control and gradually become a central part of the lives of people who are vulnerable, leading to the development of symptoms of addictive behaviors[40-43]. In addition to the widely reported effects of excessive internet use on mental health and quality of life[36,44,45], it is also important to take into account other consequences such as the reduction in levels of physical activity and harmful changes in eating habits, which can contribute to health problems like obesity and diabetes[46,47].

Confirming trends reported by other researchers[48], a study carried out with Indian university students found a significant increase in susceptibility to cyberbullying during the COVID-19 pandemic, which was shown to be associated with an increase in the use of social media and online games[49]. Given that the results of the multiple regression analysis revealed psychic suffering and the strategy with greatest explanatory power for problematic internet use was confrontation-based coping, one may wonder whether this association could lead to expression of hostility in digital environments by the students of our sample as a form of escape and regulating mood to deal with the stress caused by the current health crises, thus increasing the probability of cyberbullying.

The findings also reveal that university students with possible absence of CMD and who use the internet less frequently engaged more in cop-

ing strategies based on positive reappraisal and problem-resolving. These findings show that students make a greater effort to assign personal and constructive meaning to the lived experience in order to deal with social isolation, which is associated with a sense of direction and intentionality in relation to how to act. Studies with university students in Turkey[50] and the general population in Germany and Austria[51] have reported that a sense of meaningful living permeated by a sense of purpose promotes subjective well-being and good mental health in the face of adversities such as the current pandemic. It is necessary to understand how existential meaning can be weakened by excessive internet use or whether excessive use acts as an escape mechanism for those who feel they have lost the meaning of life, contributing to psychic suffering.

Finally, the COVID-19 pandemic coexists with an era in which forms of social interaction are undergoing unprecedented changes. Apart from becoming predominantly online, these interactions are permeated by a *modus operandi* imposed by social media, especially affecting the subjectivity of adolescents and young adults. Despite the new potential for interaction mediated by the internet, such as participatory media and online collaborative practices, business and the logic of the market continue to be the dominant forces, facilitated by the accumulation of data on internet users and guided by the search for maximum advertising gain[52]. If the logic of the market propagated over the internet has an impact on the cultural, educational, affective, cognitive and relational spheres[52], it is reasonable to assume that it also affects the subjectivity and mental health of internet users, as people are increasingly stimulated to become "companies of their own" in the virtual environment, valuing competition over cooperation.

The findings of this study should be treated with caution in view of the study limitations. Limitations include the fact that cross-sectional studies are not able to determine *causality* in relation to the prevalence of CMD. Second, it is possible that the students most affected by the pandemic from a psychosocial point of view did not actually participate in the study because they may be absent from online educational activities, resulting in possible bias. Third, the results are restricted to the sample population and are therefore not generalizable. Fourth, other factors not investigated by the study may have had a mediating effect on the correlation between psychic suffering, internet use and coping strategies, such as quality of sleep and sex life, frequency of physical exercise and reduced interaction with nature. Qualitative research can make a significant contribution to understanding of the unique experiences of students in the face of social isolation imposed by the COVID-19 pandemic, because, after all, every person is their own universe.

Collaborations

DCB Mota worked on the research design, data analysis and article writing. YV Silva supervised the formation of the database and the analysis process. TAF Costa, MHC Aguiar, MEM Marques and RM Monaquezi managed the online data collection on *Google Forms* platform.

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References

1. World Health Organization (WHO). *Coronavirus disease 2020 (Covid-19). Situation Report - 67*. Geneva: WHO; 2020.
2. Stankovska G, Memedi I, Dimitrovski D. Coronavirus COVID-19 Disease, mental Health and Psychosocial Support. *Soc Register* 2020; 4(2):33-48.
3. Vindegaard N, Benros ME. COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain Behav Immun* **2020;** 89:531-542.
4. Ornell F, Schuch JB, Sordi AO, Kessler FHP. "Pandemic fear" and COVID-19: mental health burden and strategies. *Braz J Psychiatry* 2020; 42(3):232-235.
5. Lancet. Redefining vulnerability in the era of COVID-19. *Lancet* 2020; 395:1089.
6. Goldberg D, Huxley P. *Common Mental Disorders-A bio-social model*. Tavistock: Routledge; 1993.
7. Gomes CFM, Pereira Júnior RJ, Cardoso JV, Silva DA. Transtornos mentais comuns em estudantes universitários: abordagem epidemiológica sobre vulnerabilidades. *SMAD* 2020; 16(1):1-8.
8. Graner KM, Cerqueira ATAR. Revisão integrativa: sofrimento psíquico em estudantes universitários e fatores associados. *Cien Saude Colet* 2019; 24(4):1327-1346.
9. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, Zheng J. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res* 2020; 287:112934.
10. Chang J, Yuan Y, Wang D. Mental health status and its influencing factors among college students during the epidemic of COVID-19. *Nan Fang Yi Ke Da Xue Xue Bao* 2020; 40(2):171-176.
11. Ribeiro GL. *Medo Global. Boletim n. 5. Cientistas sociais e o coronavírus* [Internet]. Anpocs [acessado 2020 jun 19]. Disponível em: http://www.anpocs.com/index.php/ciencias-sociais/destaques/2311-boletim-n-3.
12. Deslandes SF, Coutinho T. O uso intensivo da internet por crianças e adolescentes no contexto da COVID-19 e os riscos para violências autoinflingidas. *Cien Saude Colet* 2020; 25(Supl. 1):2479-2486.
13. Gao J, Zheng P, Jia Y, Chen H, Mao Y, Chen S, Wang Y, Fu H, Dai J. Mental health problems and social media exposure during COVID-19 outbreak. *PloS One* 2020; 15(4):e0231924.
14. Ni MY, Yang L, Leung CM, Li N, Yao XI, Wang Y, Leung GM, Cowling BJ, Liao Q. Mental health, risk factors, and social media use during the COVID-19 epidemic and cordon sanitaire among the community and health professionals in Wuhan, China: Cross-sectional survey. *JMIR Ment Health* 2020; 7(5):e19009.
15. Gupta A, Khan AM, Rajoura OP, Srivastava S. Internet Addiction and Its Mental Health Correlates Among Undergraduate College Students of a University in North India. *J Family Med Prim Care* 2018; 7(4):721-727.
16. Younes F, Halawi G, Jabbour H, Osta NE, Karam L, Hajj A, Khabbaz LR. Internet Addiction and Relationships with Insomnia, Anxiety, Depression, Stress and Self-Esteem in University Students: A Cross-Sectional Designed Study. *PLoS One* 2016; 11(9):e0161126.

17. Folkman S, Moskowitz JT. Positive affect and the other side of coping. *Am Psychol* 2000; 55:647-654.
18. Gonçalves DM. Self-Reporting Questionnaire (SRQ). In: Gorenstein C, Wang YP, Hungerbühler I, organizadores. *Instrumentos de avaliação em saúde mental*. Porto Alegre: Artmed; 2016. p. 202-210.
19. Fonsêca PN, Couto TN, Melo CCV, Machado MOS, Filho JSF. Escala de uso problemático da internet em estudantes universitários: evidências de validade e precisão. *Cien Psicol* 2020; 12(2):223-230.
20. Lazarus R, Folkman S. *Stress appraisal and coping*. Nova York: Springer; 1984.
21. Savóia MG, Santana PR, Mejias NP. Adaptação do inventário de Estratégias de Coping de Folkman e Lazarus para o português. *Psicol USP* 1996; 7(1-2):183-201.
22. Savoia MG. Inventário de Estratégias de Coping. In: Gorenstein C, Wang YP, Hungerbühler I, organizadores. *Instrumentos de avaliação em saúde mental*. Porto Alegre: Artmed; 2016. p. 978-986.
23. Viana MC. Composite International Diagnostic Interview (CIDI). In: Gorenstein C, Wang YP, Hungerbühler I, organizadores. *Instrumentos de avaliação em saúde mental*. Porto Alegre: Artmed; 2016. p. 161-176.
24. In Loco. Mapa brasileiro da COVID-19. Índice de isolamento social [Internet]. [acessado 2020 jun 19]. Disponível em: https://mapabrasileirodacovid.inloco.com.br/pt/?hsCtaTracking=68943485-8e65-4d6f-8ac0-af7c3ce710a2%7C45448575-c1a6-42c8-86d9-c68a42fa3fcc.
25. Oliveira EB, Zeitoune RC, Gallasch CH, Pérez Júnior EF, Silva AV, Souza TC. Transtornos mentais comuns em acadêmicos de enfermagem do ciclo profissionalizante. *Rev Bras Enferm* 2020; 73(1):e20180154.
26. Ferreira CMG, Kluthcovsky ACGC, Cordeiro TMG. Prevalência de Transtornos Mentais Comuns e Fatores Associados em Estudantes de Medicina: um Estudo Comparativo. *Rev Bras Educ Med* 2016; 40(2):268-277.
27. Chi X, Becker B, Yu Q, Willeit P, Jiao C, Huang L, Hossain MM, Grabovac I, Yeung A, Lin J, Veronese N, Wang J, Zhou X, Doig SR, Liu X, Carvalho AF, Yang L, Xiao T, Zou L, Fusar-Poli P, Solmi M. Prevalence and Psychosocial Correlates of Mental Health Outcomes Among Chinese College Students During the Coronavirus Disease (COVID19) Pandemic. *Front Psychiatry* 2020; 11:803.
28. Li HY, Cao H, Leung DYP, Mak YW. The Psychological Impacts of a COVID-19 Outbreak on College Students in China: A Longitudinal Study. *Int J Environ Res Public Health* 2020; 17(11):3933.
29. Son C, Hegde S, Smith A, Wang X, Sasangohar F. Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study. *J Med Internet Res* 2020; 22(9):e21279.
30. Wang X, Hegde S, Son C, Keller B, Smith A, Sasangohar F. Investigating Mental Health of US College Students During the COVID-19 Pandemic: Cross-Sectional Survey Study. *J Med Internet Res* 2020; 22(9):e22817.
31. Aylie NS, Mekonen MA, Mekuria RM. The psychological impacts of COVID-19 pandemic among university students in Bench-Sheko Zone, South-west Ethiopia: a community-based cross-sectional study. *Psychol Res Behav Manag* 2020; 13:813-821.
32. Debowska A, Horeczy B, Boduszek, Dolinski D. A repeated cross-sectional survey assessing university students' stress, depression, anxiety, and suicidality in the early stages of the COVID-19 pandemic in Poland. *Psychol Med* 2020; 1-4.
33. Canguilhem G. *O normal e o patológico*. 6ª ed. Rio de Janeiro: Forense Universitária; 2009.
34. Fernandes B, Maia BR, Pontes HM. Adição à internet ou uso problemático da internet? Qual dos termos usar? *Psicol USP* 2019; 30:190020.
35. Kircaburun K, Alhabash S, Tosuntaş ŞB, Griffiths MD. Uses and gratifications of problematic social media use among university students: A simultaneous examination of the Big Five of personality traits, social media platforms, and social media use motives. *Int J Mental Health Addiction* 2020; 18:525-547.
36. Gao L, Gan Y, Whittal A, Lippke S. Problematic Internet Use and Perceived Quality of Life: Findings from a Cross-Sectional Study Investigating Work-Time and Leisure-Time Internet Use. *Int J Environ Res Public Health* 2020; 17(11):4056.
37. Wan C, Chiou W. Psychological motives and online games addiction: a test of flow theory and humanistic needs theory for Taiwanese adolescents. *CyberPsychol Behav* 2006; 9(3):317-324.
38. Caplan SE. Theory and measurement of generalized problematic internet use: a two-step approach. *Computers Human Behav* 2010; 26(5):1089-1097.
39. Tokunaga RS. Perspectives on internet addiction, problematic internet use, and deficient self-regulation: contributions of communication research. *Annals Int Communication Assoc* 2015; 39(1):131161.
40. Dubey MJ, Ghosh R, Chatterjee S, Biswas P, Chattergee S, Dubey S. COVID19 and addiction. *Diabetes Metab Syndr* 2020; 14(5):817-823.
41. Király O, Potenza MN, Stein DJ, King DL, Hodgins DC, Saunders JB, Griffiths MD, Gjoneska B, Billieux J, Brand M, Abbott MW, Chamberlain SR, Corazza O, Burkauskas J, Sales CMD, Montag C, Lochner C, Grünblatt E, Wegmann E, Martinotti G, Lee HK, Rumpf H-J, Castro-Calvo J, Rahimi-Movaghar A, Higuchi S, Menchon JM, Zohar J, Pellegrini L, Walitza S, Fineberg NA, Demetrovics Z. Preventing problematic internet use during the COVID-19 pandemic: Consensus guidance. *Compr Psychiatry* 2020; 100:152180.
42. Fineberg NA, Demetrovics Z, Stein DJ, Ioannidis K, Potenza MN, Grünblatt E, Brand M, Billieux J, Carmi L, King DL, Grant JE, Yücel M, Dell'Osso B, Rumpf HJ, Hall N, Hollander E, Goudriaan A, Menchon J, Zohar J, Burkauskas J, Martinotti G, Van Ameringen M, Corazza O, Pallanti S, COST Action Network, Chamberlain SR. Manifesto for a European research network into problematic usage of the internet. *Eur Neuropsychopharmacol* 2018; 28(11):1232-1246.
43. Peeters M, Koning I, Lemmens J, Eijnden, R. Normative, passionate, or problematic? Identification of adolescent gamer subtypes over time. *J Behav Addict* 2019; 8(3):574-585.

44. Balhara YPS, Đorić A, Stevanović D, Knez R, Singh S, Chowdhury MRR, Kafali HY, Sharma P, Vally Z, Vu TV, Arya S, Mahendru A, Ransing R, Erzin G, Le H. Correlates of problematic internet use among college and university students in eight countries: An international cross-sectional study. *Asian J Psychiatr* 2019; 45:113-120.
45. Poorolajal J, Ahmadpoor J, Mohammadi Y, Soltanian AR, Asghari SZ, Mazloumi E. Prevalence of problematic internet use disorder and associated risk factors and complications among Iranian university students: a national survey. *Health Promot Perspect* 2019; 9(3):207-213.
46. Dubey S, Biswas P, Ghosh R, Chatterjee S, Dubey MJ, Chatterjee S, Lahiri D, Lavie CJ. Psychosocial impact of COVID-19. *Diabetes Metab Syndr* 2020; 14(5):779-788.
47. Ghosh R, Dubey MJ, Chatterjee S, Dubey S. Impact of COVID-19 on children: special focus on psychosocial aspect. *Minerva Pediatr* 2020; 72(3):226-235.
48. Karmakar S, Sanchari D. Evaluating the impact of covid-19 on cyberbullying through bayesian trend analysis. In: *Proceedings of the European Interdisciplinary Cybersecurity Conference (EICC)*. Nova York: EICC; 2020.
49. Jain O, Gupta M, Satam S, Panda S. Has the COVID-19 pandemic affected the susceptibility to cyberbullying in India? *Comput Human Behav* 2020; 2:10029.
50. Arslan G, Yıldırım M, Karataş Z, Kabasakal Z, Kılınç M. Meaningful Living to Promote Complete Mental Health Among University Students in the Context of the COVID-19 Pandemic. *Int J Ment Health Addict* 2020; 1-13.
51. Schnell T, Krampe H. Meaning in Life and Self-Control Buffer Stress in Times of COVID-19: Moderating and Mediating Effects With Regard to Mental Distress. *Front Psychiatry* 2020; 11:582352.
52. Dadot P, Lawal C. *Comum: Ensaio sobre a revolução no século XXI*. São Paulo: Boitempo; 2017.

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