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A study on the impact of COVID-19 on the mental health of undergraduate students

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Abstract

The COVID-19 pandemic has been a global crisis that has touched every aspect of society, and its impact on mental health cannot be overstated. This abstract provides a detailed analysis of the multifaceted impact of the pandemic on the mental health of undergraduate (UG) and postgraduate (PG) students, shedding light on the complex challenges they have faced over the past few years.

The pandemic prompted a seismic shift in the educational landscape, forcing universities and colleges worldwide to pivot to remote learning and implement social distancing measures. This abrupt change in academic delivery significantly affected the mental well-being of UG and PG students.

Loneliness was another prevalent theme. Social distancing measures and lockdowns made it difficult for students to maintain their social connections, leading to feelings of isolation and disconnection. Lack of in-person social support exacerbated mental health issues, especially for those living far away from family and friends.

Keywords: Mental health, physical well-being, personal well-being, social circle, academic stress, family

Introduction

In recent years, the mental health landscape among undergraduate students has undergone a profound transformation, catalysed by the unprecedented global disruption brought about by the COVID-19 pandemic. This study aims to delineate the nuanced shifts in mental well-being by comparing the pre-pandemic state to the post-pandemic reality. By examining these phases, we intend to identify significant changes, discern emerging trends, and illuminate the overall trajectory of mental health in the collegiate setting.

Our investigation delves into the multifaceted factors that may have contributed to the observed changes in students' mental health. From the perils of social isolation and the weight of academic pressures to economic stressors and disparities in access to mental health resources, we seek to unravel the intricate web of influences shaping the psychological landscape of today's undergraduates. The experiences of navigating the pandemic itself will be pivotal in understanding the contextual nuances of this transformative period.

Amidst the challenges posed by the pandemic, it becomes imperative to explore how students coped with the heightened stressors. This research endeavours to shed light on the array of coping mechanisms employed by students and assess their effectiveness in mitigating or exacerbating mental health challenges. By unravelling the coping strategies, we aim to glean insights into the resilience of the student population and the adaptive measures taken to maintain or enhance mental well-being.

Review of literature

- As said by the author Saraswathi *et al.*, (2020) ^[1]. Studies have consistently reported an increased prevalence of mental health issues among healthcare professionals during the COVID-19 pandemic. Medical students, being an integral part of the healthcare system, are likely to be affected as well. Research has shown that medical students, even before the pandemic, were already prone to high levels of stress, anxiety, and burnout.
- As said by the author Nikola Mirilović *et al.*, (2020) ^[2] the above research stated that numerous cross-sectional studies have reported a surge in psychological stress and anxiety among students during the COVID-19 pandemic (Cao *et al.*, 2020) ^[22].

The abrupt shift to online learning, concerns about academic performance, and the fear of infection contribute to heightened stress levels. Furthermore, the lack of social interactions and extracurricular activities exacerbates feelings of isolation and loneliness (Wang *et al.*, 2020) ^[21]. Sleep disturbances have been identified as a prevalent issue among students during the pandemic.

- As stated by the Author Nishita Gadi *et al.*, (2023) ^[44] that the COVID-19 pandemic has affected most industries, including health education. In this study, we surveyed students studying healthcare-related courses at our university on how their lifestyles and behaviours, mental health and education had been affected by the pandemic in general, there was a negative impact on behaviours, lifestyle and mental health and virtual education was perceived as necessary in making up for the loss of face-to-face experiences.
- As said by the author Yasuaki Kusumoto, *et al.* (2010) ^[45] that Trait anxiety, representing stable individual differences in anxiety proneness, interacts with state anxiety, which reflects situational and temporary fluctuations in anxiety levels (Spielberger, 2010) ^[46]. Understanding how these dimensions of anxiety influence college students' occupational dysfunction and mental health during the pandemic is crucial for targeted interventions. The Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) ^[47] and the Model of Human Occupation provide theoretical frameworks for understanding the dynamic interactions between environmental stressors, individual factors, and coping strategies influencing mental health and occupational dysfunction.

Social Circle

Impact of Social Circles on Mental Health: Numerous studies have highlighted the crucial role of social circles in promoting mental health among undergraduates. A study by Primack *et al.*, (2017) ^[4] emphasized the association between social support and decreased risk of depression among college students. However, the COVID-19 pandemic has led to physical distancing measures, disrupting traditional social circles. Research by Loades *et al.*, (2020) ^[5] found that the reduction in face-to-face social interactions during lockdowns was associated with increased loneliness and depressive symptoms among young adults. Similarly, a study conducted by Son *et al.*, (2021) ^[10] revealed that undergraduate students experienced heightened levels of anxiety and stress due to the lack of in-person social support during the pandemic.

Social circles play a significant role in academic success and adjustment among undergraduates. Prior research has shown that peer interactions positively influence academic performance and engagement (Cuseo, 2007) ^[7]. However, the shift to remote learning and reduced campus activities due to COVID-19 restrictions have limited opportunities for peer collaboration and support. A study by Marques *et al.*, (2020) ^[8] indicated that undergraduates faced challenges in adapting to online learning environments, which were exacerbated by feelings of social isolation and disconnection from their peers.

Academic Issues

Remote Learning Challenges: The sudden shift to remote

learning has presented significant challenges for undergraduate students. Research by Smith *et al.*, (2020) found that students faced difficulties with technological access, internet connectivity, and adapting to online learning platforms. Moreover, lack of face-to-face interaction with peers and instructors has contributed to feelings of isolation and disengagement (Son *et al.*, 2021) ^[10]. These challenges have adversely affected students' academic motivation, participation, and overall learning experience.

Disparities in Access and Resources: The shift to remote learning has unveiled pre-existing disparities in access to technology and resources among undergraduate students. Students from marginalized backgrounds, low-income households, and rural areas face disproportionate challenges in accessing reliable internet connection, adequate devices, and conducive learning environments (Ozamiz-Etxebarria *et al.*, 2020) ^[11]. These disparities have widened educational inequalities, exacerbating existing social and economic inequities in higher education.

Family Related

Family Support and Academic Performance: Several studies have highlighted the significant role of family support in influencing undergraduates' academic performance during the pandemic. For instance, Liu and Magjuka (2020) ^[12] found that undergraduates who perceived higher levels of family support reported better academic outcomes despite the challenges posed by remote learning. Similarly, a study by Li *et al.*, (2021) ^[13] demonstrated that positive family relationships positively correlated with undergraduates' academic engagement and motivation during the pandemic.

Furthermore, research has explored how variations in family dynamics and coping strategies influence undergraduates' resilience during the pandemic. For example, a study by Wang *et al.*, (2021) ^[14] found that undergraduates from cohesive families exhibited higher levels of resilience and adaptive coping mechanisms in response to pandemic-related stressors. Additionally, research by Mason Brink and Hurley (2020) ^[15] emphasized the importance of family communication and support in facilitating undergraduates' adjustment to remote learning environments.

Financial Conditions

Financial constraints during the pandemic have hindered undergraduates' ability to access essential resources for their education. Studies have shown that students from low-income backgrounds are particularly vulnerable, facing difficulties in affording textbooks, technology devices for online learning, and even basic necessities such as food and housing (Barragan *et al.*, 2020) ^[16]. Lack of access to these resources exacerbates disparities in educational attainment and contributes to increased dropout rates among financially strained students.

Despite the adverse effects of financial strain, many undergraduate students employ coping strategies to mitigate its impact. These strategies may include seeking additional employment, applying for financial aid or emergency grants, or accessing mental health support services provided by universities (Hill *et al.*, 2020) ^[17]. Moreover, institutions and policymakers have implemented various support interventions, such as emergency financial assistance programs, tuition waivers, and mental health counselling

services, to address the needs of financially vulnerable students during the pandemic.

Physical well-being

Research by Li *et al.*, (2020) [20] highlights the increased prevalence of sedentary behaviour, irregular sleep patterns, and unhealthy eating habits among undergraduate students during the pandemic. Social distancing measures and closure of recreational facilities have limited opportunities for physical activity, exacerbating the risk of physical health problems.

Studies such as that by Brooks *et al.*, (2020) [18] emphasize the interconnectedness of mental and physical health during the pandemic. Heightened stress, anxiety, and depression among undergraduates have been associated with poor physical well-being, including fatigue, muscle tension, and compromised immune function.

The increased reliance on digital devices for remote learning and socialization has implications for physical well-being. Prolonged screen time and poor ergonomic practices contribute to musculoskeletal issues, eye strain, and disrupted sleep patterns (Gao, *et al.* 2021) [19].

Personal Well-being

Research indicates a substantial increase in psychological distress and mental health concerns among undergraduate students during the COVID-19 pandemic. A study by Son *et al.*, (2021) [10] found elevated levels of anxiety and depression symptoms among undergraduate students, attributed to increased academic stress, social isolation, and uncertainty about the future. Similarly, another study by Cao *et al.*, (2020) [22] reported a high prevalence of stress, anxiety, and depression symptoms among undergraduate students during the pandemic.

The implementation of social distancing measures and campus closures has resulted in increased social isolation and loneliness among undergraduate students. Huang and Zhao (2020) [23] found that social isolation during the pandemic was associated with higher levels of loneliness among college students. Lack of social support systems and limited face-to-face interactions with peers and faculty members have contributed to feelings of loneliness and alienation among undergraduates.

Hypothesis

This study was among the first to evaluate the influence of the COVID-19 pandemic on physical activity and mental health among undergraduate and graduate health-related students at the University of Osijek. Students are the most gravely affected population by the current pandemic, which leads to their insecurity, anxiety, and stress (Elbay RY, *et al.* 2020) [37].

Similar to our findings, showed that young females had a greater risk for developing negative emotional states. Moreover, the female gender was associated with lower physical activity, increasing depressive symptoms.

In any case, physical activity in leisure time positively affects mental health and well-being (Schlichtiger *et al.*, 2020) [36]. Reduced physical activity is a risk factor for elevated mental stress. That is especially evident during COVID-19 lockdown, as leisure time increases while exercise and sports are limited.

H1: There is a significant influence of COVID 19 on mental

health and physical well-being of undergraduates.

As many universities suspended classroom teaching and switched to online teaching, the lives of students have changed drastically. While social distancing measures may successfully slow down the spread of the infection and relieve the public health systems (Glass, 2006) [38], they may eventually increase the social isolation of students and affect their psychological well-being and mental health (Bavel JJV 2020) [39]. The social networks of students have been argued to be an important factor in buffering stress and helping them to be more effective. Reduced social interactions, a lack of social support, and newly arising stressors associated with the COVID-19 crisis could potentially affect students' mental health negatively. The social relationships of individuals are likely to be affected by the crisis in different ways. Social relationships are conduits of social support (Cohen, 2000) [40]. In times of crisis, social support may be more important than ever. But at the same time, physical proximity and opportunities for interaction are important in developing and fostering social ties. As face-to-face interactions and random encounters are minimized due to the social distancing measures, it is likely that individuals focus on those relationships that are spatially close, most meaningful, or most established. Those may partly be found outside the student community, for example, in the household, in the family, and within established friendship circles (Bolger, 1991) [41].

H2: There is a significant influence of COVID19 on social circle and personal well-being of students

Academic stress may be the single most dominant stress factor that affects the mental well-being of college students. Some groups of students may experience more stress than others, and the coronavirus disease 19 (COVID-19) pandemic could further complicate the stress response. College students are exposed to novel academic stressors, such as an extensive academic course load, substantial studying, time management, classroom competition, financial concerns, familial pressures, and adapting to a new environment (Misra and Castillo, 2004) [32]. Academic stress can reduce motivation, hinder academic achievement, and lead to increased college dropout rates (Pascoe *et al.*, 2020) [33]. The coronavirus disease 19 (COVID-19) pandemic is a major stressor that has led to a mental health crisis (American Psychological Association, 2020; Dong and Bouey, 2020) [34, 35]. For college students, the COVID-19 pandemic has resulted in significant changes and disruptions to daily life, elevated stress levels, and mental and physical health deterioration (American Psychological Association, 2020) [34].

H3: There is a significant influence of COVID19 on academic issue of undergraduate students.

Living and learning at home with family can present a variety of challenges for students accustomed to learning in a classroom and studying in a library, particularly if there are distractions in the home environment. Students who watched a videotaped lecture demonstrated drops in grades on post-video quizzes of one and up to three letter grades when randomly assigned to a multitasking distraction condition (e.g., folding laundry, playing video games,

texting, engaging in conversation, and watching videos) compared to their baseline scores without multitasking distractions (Blasiman *et al.*, 2018) [42]. Students who lived on campus prior to the closure experienced heightened academic difficulty compared to their peers who lived off campus prior to the pandemic, suggesting that, as a result of campus closure, many students likely lost access to potentially valuable campus resources that have been shown to assist students and foster their academic success, such as social, academic, and emotional support, and safe and secure housing. For some students, all or many of these resources may not be available in off-campus settings (Aguilera-Hermida, 2020) [43].

H4: There is a significant influence of COVID19 and family related issues on academic performance of students.

Methodology: Exploring the Impact of COVID- 19 on Students' Learning and social outcomes.

1. **Research Design:** Employed a survey design to capture a snapshot of students' experiences. Developed a structured questionnaire with a mix of closed and open-ended questions.
2. **Participants:** Randomly selected a diverse sample of 150 + students from various academic disciplines. Ensured representation across different educational levels (undergraduate and postgraduate)
3. **Data Collection:** Administered the questionnaire electronically using an online survey platform. Included informed consent information to uphold ethical considerations. Collected holistic data for the overall evaluation of the personality change.
4. **Variables:** Independent variable: physical wellbeing, personal well-being, mental health, social circle, academic issue, family problems.
5. **Procedure:** Distributed the survey link via email to selected participants. Set a one-week response period to allow for sufficient data collection. Sent reminders at one and two days to encourage participation.
6. **Data Analysis:** Utilized statistical software to analyze quantitative data, employing descriptive statistics and inferential tests
7. **Validity and Reliability:** Piloted the questionnaire with a small group of students to ensure clarity and relevance. Established internal consistency using Cronbach's alpha of 0.820 for reliability.
8. **Limitations:** Acknowledged potential limitations such as sampling bias and self-reporting. Conclusion: The methodology aims at highlighting key steps taken to ensure
9. **The rigor of the research:** This methodology aims to provide a comprehensive understanding of the research process from study design to data analysis, ensuring transparency.

Result Analysis

Personal well-being and physical well being

The correlation between the personal and the physical wellbeing is 0.639 with $P \geq 0.000$, therefore there is a significant relationship between personal and physical wellbeing, Undergraduates often feel alone and alienated due to a lack of social support networks and insufficient in-person interactions with teachers and peers. Undergraduates who experience higher levels of stress, anxiety, and

depression have been linked to worse physical health outcomes, such as exhaustion, tense muscles, and weakened immune systems. Physical well-being is impacted by the growing reliance on digital devices for socializing and distant study. Extended usage of screens and inadequate ergonomic techniques lead to musculoskeletal problems, ocular fatigue, and irregular sleep cycles.

Social circle and personal well being

The correlation between the social circle and the personal wellbeing is 0.595% with $P \geq 0.000$, therefore there is a significant relationship between social circle and personal wellbeing. Undergraduates' adjustment and academic success are significantly influenced by their social networks. Studies have indicated that interactions among peers have a positive impact on academic performance while also Undergraduates often feel alone and alienated due to a lack of social support networks and insufficient in-person interactions with teachers and peers.

Physical well-being and academic issue

The correlation between the physical well-being and the academic issue is 0.598% with $P \geq 0.000$, therefore there is a significant relationship between Physical well-being and academic issue.

Undergraduate students' pre-existing discrepancies in access to technology and resources have been made clear by the move to remote learning.

Studies demonstrate that among college students during the pandemic, sedentary behavior, erratic sleep patterns, and bad eating habits were more common. The risk of physical health issues has increased due to social distancing policies and the closing of recreational facilities, which have reduced opportunities for physical activity.

Family related and academic issues

The correlation between the family related and the academic issue is 0.444% with $P \geq 0.000$, therefore there is a significant relationship between Family related and academic issue. Studies have investigated the ways in which differences in family structures and coping mechanisms impact the resilience of college students within the epidemic. The significance of family communication and support in aiding undergraduates' adaptation to distant learning environments was also emphasized by the current study. Students have trouble connecting to the internet, using technology, and adjusting to online learning environments. Furthermore, feelings of alienation and disengagement have been exacerbated by the absence of in-person interactions with peers and teachers.

Discussion

In this study we study the effects of COVID-19 on mental health, physical and personal well-being, social circle, family issue and academic problems of an undergraduates. In within-person comparisons of social networks and in line with *HI*, we observe that students nominated fewer others in social interaction networks and co-study networks and were more likely to be isolated in co-study networks. Friendship and social support networks did not change significantly. In between-cohort comparisons of social networks, we similarly observe significantly lower connectivity (Out degree) in pleasant interaction and co-study networks, but no significant differences in proportion of socially isolated

individuals. In within-person comparisons of mental health dimensions, we find that students were on average more depressed, slightly more anxious, more stressed, and felt more lonely than half a year earlier.

Our primary findings showed a positive correlation between perceived academic stress and mental well-being in United States college students, suggesting that academic stressors, including academic expectations, workload and grading, and students' academic self-perceptions, are equally important as psychological well-being. Students who lived on campus prior to the closure experienced heightened academic difficulty compared to their peers who lived off campus prior to the pandemic, suggesting that, as a result of campus closure, many students likely lost access to potentially valuable campus resources that have been shown to assist students and foster their academic success, such as social, academic, and emotional support, and safe and secure housing. For some students, all or many of these resources may not be available in off-campus settings (Aguilera-Hermida, 2020) [43].

Data from this study highlight several findings pertinent for the COVID-19 pandemic: (i) the results indicate an insufficient level of physical activity among students, (ii) no significant association was observed between decreased levels of physical activity and the levels of negative emotional states, (iii) prevalence of anxiety, depression, and stress symptoms among health care students are high.

Physical activity in leisure time positively affects mental health and well-being. Reduced physical activity is a risk factor for elevated mental stress. That is especially evident during COVID-19 lockdown, as leisure time increases while exercise and sports are limited. Interestingly, there was no correlation between three negative emotional states (Depression, anxiety, and stress) and leisure-time physical activity, although that kind of correlation was reported in other studies.

The present study highlights that students are at a high risk for psychological distress during the COVID-19 pandemic; hence, increased and sustained efforts are required to improve their positive mental health and well-being. Universities should offer early detection and tailored prevention programs. Interventions for depression and anxiety among students should be conducted before graduation since it may have long-term effects on their future careers as healthcare professionals.

Conclusion

Students' social networks and mental health trajectories cannot be understood independently of each other. It is therefore important to study how the COVID-19 crisis and related measures affect the social networks and mental health of students. It appears that the university lockdown and social distancing measures negatively affect the social integration of some individuals, partly leaving them isolated, while in fact more social support might be needed to cope with the additional stress factors.

Some students might be at higher risk of social isolation and the development of mental health problems during the COVID-19 crisis. In particular, when they live by themselves, have less direct contact to close family members and friends, receive less social support, and have a weaker integration in the social networks of students. Female students (Who were the minority group in the student populations) appeared to be at higher risk of facing

negative mental health consequences. These observations as well as those of similar studies are crucial to develop targeted interventions to support students who are potentially at risk. These could include digital forms of study groups, peer group sessions, mentoring, and psychological counselling. Our findings may further inform ongoing efforts of universities around the world to develop new hybrid teaching strategies for the coming academic years. These will increasingly have to rely on online learning as a complement to traditional classroom teaching. It appears that students should receive opportunities to interact and socialize in informal social settings. This could matter more for newly enrolled students who did not have the chance to form social ties with others, yet. If this is not possible in-person due to COVID-19 constraints, university managers and teachers should consider the development of online events and the use of online platforms to support the development of social ties between students. Friendship, interaction, social support, and studying with others have been argued to impact their well-being and academic success, but they often require meeting opportunities and informal settings to develop.

The flattening of the infection curve during the COVID-19 pandemic requires strict public health measures, such as social distancing, closure of public institutions, and a reduction of social life. But when implementing such measures nationally and at universities, it is important to consider and counteract potential negative effects on individuals' social networks and mental health.

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