REMOTE TEACHING AND MENTAL HEALTH OF OCCUPATIONAL THERAPY STUDENTS DURING THE PANDEMIC

ENSINO REMOTO E SAÚDE MENTAL DE UNIVERSITÁRIOS DE TERAPIA OCUPACIONAL DURANTE A PANDEMIA

ENSEÑANZA REMOTA Y SALUD MENTAL DE ESTUDIANTES DE TERAPIA OCUPACIONAL DURANTE LA PANDEMIA

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ABSTRACT: The pandemic and remote teaching have had an impact on the mental health and daily lives of university students. This research aimed to identify symptoms of common mental disorders in Brazilian university students of Occupational Therapy during the COVID-19 pandemic. 296 Occupational Therapy undergraduates from Brazilian universities took part. A sociodemographic, academic, and pandemic context questionnaire and the Depression, Anxiety, and Stress Scale - DASS-21 were used, with data analysis using descriptive statistics and the instrument protocol. The majority were in mental distress, with stress prevailing, followed by depression and anxiety. Anxiety prevailed at the pathological level, followed by stress and depression, with a need for professional care. Remote teaching contributed to illness, as university students became the main protagonists of their learning.


RESUMO: A pandemia e o ensino remoto impactaram na saúde mental e cotidiano dos universitários. Essa pesquisa teve o objetivo de identificar sintomatologia de transtornos mentais comuns em universitários brasileiros de Terapia Ocupacional durante a pandemia do COVID-19. Participaram 296 universitários de Terapia Ocupacional de universidades brasileiras. Foi utilizado um questionário sociodemográfico, acadêmico e do contexto pandêmico e a Depression, Anxiety and Stress Scale – DASS-21, sendo a análise dos dados por meio de estatística descritiva e protocolo do instrumento. A maioria estava em sofrimento mental, prevalecendo o estresse, seguido da depressão e ansiedade. Em nível patológico, prevaleceu ansiedade, seguida de estresse e depressão, com necessidade de acolhimento e cuidado profissional. O ensino remoto contribuiu para o adoecimento, visto que o universitário se tornou principal protagonista da sua aprendizagem.


RESUMEN: La pandemia y la enseñanza a distancia han tenido un impacto en la salud mental y la vida cotidiana de los estudiantes universitarios. Esta investigación tuvo como objetivo identificar síntomas de trastornos mentales comunes en estudiantes universitarios brasileños de Terapia Ocupacional durante la pandemia COVID-19. Participaron 296 estudiantes de Terapia Ocupacional de universidades brasileñas. Se utilizaron un cuestionario sociodemográfico, académico y de contexto de la pandemia y la Escala de Depresión, Ansiedad y Estrés - DASS-21, y los datos se analizaron mediante estadística descriptiva y el protocolo del instrumento. La mayoría presentaba angustia mental, prevaleciendo el estrés, seguido de la depresión y la ansiedad. La ansiedad prevaleció en el nivel patológico, seguida del estrés y la depresión, con necesidad de atención profesional. La enseñanza a distancia contribuyó a la enfermedad, ya que los estudiantes universitarios se convirtieron en los principales protagonistas de su aprendizaje.

Introduction

Given the public health emergency related to COVID-19 at a global level, the World Health Organization (WHO) declared a state of a global pandemic of COVID-19 at the beginning of 2020 and issued an alert to countries about the need to adopt preventive measures to prevent the spread of the disease, as well as coping with promoting care (OPAS, 2020).

Faced with the significant increase in the number of cases and deaths, the accelerated transmission of the SARS-CoV-2 virus and, in compliance with WHO recommendations, Brazil established Law No. 13,979/2020, called “Quarantine Law” and subsequently established the mandatory use of personal protective equipment (protective masks), the use of alcohol gel, frequent hand hygiene, social distancing and isolation with the closure of parks, commercial establishments, events, religious and educational institutions (BRASIL, 2020a).

As a strategy for the continuity of teaching, the Brazilian Ministry of Education, through ordinance no. 343/2020, determined the replacement of in-person classes with emergency remote teaching activities, using Digital Information and Communication Technologies (DICTs) while the pandemic lasts (BRASIL, 2020b).

In this sense, the entire population had their lifestyle and routine changed and, specifically in the case of students, they were also forced to adapt to the new way of teaching with the use of DICTs. During this process, many experienced difficulties such as lack and/or difficulty of digital accessibility (MORALES; LOPEZ, 2020), lack of knowledge and skill with DICTs, inadequate and/or unsatisfactory study environment, didactic and cognitive difficulties in monitoring activities synchronous, among others (SANTOS et al., 2021).

Higher education students experienced increased demands in their daily lives, due to obligations with the domestic routine and even care for affected family members in addition to the increase and difficulties related to academic activities (FRANCISCO et al., 2021; MEO et al., 2020; MORALES; LOPEZ, 2020). Linked to these demands, they also faced appearance of negative feelings such as fear of being contaminated and/or family members (LIMA et al., 2021), uncertainty about the academic future, sadness, and loneliness due to being far from their socio-affective bonds (MEO et al., 2020), anger and anguish due to family conflicts due to increased coexistence, among others.

The literature points to the fact of living in rural areas and excessive access to negative information related to the pandemic as triggering factors for anxiety in university students (CHANG; YUAN; WANG, 2020).
Studies have shown associations between depression in university students of female gender (TANG et al., 2020; VOLKEN et al., 2021); concerns about health and family financial situation (VOLKEN et al., 2021), history of alcohol consumption and exaggerated contact with negative and false information about the pandemic (CHANG; YUAN; WANG, 2020), extreme fear, decreased sleep duration, living in areas with a high prevalence of cases, being a student in the last year of graduation (TANG et al., 2020), confinement itself (HUSKY; KOVESS-MASFETY; SWENDSEN, 2020) and a sedentary lifestyle (TEIXEIRA; TAVARES; BARBOSA, 2021).

Studies have also found associations between stress and isolation, financial situation (HUSKY; KOVESS-MASFETY; SWENDSEN, 2020), little or no physical activity (TEIXEIRA; TAVARES; BARBOSA, 2021), and disruption of the daily routine (MORALES; LOPEZ, 2020).

The above factors, whether isolated, associated, and/or concomitant, can lead to the development and/or worsening of mental disorders, as evidenced in national studies with higher education students in Rio Grande do Sul (ESTEVES et al., 2021), Sergipe (SANTOS, W.; SANTOS, E.; CAVALCANTE, 2021) and Alagoas (FRANCISCO et al., 2021) and internationally in Portuguese (MAIA; DIAS, 2020), Chinese (CHANG; YUAN; WANG, 2020), Swiss (ELMER; MEPHAM; STADTFELD, 2020; VOLKEN et al., 2021), French (HUSKY; KOVESS-MASFETY; SWENDSEN, 2020), American (CARVALHO; SILVEIRA, 2021) students, among others.

It was also possible to verify studies with the same theme but with students from different courses, such as medicine (TEIXEIRA; TAVARES; BARBOSA, 2021), dentistry (LIMA et al., 2022), nursing (LIMA, 2020), which obtained different rates prevalence of stress, anxiety, and depression. However, there is little literature that investigates the mental health of university students studying Occupational Therapy during the pandemic (PAIXÃO et al., 2022).

Before the pandemic, the literature already indicated high numbers of Occupational Therapy students who presented symptoms of mental disorders (SANCHES; SILVA, N.; SILVA, M., 2018; WITT et al., 2019), even with more prevalence of symptoms when considering the different undergraduate courses, the highest occurrence of which was identified in medicine, physiotherapy, biomedicine, physical education, nursing, nutrition (PAIXÃO et al., 2022).
Given the above and considering that the prevalence of Occupational Therapy students with symptoms of Common Mental Disorders was already evident before the pandemic, the hypothesis is believed that due to the difficulties and consequences of the pandemic and changes in personal and academic routines with the inclusion of remote teaching activities, the prevalence may have increased and even caused the worsening of pre-existing mental disorders, which could result in mental suffering among university students, requiring academic support and emotional support actions.

Specifically concerning Occupational Therapy students, it is noteworthy that there were few studies on mental health with this public, and among those that existed, the majority were with interns who already indicated the presence of symptoms of common mental disorders. Therefore, specific research is essential for this audience to understand mental health conditions, especially during the pandemic, which justifies this study.

Therefore, the need for exploratory studies that investigate and analyze the mental health conditions of Brazilian university students from different educational institutions during the pandemic stands out, as they experienced and were exposed to different contexts, depending on the course, the specificities of the universities, in addition to personal issues, family and financial aspects, with possible implications for mental health. Furthermore, knowledge of this reality will be important for planning the resumption of face-to-face activities, as an important strategy for facing adversities and the consequences of improving health and teaching conditions.

It is believed that scientific evidence can stimulate public and private higher education institutions to reflect on the scenario of students' mental suffering and their academic and emotional needs and, thus, contribute to and support the development of policies and preventive and care actions for this public. Therefore, the main objective of the present study was to identify symptoms of suffering in Brazilian Occupational Therapy students during the COVID-19 pandemic.
Materials and Methods

Exploratory and descriptive research, quantitative and cross-sectional.

The sample was made up of university students regularly enrolled in Occupational Therapy courses at public and private universities across the country. Inclusion criteria include voluntary participation, being enrolled in Occupational Therapy courses at Brazilian educational institutions, and self-declaration of not having a diagnosis of any mental disorder. Exclusion criteria include not agreeing to participate voluntarily, not having enough time to respond, being a student on other courses, being away from academic activities for any reason, self-declaration of being diagnosed with a mental disorder, and not answering all the questions on the instruments.

The research was carried out with students from 26 higher education institutions, nine from the private network and 17 from the public network.

The data collection procedures, such as invitation, application of the Free and Informed Consent Form - TCLE, and response to the investigative instruments, were carried out virtually through an online questionnaire prepared with the Google Forms platform and sent by email to the students. When accessing the link, students were directed to the TCLE page, which contained information about the research, objectives, procedures, and their rights. Only after acceptance did the participant authorize the research to be carried out, and were directed to the instruments.

In case of doubts, the respondent could contact the responsible researcher by telephone and/or email. Collection occurred in August and September 2020 (six months after the pandemic's start), and the response time was approximately 20 minutes. Two investigative instruments were used to collect data: a sociodemographic, academic, and pandemic context questionnaire and the Depression, Anxiety, and Stress Scale – Short Form (DASS – 21).

The sociodemographic, academic, and pandemic context questionnaire was prepared by the researchers and was based on questions investigated in an Ebola epidemic study. It consisted of 27 closed questions, the first part referring to the characterization of the sociodemographic and economic profile (age, sex, marital status, religion, housing, income, etc.), the academic profile during remote teaching (time of entry into the course, type of institution, accessibility to activities, difficulties, etc.) and aspects related to quarantine (compliance with preventive measures, diagnosis of COVID-19, changes in behavior and habits, self-care, physical and leisure activities, among others).
To track symptoms of depression, anxiety, and stress, the Depression, Anxiety and Stress Scale – Short Form (DASS–21) was used, a self-response instrument, validated in Brazil, which can be used in adults with clinical and non-clinical complaints, of various cultures and ethnicities (PATIAS et al., 2016). Composed of a set of 21 items divided into three subscales, each subscale had seven items and assessed the emotional states of depression, anxiety, and stress through situations, feelings, and behaviors experienced in the last seven days.

The responses issued followed a four-point Likert scale that varied according to the degree, severity, and intensity experienced during the last week, as follows: Not applicable at all (0); Applied to some degree/for a short time (1); It was applied to a considerable degree and for a good part of the time (2); It was applied a lot or most of the time (3) (PATIAS et al., 2016).

To analyze the results, all responses were tabulated, organized, and coded in Excel software spreadsheets and later transported to the Statistical Package for the Social Sciences 21 (SPSS Statistics) statistical software.

The responses to the sociodemographic, academic, and pandemic context questionnaire were analyzed using descriptive statistics, with the distribution of frequencies and percentages being used for categorical variables, and for the quantitative variable, age, the mean, and standard deviation were used.

DASS 21 responses were analyzed according to standard protocols established by the instrument. To calculate depression, the answers to questions 03, 05, 10, 13, 16, 17, 21 were added together and the result multiplied by 2; for anxiety, the sum of the answers: 02, 04, 07, 09, 15, 19, 20 and the result multiplied by 2; for stress, the answers to the questions were considered: 01, 06, 08, 11, 12, 14, 18, 20 and the result multiplied by 2.

The results were classified as symptomatic and asymptomatic. Symptomatic patients were classified into four levels (mild, moderate, severe, and extremely severe) and subsequently also classified into non-pathological (asymptomatic and mild level) and pathological (moderate, severe, and extremely severe levels) as shown in Table 1.
Table 1 – Classification of variables into symptomatic and asymptomatic levels

<table>
<thead>
<tr>
<th>Variables Levels</th>
<th>Depression</th>
<th>Anxiety</th>
<th>Stress</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0 to 9</td>
<td>0 to 6</td>
<td>0 to 10</td>
<td>Asymptomatic</td>
</tr>
<tr>
<td>Light</td>
<td>10 to 12</td>
<td>7 to 9</td>
<td>11 to 18</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>13 to 20</td>
<td>10 to 14</td>
<td>19 to 26</td>
<td>Symptomatic</td>
</tr>
<tr>
<td>Severe</td>
<td>21 to 27</td>
<td>15 to 19</td>
<td>27 to 34</td>
<td></td>
</tr>
<tr>
<td>Extremely severe</td>
<td>28 to 42</td>
<td>20 to 42</td>
<td>35 to 42</td>
<td></td>
</tr>
</tbody>
</table>

Source: Prepared according to DASS-21 (PATIAS et al., 2016).

Results

Characterization of the sociodemographic and economic profile of the participants

Two hundred ninety-six university students from the Occupational Therapy course participated, with a mean age of 21.59 (SD± 3.16), the majority female (90.2%), single (96.6%), with religion (80, 1%), did not work (79.1%), remained at university through their own or family income (63.9%), belonged to the Southeast region of the country (64.2%), studied at public universities (91.6%), full-time (85.5%) and studied four or more years (43.2%) as shown in Table 2. It should be noted that although the sample was composed of public and private institutions, comparing both was not the objective of this study.

Table 2 – Sociodemographic and economic data of the sample

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feminine</td>
<td>267</td>
<td>90.2</td>
</tr>
<tr>
<td>Masculine</td>
<td>29</td>
<td>9.8</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single/ Separated/ Divorced/ Widowed</td>
<td>289</td>
<td>97.6</td>
</tr>
<tr>
<td>Married/ stable union</td>
<td>07</td>
<td>2.4</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>237</td>
<td>80.1</td>
</tr>
<tr>
<td>No</td>
<td>59</td>
<td>19.9</td>
</tr>
<tr>
<td>Living with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents and/or family members</td>
<td>253</td>
<td>85.5</td>
</tr>
<tr>
<td>Colleagues/friends/boyfriend/girlfriend</td>
<td>31</td>
<td>10.5</td>
</tr>
<tr>
<td>Alone</td>
<td>12</td>
<td>4.0</td>
</tr>
<tr>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62</td>
<td>20.9</td>
</tr>
<tr>
<td>No</td>
<td>234</td>
<td>79.1</td>
</tr>
<tr>
<td>Income*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research/Extension Scholarship/Aid</td>
<td>146</td>
<td>36.1</td>
</tr>
<tr>
<td>Own/Family Income</td>
<td>258</td>
<td>63.9</td>
</tr>
<tr>
<td>Economic commitment*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>175</td>
<td>59.1</td>
</tr>
<tr>
<td>No</td>
<td>121</td>
<td>40.9</td>
</tr>
<tr>
<td>Share household expenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>178</td>
<td>60.1</td>
</tr>
<tr>
<td>No</td>
<td>118</td>
<td>39.9</td>
</tr>
<tr>
<td>Educational Institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>271</td>
<td>91.6</td>
</tr>
<tr>
<td>Private</td>
<td>25</td>
<td>8.4</td>
</tr>
<tr>
<td>HEI region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North</td>
<td>02</td>
<td>0.7</td>
</tr>
</tbody>
</table>
Remote teaching and accessibility conditions during quarantine

All participants were carrying out remote activities, always 43.3% and sometimes 56.4%. Regarding the quality of remote activities, 47.0% rated it as satisfactory and 53.0% as unsatisfactory/unsatisfactory. Of the total, 83.1% of university students reported difficulties in carrying out remote teaching and 16.9% reported no difficulties. Of those who stated difficulties, the main ones mentioned were problems related to mental health (76.0%), time and routine management (62.5%), physical discomfort (57.7%), teaching aspects (29.0%), compliance with working hours (25.6%), among others. Regarding accessibility, 92.6% said they had access to broadband internet, but 61.8% reported having accessibility difficulties due to signal instability (46.9%). Regarding issues of infrastructure and technological resources, the following were mentioned: internet instability (46.9%), unsatisfactory or inadequate study environment (40.8%); sharing a study environment (29.3%), and difficulty in mastering digital tools (15.2%), among others.

Other difficulties in monitoring the remote activities mentioned were lack of attention and concentration (45.9%), lack of motivation (42.2%), lack of initiative (36.2%), and difficulties in interaction during asynchronous activities (34.1%).

Aspects experienced by participants during the pandemic context

Regarding preventive measures against COVID-19, 62.8% reported that they were partially isolating, and 98.6% were following preventive measures, the most cited being the use of a mask (99.3%) and the use of alcohol gel (94.9%). Of the total sample, 96.6% were not diagnosed with COVID-19, and 51.6% had family members diagnosed at the time of collection.
Regarding the experience of difficult situations, 59.8% stated that they experienced them, the most common being: an increase in family conflicts (55.4%), and family members who were health professionals and were on the front line in the fight against COVID-19 (5.7%).

Of the total, 91.2% stated behavioral changes and 8.8% denied. Of the changes, 88.1% reported changes in eating habits, and 21.2% used and/or abused alcoholic beverages and other psychoactive substances. The main reasons for behavioral changes were uncertainty about the future (81.0%), social isolation (68.5%), remote activities (54.0%), excess activities (48.3%) and relational difficulties due to the increase in family coexistence (31.0%). Regarding physical activity during the pandemic, 68.9% did it and 31.1% did not. Regarding leisure activities, 88.2% did, and 11.8% did not.

Characterization of aspects related to mental health in the sample

The characterization of symptoms of stress, anxiety, and depression comprises two possibilities: symptomatic and asymptomatic and, among the symptomatic, pathological and non-pathological. Thus, it was found that 85.5% of participants were symptomatic for one or more variables and 14.5% were asymptomatic.

Of those who were symptomatic, 71.3% had symptoms of stress, 70.6% anxiety and 70.6% depression. According to the classification of symptoms into severity levels, it was found that 63.5% were considered pathological for anxiety, 58.8% for stress, and 58.1% for depression (Table 3).

Considering the frequency of symptomatic participants, there was a prevalence of students with stress, followed by anxiety and depression. Considering the severity, pathological anxiety was predominant, followed by stress and depression.

Table 3 – Classification of levels of mental disorders and severity

<table>
<thead>
<tr>
<th>Variables</th>
<th>Classification</th>
<th>Levels</th>
<th>Non-Pathological</th>
<th>Pathological</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Depression</td>
<td>Asymptomatic</td>
<td>Normal</td>
<td>87</td>
<td>29.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Light</td>
<td>37</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate</td>
<td>00</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe</td>
<td>00</td>
<td>0.0</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Asymptomatic</td>
<td>Normal</td>
<td>87</td>
<td>29.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Light</td>
<td>21</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate</td>
<td>00</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe</td>
<td>00</td>
<td>0.0</td>
</tr>
<tr>
<td>Stress</td>
<td>Asymptomatic</td>
<td>Normal</td>
<td>85</td>
<td>28.7</td>
</tr>
</tbody>
</table>
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Discussion

Sociodemographic, academic and routine commitments

In this study, the predominance of the female gender was verified, being in line with data from the Brazilian Higher Education Census carried out by the National Institute of Educational Studies and Research Anísio Teixeira (INEP) (BRASIL, 2020c) and also from studies that pointed out the prevalence of women among university students enrolled in higher education, mainly in courses related to care, thus confirming the feminization in health courses and the historical attribution of the stereotype of caregivers to women (BORGES; DETONI, 2017; SILVA et al., 2020; CONSTANTINIDIS; MATSUKURA, 2021).

Most of the sample in this study declared to have a religion, thus reinforcing the results of other research that also had the participation of Occupational Therapy university students (SILVA et al., 2020; PINHO et al., 2020). A study carried out with the same public indicated that many Occupational Therapy university students followed some religion, on the other hand, those who did not consume alcohol more frequently (PINHO et al., 2020).

Another result verified in this study is that more than three-quarters of the sample did not work. This characteristic can be explained by the fact that most Occupational Therapy courses have a full course load requiring exclusive dedication, resulting in little or no availability of time to work and thus depending on family income (SANCHES; SILVA, N.; SILVA, M., 2018).

The economic compromise identified in this study confirms the results of international research that analyzed the stress of health sciences students, including Occupational Therapy students at the University of Zaragoza in Spain, during remote teaching during the pandemic. The authors revealed that stress symptoms were predominant in many university students who did not work, suggesting that financial difficulties can affect the mental health of university students (MARCÉN-ROMÁN et al., 2021).

International studies with Japanese nursing students and Bangladeshi university students identified that those who were socioeconomically vulnerable had severe levels of stress and depression (CHEUNG et al., 2016). Therefore, financial commitment was highlighted,
nationally and internationally before the pandemic, as an aspect that contributes to the development of symptoms of common mental disorders (CHEUNG et al., 2016; BRESOLIN et al., 2020) and during the pandemic (ISLAM et al., 2020; SANTOS, W.; SANTOS, E.; CAVALCANTE, 2021).

From this perspective, it is noteworthy that in the present study, it was found that more than half of the Occupational Therapy university students studied full time, which made it impossible to work, were economically compromised, and showed symptoms of some common mental disorder investigated. This result corroborates findings from international research with students in the health field, including Occupational Therapy students.

As for the academic profile, many Occupational Therapy university students in this study were from public educational institutions belonging to the Southeast region. These results are in line with a survey carried out by the National Education and Research Network in Occupational Therapy, which showed that in 2020, the period in which the collection was carried out, 34 Occupational Therapy courses were operating in Brazil, with the majority being offered in public institutions, in person and full-time and 14 were in the Southeast region (RENETO, 2020).

Difficulties in technological accessibility and infrastructure of physical space for the development of remote teaching activities caused deficits in the process of knowledge acquisition, autonomy, and independence of university students, resulting in insecurities regarding the professional and financial academic future. These insecurities, if persistent and unresolved, can culminate in the development and/or worsening of mental disorders. The current study also indicates that Occupational Therapy students showed changes in behavior related to eating habits, use of alcohol and other substances, in addition to changes in sleep, revealing difficulties in dealing with problems.

The literature points out the importance of sleep for the performance of physical and mental functions, including metabolic functions. Specifically with Occupational Therapy graduates, a national study on remote teaching during the pandemic also found changes in sleep in university students, pointing out the following reasons: lack of time due to the overload of academic activities exceeding the full-time workload, difficulties in reconciling socio-family activities, academic and routine, financial commitment, unsatisfactory physical and social environment, and inadequate eating habits (PAIXÃO et al., 2022).

Therefore, the perpetuation of these changes over a prolonged period can cause daytime drowsiness, mood changes, and deficits in attention and concentration, leading to negative
implications in the performance of academic, basic, and instrumental activities of daily living and, consequently, compromising the routine and the possibility of the appearance of a mental disorder.

Regarding the difficulty in managing routine and excess demands identified in this study, the data are in line with another study with the same audience and moment that pointed out the difficulty in managing time, procrastination, and establishing a study routine as the greatest academic difficulty (BLANDO et al., 2021).

During the period of social isolation and remote teaching, students experienced a lack of routine, worsening sleep quality, excessive activities, difficulty in reconciling activities, lack of quality internet and a lack of energy and/or internet, and the excess hours dedicated to the use of digital technologies, evidenced in this study. Such factors are highlighted in the literature as contributors to poor sleep quality, as aspects that favor the development of negative psychological and psychiatric symptoms, such as stress, anxiety, and depression (PAIXÃO et al., 2022; TASSARA et al., 2021).

The literature also highlights that the long stay and use of technologies trigger and/or increase technological dependence, with isolation further enhancing the use of these resources, constituting an aggravating factor for the development of mental health problems (SILVA et al., 2022).

Decreases in concentration and difficulties in maintaining attention were identified in this study and Brazilian, French, and Chinese university students from various health courses during remote teaching during the pandemic (ESSADEK; RABEYRON, 2020; CHANG; YUAN; WANG, 2020). It is noteworthy that cognitive functions are fundamental for the performance of daily life activities, instrumental life activities, and academic activities.

**Common Mental Disorders in Occupational Therapy Undergraduates**

In the present study, a significant number of Occupational Therapy graduates were symptomatic for stress, depression, and anxiety, respectively, but considering the degree of severity, anxiety was the most evident, followed by stress and depression. It is noteworthy that many university students were at a pathological level, and referral to specialists was recommended.

The presence of symptoms of common mental disorders was also found in another recent national study that investigated the impact of the pandemic on the daily lives and
symptoms of common mental disorders of Occupational Therapy graduates, detecting the prevalence of stress, followed by anxiety and depression (CONSTANTINIDIS; MATSUKURA, 2021). However, specifically for Occupational Therapy graduates, there are still few articles that evaluated the consequences of the COVID-19 pandemic on their mental health.

In this sense, it is worth highlighting that in research before the pandemic, significant levels of stress (SANCHES; SILVA, N.; SILVA, M., 2018; SILVA et al., 2020), anxiety and depression (SILVA et al., 2020) were already identified. In the present study, an increase in students with levels considered pathological was found, thus suggesting the severity, and worsening of symptoms and leading to a vulnerability in the mental health of Occupational Therapy graduate students, indicating the need to develop strategies for the prevention and promotion of care within the university.

The results of this study and other national studies with the same audience indicated that the consequences of the pandemic, such as the loss of family and/or friends, sudden and sudden changes in routine, socioeconomic vulnerability, and adaptation to remote teaching activities contributed even further for the appearance and/or increase in cases of depression, anxiety, and stress. (CONSTANTINIDIS; MATSUKURA, 2021; SANTOS, W.; SANTOS, E.; CAVALCANTE, 2021).

Linked to this, the undergraduates in this study reported among the motivating factors for mental suffering, uncertainty about the future, isolation and social distancing, difficulties and excess of remote teaching activities, an increase in family conflicts, infrastructure difficulties as an inadequate study environment and accessibility difficulties for the use of DICTs. Therefore, these results corroborate that the adversities caused by the pandemic increased the quantitative increase in cases of Common Mental Disorders, as well as the intensification and worsening of symptoms.

The hypothesis of an increase in cases and symptoms because of the pandemic was raised and confirmed in a study that quantified probable cases of anxiety and depression and the use of psychotropic drugs in Brazilian undergraduates from different areas, including Occupational Therapy graduates, whose increase was significant (SANTOS, W.; SANTOS, E.; CAVALCANTE, 2021).

Specifically concerning anxiety, it was possible to observe that this disorder was the most severe and, therefore, the most pathological in this study. Even before the pandemic, anxiety was already a symptom present in the life of OT graduates (CIPRIANO et al., 2021;
SILVA et al., 2020). High levels of anxiety were identified in undergraduates in recent years, due to the completion of their course completion work, preparation for selection processes, in addition to being in a supervised clinical internship period, a phase of the course in which more specific content is required, the beginning of the contact with patients and, therefore, more responsibilities, causing feelings of discomfort and anxiety, negatively influencing the performance and academic performance of undergraduates, in addition to causing biopsychosocial losses (SANCHES; SILVA, N.; SILVA, M., 2018; CIPRIANO et al., 2021; PAIXÃO et al., 2021; SILVA et al., 2021). In a study with students from Manaus, it was found that 41.3% reported anxiety in the face of uncertainty during COVID-19 (CARVALHO et al., 2023).

Another result that is in line with the current study is the higher prevalence of female undergraduates, in line with data from the World Health Organization that points to the predominance of common mental disorders in females (WHO, 2021). The multiple roles played by women in society are presented in the literature as a justification for the prevalence of common mental disorders in females (LIRA et al., 2021).

The results also showed that most students were complying with preventive measures for the spread of the virus. This action is considered a protective factor for the spread of the virus, but a risk factor for the emergence of mental disorders.

Stress was the most evident symptomatology and the second most pathological. Stress is also another symptom already evident in Occupational Therapy graduates before the pandemic, being related to the lack of time to fulfill all responsibilities, leading to changes in self-care, schooling, socialization, and nutrition, also having an impact on recreational activities (BLANCO et al., 2012), in addition to other authors pointing out stress mainly in undergraduates during the clinical internship period (SANCHES; SILVA, N.; SILVA, M., 2018; SILVA et al., 2020).

During remote teaching during the pandemic period, it was noted that online teaching was characterized as a factor responsible for the increase in stress symptoms in Occupational Therapy graduates (CONSTANTINIDIS; MATSUKURA, 2021). Other authors pointed out that during remote teaching during the pandemic, financial issues (MARCÉN-ROMÁN et al., 2021; CONSTANTINIDIS; MATSUKURA, 2021), family life, social distancing itself and concerns about the academic process (CONSTANTINIDIS; MATSUKURA, 2021), as stressful factors that can generate emotional and/or psychological suffering in Occupational Therapy students.
It was also evidenced that students who returned to their parents and family homes during the pandemic period had a higher prevalence of common mental disorders (SILVA et al., 2021; DIAS, SILVA, N., SILVA, M., 2023), which had an impact on the increase in family conflicts, as previously mentioned.

The uncertainty about the academic and professional future identified in this study was also associated with symptoms of stress in Occupational Therapy university students before the COVID-19 pandemic (SANCHES; SILVA, M.; SILVA, N., 2018). However, as evidenced in the results of this study, with the pandemic there was an increase in the prevalence and worsening of common mental disorders in Occupational Therapy students, with some of the main reasons related to the course: doubts and insecurities regarding the quality of training in the modality of remote teaching, as well as fear and/or fear of contamination during face-to-face clinical care, as the activities carried out during the care required physical contact and/or contact with materials and, also due to the challenge of adapting activities (manual, artistic, expressive, body, among others) for virtual care in times of alarming increase in COVID-19 cases.

In this study, a considerable part pointed out as reasons for suffering, the rapid need to adapt to the new teaching model, a result also found in international literature with Canadian university students during remote teaching during the pandemic (PROWSE et al., 2021) and in other studies who pointed out as triggering factors for stress in university students, the increase in difficulty due to the unexpected transition from face-to-face teaching to online teaching, concerns about grades and delay in completing the undergraduate teaching process (CHANG; YUAN; WANG, 2020), concerns with family and friends (ELMER; MEPHAM; STADTFELD, 2020).

This new form of teaching, in person and at a distance, can be detrimental to the production of knowledge, as university students have become the main protagonists of their learning and, for the health area, this modality can be even more challenging, being insufficient to obtaining essential skills for caring for human beings through practice scenarios, due to the complexity required for training (FILATRO; CAVALCANTI, 2018).

According to the authors, the emergency remote teaching action adopted by public and private universities may be one of the factors responsible for the lack of interest and withdrawal of university students in the process of their academic and professional training (BARBOSA; VIEGAS; BATISTA, 2020), especially in the health area, thus characterizing a situation of great stress.
Other authors indicated that the feeling of overload arising from academic activities and the time dedicated to solving them could be a factor in exposure to stress in Occupational Therapy students (SILVA et al., 2021). In times of pandemic, difficulties were identified with time management, and reconciling academic, family, and work routines and are also related to the presence of stress in these students, identified in a significant portion of the sample (DIAS, SILVA, N., SILVA, M., 2023).

Although depression symptoms were the least prevalent and pathological in this study, they are present in almost a third of the sample, including at high levels of severity, implying the need for psychological and psychiatric follow-up.

A study before the COVID-19 pandemic already pointed out the prevalence of depressive symptoms in Occupational Therapy undergraduates when compared to physiotherapy and medicine students, including a higher prevalence of suicide risk among them. Another national study with Occupational Therapy graduates submitted to teaching using active methodology investigated factors associated with depression and anxiety and pointed out that the fragmentation of time for social life activities, the distribution of the course workload, and academic demands are factors associated with symptoms of depression in these undergraduates, directly influencing their study performance (COSTA et al., 2021).

Studies with university students from various courses and areas during remote teaching pointed to the following as triggering situations for depression: reduced family financial income (TASSARA et al., 2021; DIAS, SILVA, N., SILVA, M., 2023), consumption of alcoholic drinks and cannabis and low frequency of physical activity (VOLKEN et al., 2021), lack of leisure time, sedentary lifestyle and carrying out practical activities and/or disciplines, due to greater proximity to illness and death (BRESOLIN et al., 2020), living with parents, in urban areas and the feeling of being behind in academic activities (ISLAM et al., 2020), fear of being the vector of the virus and contaminating family members (SARASWATHI et al., 2020), year of graduation (SANTOS, W.; SANTOS, E.; CAVALCANTE, 2021) and personal problems that have been suppressed (ELMER; MEPHAM; STADTFELD, 2020).

Social isolation and the consequent preventive measures to avoid the spread of COVID-19 are identified as predisposing factors for the appearance and/or worsening of depressive symptoms in Occupational Therapy students (CONSTANTINIDIS; MATSUKURA, 2021) and other university students (ESTEVES et al., 2021). A national study with occupational therapy students found an association between depression and insomnia and decreased hours of sleep, in addition to indicating that sleep deficits result in twice the likelihood of the appearance of
depressive symptoms (PAIXÃO et al., 2022). Therefore, these conditions were highlighted in
the present study and can corroborate and justify the high prevalence of students with depressive
symptoms at pathological levels.

From this perspective, a national study highlights the importance of humanizing
education as a fundamental factor in alleviating the impacts of the pandemic and remote
teaching, as through the teacher-student bond, the latter can welcome the student, stimulate
interpersonal relationships, and facilitate socio-affective exchanges among students. These
actions make it possible to reduce negative feelings, such as loneliness and fear, increase the
student's sense of security, confidence, and resilience, and, consequently, reduce school dropout
rates. (WILSKE, 2022).

**Final considerations**

This study identified that during the pandemic, a significant portion of Occupational
Therapy graduates presented symptoms of common mental disorders in one or more variables
investigated, including at pathological levels. Stress was the most prevalent symptomatology,
followed by anxiety and depression, but anxiety with more pathological levels followed by
stress and depression.

Remote teaching and family, social, financial, and characteristic aspects of the pandemic
may have contributed to these results, demonstrating the need for care for the mental health of
Occupational Therapy graduates.

The results highlight the importance of educational institutions developing strategies for
prevention and specific care for this population, thus increasing their support network, academic
performance, and quality of life in all areas of performance and occupations, especially in the
face of the resumption of face-to-face activities accompanied by the scenario described in this
research, in addition to the fact that these results can also support actions within universities
and undergraduate courses.

As limiting factors of the research, the reduced sample number stands out, making the
generalization of the data unfeasible, as well as the low number of research that portrayed
mental disorders during the pandemic for Occupational Therapy graduates, avoiding in-depth
analysis with current data, serving as the text of studies before the pandemic is used for
discussion, a fact that highlights this knowledge gap.
Future work includes the possibility of a longitudinal study to compare data and the application of a qualitative methodology to give voice to subjects and better understand the repercussions of the pandemic and remote teaching.

REFERENCES


Remote teaching and mental health of occupational therapy students during the pandemic


DIAS, M. D., SILVA, N. R., SILVA, M. L. Saúde mental e qualidade de vida de universitários em etapa inicial do ensino remoto. Educação, Ciência e Cultura, Canoas, RS, v. 27 n. 3, p. 01-19, fev., 2023. DOI: 10.18316/recc.v27i3.8687S.


WILSKE, A. A. Desafios e perspectivas educacionais em tempos de modernidade líquida x re-significação das inter-relações. Revista @mbienteeducação, São Paulo, v. 15, n. 00, p. e022022, 2022. DOI: 10.26843/ae.v15i00.1151.

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