

DISTANCE EDUCATION AND BURNOUT SYNDROME AMONG NURSING STUDENTS DURING THE COVID-19 PANDEMIC

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ABSTRACT

Social restrictions and changes caused by the COVID-19 pandemic, as a global emergency, are becoming particularly pronounced in the field of education. It is estimated that more than 1.5 billion students have experienced school and university closures during the pandemic, which has affected numerous aspects of student life and activities. The rapid transformation of the teaching process and learning methods poses a major challenge for students, teachers and the education system as a whole. During the pandemic, patterns are also changing in the implementation of clinical teaching, which has been canceled, postponed or transferred to "online" activities for the safety of students and patients. All of the above contributes to the emergence of various dimensions of the "burnout" syndrome among health science students around the world. They also become a vulnerable group with changes in their health status and behavior, work and family environment, social contacts, but also the development of work skills. This review summarizes the impact of distance learning during the COVID-19 pandemic on the emergence of different dimensions of burnout in nursing students and presents a brief overview of the history, consequences, prevalence and perspectives for overcoming it. The aim of this review is to assess the impact of distance learning and abrupt changes in teaching methods in the field of nursing education during the COVID-19 pandemic on the emergence of burnout, as well as to analyze the predictors that influenced its development under these conditions.

Keywords: Distance learning, burnout, nursing students, COVID-19 pandemic.



INTRODUCTION

On January 30, 2020, the World Health Organization declared a public health emergency of international concern and the international threat of the spread of the novel coronavirus (nCoV). On March 11 of the same year, a pandemic was officially declared (1). In order to reduce the possibility of the spread of most COVID-19 infections, the higher education program for nurses is transitioning to a distance learning system, i.e. via the Internet, as a space for online teaching (2). Before the pandemic, distance learning as a form of teaching in nursing education was rarely used. However, in just a few days during the state of emergency, all actors in the educational process were forced to adapt to the new circumstances – students, teachers, and education as a whole (3). It is known that students, in addition to theoretical teaching, also directly participate in practical, clinical teaching in healthcare institutions at all levels of healthcare as the basis for a quality professional future. The effectiveness of changes in the academic teaching of nurses and what results in practice have been the subject of numerous studies (4). The sudden digital transition in teaching methods, content and the teaching process itself, the change in the modalities of education in relation to students' obligations, call into question the effects that these changes have on their health and learning. Burnout syndrome is present today in many population groups but also in different professions. Due to the characteristics of the work performed by health workers, and especially nurses, they are among the high-risk groups for developing this syndrome (5). Great heterogeneity in defining this syndrome has been present since the first publication on the topic of burnout, by the German psychotherapist Freudenberg, which was published in 1974, until today. The original concept was based on emotional exhaustion and depersonalization as a consequence of chronic stress in the work environment, more precisely among health workers (6). Almost a decade later, new concepts and definitions are being developed that include psychological and social dimensions. Among the first to define the phenomenon of burnout as a psychological phenomenon with three key dimensions: emotional exhaustion, depersonalization, and reduced personal achievement were psychologists Maslas and Jackson (7).

Since 2019, "burnout syndrome" has been included in the 11th revision of the International Classification of Diseases (ICD-11) as an occupational phenomenon as a medical condition. This syndrome is currently defined as the result of chronic stress in the workplace that is not successfully controlled. It is characterized by three basic dimensions: a feeling of energetic exhaustion, increased mental distance from work and/or a feeling of negativism or cynicism related to work, and reduced professional effectiveness (8). The application of this concept, in addition to the professional field of work, is expanding to the academic field and the field of health sciences. Academic burnout syndrome can also be defined as "educational burnout" and is a specific manifestation of learning burnout in education professionals - students, researchers, teachers (9).

The first studies on student burnout were started in the nineties of the last century, and today, many authors come to the conclusion that this manifestation of burnout is more pronounced in the student population than among teachers. When it comes to nursing students, the specifics of the teaching process can also lead to high levels of stress (10). An example of this is practical training, which is essential for their professional future. During the pandemic, students had more e-learning and less contact with patients and teachers, which impaired work skills and made them more likely to drop out of studies and the profession (11). The term "distance learning" is also used synonymously with "online learning", "e-learning" or "digital learning in research".

Given that nursing education has traditionally relied on "face to face" (F2F) learning in classrooms but also direct, practical learning on teaching bases, this term "distance learning" more appropriately describes the emerging situation where there is limited interaction between students and the higher education institution (12).

According to the results of a recent meta-analysis, the combined prevalence of burnout syndrome in student nurses during the pandemic period was 23.0%, with the lowest prevalence reported in Spain - 2.7%, while the highest values were observed in Indonesia - 46.4% (13). In the same study, when it comes to certain dimensions of this syndrome, the combined prevalence for emotional exhaustion (EE-emotional exhaustion) was 47.1% with variations from 4%, as recorded in the United States of America, to as much as 90.8%, as was the reported prevalence of this dimension in Brazil. Other dimensions of this syndrome are characterized by a combined prevalence of 32.2% for depersonalization (DP-depersonalisation), while reduced personal achievement was 43.5%.

Numerous studies that were carried out during the COVID-19 pandemic indicate that the values of the prevalence of student burnout were on a significant increase at the global level (14, 15).

Regardless of the importance of this issue, especially in the conditions of the COVID-19 pandemic, a significant number of studies on this topic have not been conducted in Serbia. The aim of this review is to review and evaluate the impacts of the implementation of distance learning in the education of nursing students during the COVID-19 pandemic on the occurrence of different dimensions of burnout syndrome.

By summarizing the results of 16 studies designed according to the type of cross-sectional studies from 11 countries, in order to answer the set goal of the work, Table 1 shows a summary of the analyzed and selected papers with the characteristics of the included studies. The displayed results refer to the period of the COVID-19 pandemic. The largest number of included studies was from China (5, 16, 17,



18), with one study each from Indonesia (19), Iran (20), South Korea (21), India (3) and Australia (22). A total of 7 studies were included from the European continent. Two studies each referred to research from Turkey (23, 24) and Greece (2, 25), and one each from Belgium (26), Iceland (27) and Italy (28). The studies included a population of three- or four-year undergraduate nursing students, while two studies also included the profession of midwifery (26, 27). The sample size in these studies ranged from 20 (25) to 3051 students (18). The average age of the students was from 17 to 25 years old. Most of the studies aimed to: a) investigate the impact of changes in teaching and distance learning modalities on the perception, reactions, adaptive mechanisms and behavior of nursing students in the era of the COVID-19 pandemic; b) to

analyze and evaluate the prevalence of "burnout syndrome" in the mentioned population and to c) identify psychological, emotional, social and other predictors in the occurrence of this syndrome.

Through the review and analysis of the results of these 16 studies, three key topics were identified: The advantages and disadvantages of distance learning in the era of the COVID-19 pandemic and the impact on the occurrence of burnout syndrome in nursing students, predictors of the occurrence of personal and academic burnout syndrome, and recommendations for the prevention of the occurrence of student burnout syndrome in distance learning.

Table 1. Summary of selected studies

Authors / Year / Country	Sample	Study Design	Variables	Measure	Findings
Magdalinou et al.(2022), Greece ⁽²⁾	63 nursing students	Cross-sectional	Student's perceptions and preferences and preferences	Online Questionnaire for students	Student's perceptions and preferences are positive regarding distance learning. Interactive methods, proper design of online courses and technical support are closely to improve distance learning experience.
D'Souza et al. (2023), India ⁽³⁾	982 nursing students	Cross-sectional	Student's perception	Online Survey	Most of the students preferred remote learning during the pandemic. There are negative association between clinical skills, less motivation and difficulties with getting tired due to the constant use of mobile phones...
Liu et al. (2023), China ⁽⁵⁾	653 nursing students	Cross-sectional	Academic burnout Influencing factors	-Academic Burnout Scale -Connor-Davidson Resilience Scale -Impact of Event Scale-6 -Patient Health Questionnaire-2 -Professional Identity Scale	Nursing students had a high degree of academic burnout. There are positive correlation with academic year, satisfaction with specialty, satisfaction with online learning, professional identity, and psychological resilience.
Wang et al. (2021), China ⁽¹⁶⁾	733 nursing students	Cross-sectional	-Academic burnout -Academic engagement -Psychological capital	-Academic Burnout Scale -Positive Psychological Capital Scale -Academic Engagement Scale	Academic engagement and psychological capital were negatively correlated with academic burnout. Psychological capital was positively correlated with academic engagement.
Zhu et al. (2023), China ⁽¹⁷⁾	227 nursing students	Cross-sectional	-Learning burnout -Academic self efficacy -Anxiety -Depression	-College Students' Learning Burnout Questionnaire -Generalized Anxiety Disorder Scale -Patient Health Questionnaire depression scale	Academic self-efficacy has a significant predictive effect on learning burnout. It was positively correlated with anxiety and depression and negatively correlated with academic self-efficacy.
Chen et al. (2023), China ⁽¹⁸⁾	3051 nursing students	Cross-sectional	-Academic burnout -Self-directed learning -Self-efficacy	-Self-directed learning readiness scale -Academic burnout scale -General Self-Efficacy Scale	Self-directed learning ability, self-efficacy and academic burnout were at the high level. Self-directed learning ability and self-efficacy were negatively correlated with academic burnout..
Rohmani &Adriani (2021), Indonesia ⁽¹⁹⁾	69 nursing students	Cross-sectional	-Academic burnout -Academic Self-efficacy	Maslach Burnout Inventory-Student Survey	Academic self-efficacy showed a strong negative association with burnout. Exhaustion was the burnout dimension most closely associated with academic self-efficacy.



Authors / Year / Country	Sample	Study Design	Variables	Measure	Findings
Atashinsdaf et al. (2024), Iran ⁽²⁰⁾	228 nursing students	Cross-sectional	Student's abilities, attitudes, challenges, and preferences	Questionnaire for students	There are positive student satisfaction with E-learning but still far from students preferences.
Kim & Park (2021), South Korea ⁽²¹⁾	310 nursing students	Cross-sectional	Learning flow and outcomes Distance learning Social-evaluative anxiety	-Learning flow scale -Learning satisfaction tool -Social Avoidance and Distress scale	Distance education mediated the association between learning flow and learning outcomes. Social-evaluative anxiety was negative correlated with distance education effect.
Alghtany et al. (2024), Australia ⁽²²⁾	198 nursing students	Cross-sectional	Academic burnout Professional self-concept Professional efficacy	-Maslach Burnout Inventory-Student Survey -NurseSelf-Concept Instrument	Professional self-concept was a key predictor of the academic burnout subscales professional efficacy and cynicism. Total professional self-concept was above average with different variability in the students' emotional exhaustion, cynicism, and professional efficacy.
Durmus et al. (2022), Turkey ⁽²³⁾	361 nursing students	Cross-sectional	Digital burnout	Digital Burnout Scale	There are high levels of digital burnout levels, which were affected by the average time spent online per day, stress level, physical and psychological health, and economic status.
Karaaslan et al. (2022), Turkey ⁽²⁴⁾	454 nursing students	Cross-sectional	Student's success in distance education Student's experience	Distance Education Assessment Questionnaire for Nursing Students	Distance Education are significant Preliminary information, proficiency level in using technological software and devices, economic, asynchronous teaching method...
Kartsoni et al. (2023), Greece ⁽²⁵⁾	20 nursing students	Cross-sectional	Psychosocial adaptation Distance learning	Individual and focus groups interviews	Rapid transition to online learning was correlated with previous experience in distance learning and using new technologies, adequacy of resources, limited interaction with teachers. Negative correlation was founded in emotional state of students (negative emotions dominated - unproductive, no creativity, permanent fatigue, no motivation, sleep disorders) and fear of volunteering and future...
Baudewyns et al. (2023), Belgium ⁽²⁶⁾	2275 nursing students and midwives	Cross-sectional	Academic burnout Associated factors	-Maslach Burnout Inventory-Student Survey -Academic Burnout Inventory	There are high prevalence of overall academic burnout risk. Factors significantly associated with higher risk of academic burnout were: having a child, job, the level of academic training, working overtime, insufficient personal protective equipment...
Svavarsdottir et al. (2023), Iceland ⁽²⁷⁾	638 nursing students and midwives	Cross-sectional	Personal burnout Academic burnout Stress level	-Copenhagen Burnout Inventory - Perceived Stress Scale	Students' support, stress and educational level predicted the nursing students' burnout symptoms. Academic burnout was negative correlated with students' learning ability, health, and wellbeing, quality of care and intention to leave the profession postgraduation.
Manuli et al. (2022), Italy ⁽²⁸⁾	521 nursing students	Cross-sectional	Distance learning Anxiety Stress Depression	-Depression Anxiety Stress Scales-21 -System Usability Scale	High satisfaction with the use of e-learning leads to low levels of stress, anxiety, depression, and mental distress.

Advantages and disadvantages of distance learning in the era of the COVID-19 pandemic and the impact on the emergence of burnout syndrome in nursing students

Research has shown that there are positive and negative attitudes and perceptions of nursing students about the advantages and disadvantages of distance learning and its impact on the occurrence of burnout syndrome during the COVID-19 pandemic. In this regard, the results of the study by Rohmani et al. (19) indicate that distance learning is far from student preferences and academic performance.

Contrary to these findings, the study by Magdalinou et al. (2) highlights the positive impact of transitions in teaching methods on distance learning in the age of a pandemic. In order to ensure the continuity of academic practice, according to Manula et al. (28) and the results of the System Usability Scale (SUS score), it was determined that a high level of satisfaction in using various distance learning tools



leads to a lower level of stress, anxiety and depression, indicating the importance of e-learning in managing the limitations caused by the COVID-19 pandemic. On the other hand, the results of Durmus et al. studies (23), on the scale of digital burnout (total DBS score 72.28 ± 18.92), show a high level of this burnout among nursing students, which is conditioned by the presence of stress, an increase in the average time spent on the Internet, compromised general physical and mental health, but also a worse economic status. Digital-technical problems (poor internet connection, obsolescence of digital devices) and inadequate level of students' ability to use technological software stand out as significant predictors for the success of distance learning in the study by Karaaslan et al. (24). The complexity and specificity of the nursing profession was emphasized in the study by D Souza et al. (3) through the lack of acquisition of clinical skills through digital platforms and reduced motivation for learning due to the impossibility of teaching at colleges and health institutions. A high level of personal and academic burnout among nursing students is indicated by analyzed studies using MBI-SS (19, 22, 26) and ABS questionnaires (5, 16, 18, 26), in which the trend of the prevalence of this syndrome was observed from 39.29% (16) to 51.30% (5).

Predictors of personal and academic burnout syndrome in nursing students

In the included studies that evaluated the emotional, psychological and social dimensions of burnout syndrome as a consequence of distance learning (5, 16, 17, 21, 22, 26, 27, 28), significant predictors such as the existence of depression (5), anxiety (17), emotional exhaustion (22), stress (27), low level of self-efficacy and professional efficiency (17, 18, 19, 22), were singled out. psychological resilience (16) and others. The aforementioned studies using different scales and questionnaires, both to assess the predictors and the consequences of the burnout syndrome presented in Table 1, confirm the positive correlation of this syndrome with the onset of depression, academic engagement and year of study (27), fear of infection and loss of loved ones (26), fear of the unknown and others.

The results of the study by Rohmani et al. (19) indicate that the level of academic burnout (professional efficiency and cynicism) among nursing students (72.5%) is much higher if students' professional self-confidence is low, which all affects academic self-efficacy (13.5%). Alghtany et al. (22) reported 1%, 6%, and 23% of the variability in students' emotional exhaustion, cynicism, and professional efficacy, respectively.

Distance learning, as an effective alternative and a kind of facilitator, allowed students to integrate their academic activities, family responsibilities and professional obligations during the pandemic (28, 29). Its sudden and exclusive use led to changes in the interaction between teachers and students, causing numerous manifestations, including the appearance of burnout syndrome (30, 31). Within this review, the positive attitudes of students towards distance

learning in the era of the COVID-19 pandemic were emphasized, when it comes to the advantages of using digital devices and platforms (2), better organization of time (3), closeness to family (28). The negative experiences of students were focused on the impossibility of clinical teaching and reduced motivation for work and learning (3, 19, 23, 24). In support of the sustainability of e-learning platforms in the context of the education of nurses and midwives during the pandemic, there is a positive correlation between students' technological dependence and their inclination towards e-learning, which has been confirmed in other studies (30, 31). The results of a qualitative study in Greece in this review and a holistic approach show the negative impact of distance learning on the mental and social dimensions of nursing students. In the majority of students, disturbed socialization with dominant negative emotions such as unproductiveness, insecurity, anxiety, lack of creativity, permanent fatigue, demotivation, sleep disorders and others was observed (2). The results of the meta-analysis of Mulyadi et al. (32) that assessed sleep disorders showed a pooled prevalence of sleep disorders of 27% indicating that approximately a quarter of nursing students in the included studies developed sleep disorders during the COVID-19 pandemic, which is analogous to the claims in this review. Nevertheless, the findings of this study should encourage schools of nursing education to provide approaches that improve mental health and sleep quality and mitigate students' vulnerability to these health problems.

High levels of prevalence of personal and academic burnout syndrome among nursing students during the pandemic have been confirmed in various studies (5, 16, 18, 19, 22, 26) where the trend of prevalence up to 51.30% (5) was recorded, while studies after the pandemic show somewhat lower percentages amounting to 35.30% (17, 33). Also, in the study of Aguayo-Estremera, R et al. (34), it was observed that the levels of burnout in the period after the end of the pandemic were significantly higher and that the academic engagement of students decreased significantly, which indicates the still present consequences for the mental and physical health of students. Research before the start of the COVID-19 pandemic in Spain among nursing students did not show significant levels of burnout (35, 36).

During pandemics, mental health problems such as anxiety and depression are common among nursing students. They can reduce motivation and concentration, disrupt the learning process, reduce the quality of learning and thus reduce the academic achievement of students (37). The results of a study in Israel among nursing students (38) indicate that in addition to social isolation, economic instability, uncertainty about the future, challenges of distance learning and fear of infection, the lack of personal protective equipment, disinfectants, dramatic headlines and misinformation related to health in quarantine conditions have a negative impact on the high level of anxiety. The strong positive association of anxiety and depression with student burnout as a result of distance learning was also confirmed in the research within this review (17, 28). In addition to depression and anxiety, emotional exhaustion, stress, low level of self-efficacy and



professional efficiency and others stood out as significant predictors of the occurrence of burnout syndrome during the pandemic (5, 16, 17, 21, 22, 26, 27, 28). In a meta-analysis that included 13,247 nursing students during the COVID-19 pandemic (32), the most frequently observed health problems were precisely depression with a prevalence of 52%, followed by fear, anxiety, stress, sleep disorders and others, which correlates with the results of this review (5, 17). The stressful experience of healthcare students during their education before the start of the pandemic shows a prevalence of depression of 32.60% and three key variables that can significantly predict the onset of this disorder, such as the already mentioned anxiety, sleep quality and stress (39). During the COVID-19 pandemic, a special form of anxiety, the so-called social-evaluative anxiety which in the study Kim, S.H. & Park, S. (21) had a significant impact on the relationship between distance learning itself and its outcome. In addition to affecting educational performance, mental health problems can significantly affect an individual's clinical practice and quality of life (37).

During the pandemic, students had more e-learning and less contact with patients and teachers, which impairs work skills and increases the likelihood of dropping out of studies and the profession (11). Digital platforms and distance learning cannot compensate for clinical teaching, acquisition of clinical skills, but also direct contact with patients, which affects student motivation, professional development and stress (3). Continuous clinical practice during their studies provides nursing students with the opportunity to gain confidence in their professional roles. Qualitative and quantitative studies have been conducted around the world during the COVID-19 pandemic to explore alternative clinical practices – ACP (40,41).

CONCLUSION

Based on the results of this review, exposure to various academic and clinical stressors can be an inevitable aspect for the development of burnout syndrome during emergency, pandemic conditions as a result of sudden transitions in the teaching and life activities of students. However, there is a possibility of opening space for the introduction of various interventions based on psychological, social and digital support that would greatly facilitate the management of stress and anxiety as significant predictors of this syndrome. Curriculum changes in nursing education, the role of educators who apply teaching strategies that support student autonomy, equal access to information and communication technologies would significantly increase the professional efficiency of students and prevent the occurrence of personal and academic burnout syndrome. The systemic implementation of the clinical education of nursing students must not lose continuity in emergency conditions because students represent the first line of responsibility for health systems in the future. In this connection, the need for continuous development of various educational platforms for future pandemic situations is emphasized.

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