# The Effect of Online Teaching and Learning Activities During the Covid-19 Pandemic on Stress Among Students of The Faculty of Medicine Ciputra University

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**ABSTRACT**

**Background**: The World Health Organization has declared that COVID-19 is a global pandemic. To prevent its spread, academic activities in Indonesia have been shifted to distance learning methods. This change resulted in students having to adapt to these new methods and deal with the additional stress. The inability of students to adapt contributed to the new conditions causing the additional stress. **Objectives**: This study aimed to analyze the effect of online teaching and learning activities during the COVID-19 pandemic on stress at the Faculty of Medicine, Ciputra University, Surabaya Indonesia. **Methods**: The quantitative method used was in the form of analytical observations with a cross-sectional approach. The respondents consisted of 63 people, selected using simple random sampling. Data analysis used linear regression tests to determine the effect of the second variable. **Results**: The results showed that there was no significant effect ($p= 0.052$) between Online Teaching and Learning Activities During the COVID-19 Pandemic Period on Stress in the Medical Faculty Students, Ciputra University, Surabaya, Indonesia. Students have started to become accustomed to the strategies to deal with the additional stress and its effects. Other supporting factors in the implementation of online learning are flexibility, time efficiency, low learning costs, and learning materials which can be accessed at any time with technological applications, using simple storage of learning materials. **Conclusions**: There was no significant influence found from the online learning on student stress.

*Keywords: COVID-19 pandemic, online teaching and learning, medical students, stress, student learning*

## INTRODUCTION

The World Health Organization (WHO) has declared that COVID-19 is a global pandemic since March 2020. When COVID-19 was declared a global pandemic, the Indonesian government made several new regulations aimed at suppressing the increasing incidence rate of COVID-19 in Indonesia[1]. Since that time, the Indonesian Government declared the conversion to online learning for all students. All educational institutions have applied online learning methods for students. Assignments are generally done using various available social media[2]. The implementation of new policies by the Government continue to be done to suppress the spread of COVID-19 as a pandemic. Several policies have been established, such as working from home and learning from home (home schooling/online). Educational institutions at the preschool level up to the higher education level are temporarily closed for in-person meetings. In their place, distance learning has been implemented. As a result, the students also feel the impact[3].

The sudden outbreak made the schools confused in dealing with it because it received directions to immediately begin online or online learning activities with the aim of preventing the spread of COVID-19. The various stresses faced were felt by the teachers, schools, parents, and students. This happens because usually school classes and meetings are conducted in person but were shifted to remote and online methods[3]. The stuttering of the educators in starting the online methods, in addition to the confusion of parents in accompanying their children to study from home increasingly added to the anxiety among students who were already confused by the online learning methods which were followed by significantly increased numbers of assignments[2].

One of the negative impacts felt by the students is that they were "forced" to follow learning from home. Moreover, they were not used to the new methods and had never participated in online learning activities. This gap causes a decrease in student interest in learning and of course becomes an obstacle in the learning process[4]. Problems also arose for teachers who did not understand the use of Internet technology or the use of various online learning media, especially those in the remote regions. This causes learning to be less efficient, and makes students become

lacking in their concentration and they find it difficult to understand, since they are not actively asking questions and discussing the learning material[4].

The world of medical education is currently faced with new challenges. Fundamental changes in the implementation of medical education occurred during the COVID-19 pandemic. Students often experience frustration because they cannot focus on learning due to network disturbances. There also several factors that make the students feel lazy or lack motivation to learn, and also because they only listen to material or take online learning, they often do not understand the content because they feel they will understand better if they study directly or offline. As a result, in the learning process students only think that it is important that the attendance list is filled in and they then choose to turn off their video camera and then engage in activities such as sleeping, playing online games, and opening social media. In the process, students often misuse time in the online learning[4].

The occurrence of COVID-19 has brought major changes for every individual. Psychological changes in a person can occur such as affecting the way of thinking, disturbing emotional stability (such as fear, anxiety, and worry), and the stigma of social behavior, such as stigma and avoidance. These can be caused by the occurrence of mental disorders during a pandemic[5]. Some people feel too worried or afraid and think it is not natural because of the COVID-19 pandemic situation[6]. This condition can cause difficulty sleeping, headaches, and other physical discomforts[6].

During the pandemic to the 'new normal', everyone experiences very sudden changes in all aspects of life. As in the social aspect, the advice to stay at home, the quarantine of whole communities, and the closure of educational institutions have suddenly changed our daily way of life. Students as one of the most numerous individuals in educational institutions will definitely feel the negative impact of the COVID-19 outbreak, and the inability of students to adapt to these circumstances makes them experience additional stress[7]. This study aimed to determine the effect of online teaching and learning activities on the emergence of stress during the COVID-19 pandemic.

## METHODS

This analytic observational study used a cross-sectional approach. The population in this study were medical students at Ciputra University, Surabaya, Indonesia. Based on Yamane's formulation, the number of the minimal sample was 63 respondents from a total of 173 medical students. The inclusion criteria in this study were: 1) Respondents should be students from the 2017-2020 class, and 2) Respondents must be active medical students and registered at the Faculty of Medicine, Ciputra University, Surabaya, Indonesia. The exclusion criteria were: the students were on paid leave and not willing to participate in the research. Simple random sampling was used. The data collection instruments used a questionnaire concerning stress and a questionnaire about distance learning. The Depression Anxiety Stress Scale (DASS) was used to determine stress level, which were validated from previous research. The Online Teaching Activity Questionnaire used a validated Likert method. Instruments were delivered using the Google Form application.

## RESULTS

This study recruited 63 students. Most respondents are female, namely 41 (65.1%) students. Their mean age is 21 years old, with respondents aged 21 years more dominant with many as 17 (27%) students. For the 2017 class there were 23 (36.5%) students, in 2018 there were 15 (23.8%) students, in 2019 there were 13 (20.6%), and in the 2020 batch there were 12 (19%) students.

The stress levels found were more than 50% of medical students experienced low stress, while 39% of them suffered from high stress, 16 (25.4%) very low stress, 22 (34.9%) low stress, and 17 (26.9%) high stress and 8 (12.7%) very high stress. The complete description of the respondents is presented in Table 1.

**Table 1. Descriptive characteristics of respondents regarding the variables that indicate the occurrence of stress**

| Range | Frequency (N=63) | Percentage (%) |
|---|---|---|
| stress indication 0-11 (Very Low) | 16 | 25.4 |
| stress indication (Low) | 22 | 34.9 |
| stress indication (High) | 17 | 26.9 |
| stress indication 33-34 (Very High) | 8 | 12.7 |

Most respondents 26 (41.3%) agreed that lecturers are able to use technology (computer equipment) in online learning (in a network). Most respondents 17 (26.9%) still feel they can interact well with lecturers even though they are using online learning. Most respondents 22 (34.9%) feel motivated sometimes and sometimes feel less motivated because online learning has advantages and disadvantages that make respondents sometimes feel enthusiastic and understand the material and some feel less comfortable with online learning. Many of the respondents 21 (33.3%) feel that online learning reduces focus when studying. Also,

24 (38.1%) mentioned that sometimes they understand the material and sometimes they do not.

Most respondents 39 (61.9%) agree that the majority of respondents find it very easy in the learning process related to the ease of access to video recordings of lessons that have been done previously. Many of the respondents 27 (42.8%) are able to follow online and have adequate online learning facilities. Many of the respondents 22 (34.9%) do not always get good grades nor always get bad grades. It was found that 18 (28.6%) sometimes they feel difficulty

during the exam because of the network.

Many of the respondents 19 (30.1%) felt that sometimes small group discussions were very helpful in increasing their active learning. And also 33 (52.4%) strongly agree that having an online practicum is not effectively implemented. Most of the respondents 34 (53.9%) strongly agree that medical skills are difficult to apply online. The complete description of the respondents is presented in Figure 1.

The results of the linear regression test obtained 0.052, with the sig value of $p$ value > 0.052, which indicated there was no significant effect between Online Teaching and Learning Activities During the COVID-19 Pandemic Stress Period on Students of the Faculty of Medicine, Ciputra University (Table 2).
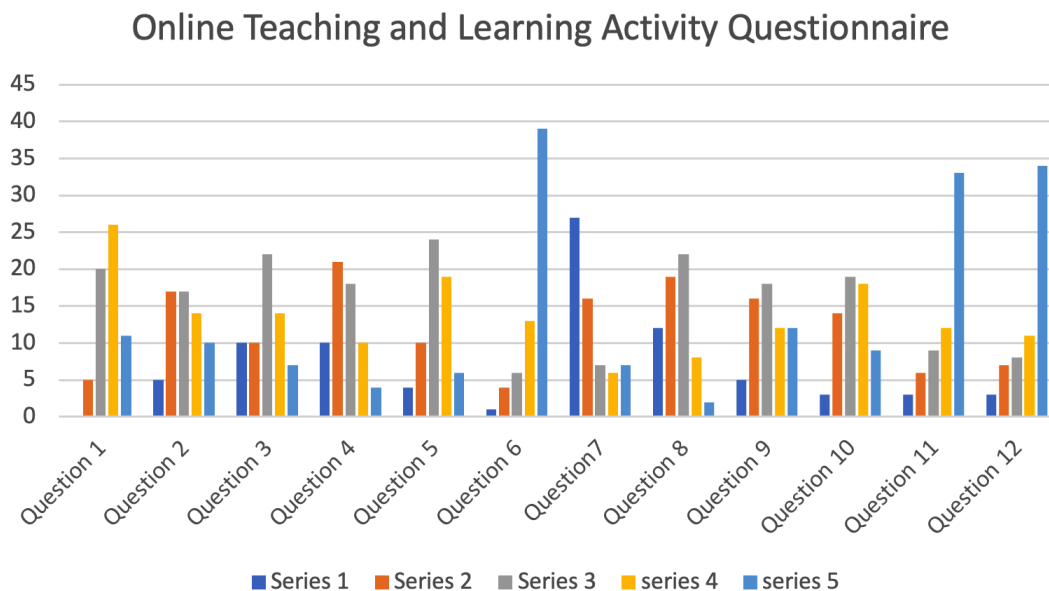


Figure 1. Distribution of student perception of teaching and learning online

Table 2. Regression equation results

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 403.380 | 1 | 403.380 | 3.942 | .052[b] |
| Residual | 6242.271 | 61 | 102.332 | | |
| Total | 6645.651 | 62 | | | |

## DISCUSSION

The number of female research subjects was more than male research subjects. This difference was caused by the number of female students is greater than the number of male students at the Faculty of Medicine, University of Ciputra, Surabaya, Indonesia.

Stress and anxiety during the COVID-19 pandemic are determined by several factors that affect the speed and way a person adapts such as personality, age, experience, learning process, physical condition, and environment[8]. A person's adaptability also plays a role in preventing stress and anxiety and determines how a person determines how to deal with negative feelings that arise when faced with challenges or pressures[9].

Some of the problems that arise are related to the online learning system in the form of student readiness, mastery of technology, short time, balancing many tasks, number of quotas, and Internet signal conditions. The policy of temporarily closing educational institutions with various supporting facilities, in the short and medium term, has negatively affected many students, especially students who live in remote areas with limited infrastructure and other supporting capacities who are increasingly feeling the digital divide. This is one of the causes of the increasing levels of stress and anxiety which are categorized in a light, moderate, and severe scale experienced by students during the COVID-19 pandemic[10].

Stressors faced by students in addition to changes in learning methods include economic concerns, concerns about family and self-health, limited social interactions, reduced employment opportunities, and other factors in students' personal lives. Academic factors also contribute to potential stress, for example, due to changes in learning styles from secondary school to higher education, lecture assignments, target achievement scores, and academic achievement[8].

Most cases occur when students do not try as hard as what the supervisor or teacher expects. Students look more passive on what has been given by their teacher or supervisor. In facing the challenges, it is not just one party's fault when there is a failure. There are times when the environment is the root of the problem. For example, one student may experience their parents' divorce which results in a student's mental attitude and mind-set being disturbed so that they loss focus and interest when the learning process takes place. Or there are other cases, when a student must manage with a very minimal economy so that they cannot meet their needs in the learning process[11].

The results of this study have the same results as those of previous researchers. Distance learning done during the COVID-19 pandemic that occurred in Indonesia, did not significantly affect their stress level. It was found that in research related to the level of stress on students, from 190 research respondents there were 167 (87.9%) students with normal stress (meaning that online learning during the pandemic did not significantly affect stress, psychology, or daily activities). Also, then respondents with mild stress were 23 students, with 11 of these meeting the criteria of moderate stress, and for severe stress, and very heavy stress there were 0 students[2].

Likewise, with the results of research conducted by Harahap et al. from 300 respondents, 36 (12%) respondents experienced low academic stress, then 225 (75%) respondents experienced moderate academic stress, and 39 (13%) respondents experienced high academic stress. Although the results of this study were dominated by 75% of respondents with moderate academic stress, in this study there were 12% of respondents who had adapted to distance learning that took place during the pandemic[3].

Furthermore, in Novitasari et al.'s research, the following results were obtained: 60 (48.4%) respondents indicated that their stress level was within normal criteria, 50 (40.3%) respondents had mild stress levels, 6 (4.8%) respondents with moderate stress, and 8 (6.5%) respondents with severe stress. Novitasari et al. also mentioned that this was because the research data collection was done at the last stage of education after 2 years of the pandemic, when students were getting used to strategies to deal with the stress itself[4].

With the support of sophisticated and advanced technology in the current era, it is very helpful for many problems that occur today. When face-to-face activities are suspended, a solution can almost always be found. People take advantage of today's technological sophistication so that they can still carry out face-to-face activities even though they are far apart and even miles away. Likewise, the learning process is the same even though different applications are used. The learning process which is usually done by meeting in class and meeting each other face to face, can now be done from their respective homes by utilizing existing technology[11].

The implementation of Long-Distance Learning (LDL) or distance learning actually provides an opportunity for every stakeholder to modify their methods, and react positively to achieve educational goals. One factor that is considered

supportive is the flexibility of time and location. In general, this is what the advancement of information technology (IT) has to offer for life, which is called convenience. It can provide individual instructions for asynchronous learning that can be done anytime and or anywhere, without limits. Another supporting factor that needs to be considered in the application of LDL is the issue of flexibility. Flexibility is considered a blessing for LDL. It is very different from giving lectures in class where lecturers and students have to prepare everything, including and especially themselves, for example trying to come to class on time. With LDL, lecturers as well as students can stay at home, relax and enjoy discussions that are held at a predetermined time or hour. When LDL students do not need to get ready or rush, just like individuals did the routine of life before COVID-19. By staying at home, all attention can be directed completely to LDL, without the need to divide the focus to the road, or traffic, etc. In addition, LDL that can be done while students stay at home is low cost. Because LDL is done at home, and each group member does not have to leave the house, it means that costs such as gas, bus tickets, train tickets, meals, can be reduced to almost nothing. The last factor that is considered to support the implementation of LDL is also the result of a hassle-free stay at home policy[12].

Online teaching and learning activities are teaching and learning "on the network" as the meaning of the translation of the term online which has the meaning of being connected to a computer network. Online learning is one of the fun learning strategies for students / teachers and students because they can follow it through devices such as various electronic devices including smartphones, laptops, and computers and not just reading and listening to lectures and books[13]. Online learning can be used as a distance learning solution when a natural disaster occurs, as is happening now when the government establishes a social distancing policy[12]. Social distancing is implemented by the government in order to limit human interactions and prevent people from crowding in order to avoid the spread of the COVID-19 virus[14]. Several benefits are obtained through online learning, including: 1) increasing the level of interaction between students and lecturers during the learning process, 2) learning interactions allow it to occur anytime and anywhere, 3) can reach students in a wide scope, 4) facilitate completion and can save material easy learning. Learning through online can overcome student boredom, and feel more and more interested so that they can actively participate in lectures in the learning process, and 5) improve learning outcomes, ease of access and meaningful learning[13].

Adaption to the use of distance learning technology involves the use of platforms available with government support, such as online portal applications, TV schools and the use of applications offered on the internet such as Zoom, Slack and Google Meet, and/or Edu-Page. The results confirmed that the rapid transition to an online form of education was successful and the experience gained could be used in the future. Along with the development of this learning technology, the Internet-based distance learning

is favored by generation Z. Generation Z's learning styles are found in examples such as fondness of audio-visual formats, relying on technology, easy to understand with more accuracy, and providing more concrete examples[15].

There is a positive impact from online learning. One of these brings several benefits, namely the risk of being exposed to COVID-19 is reduced because there is no direct interaction or physical contact with other people, so that people stay safe and productive while at home because lectures are still running. Online learning also provides easy access for students to existing materials. Learning is not limited by place and time so students can learn whenever and wherever they are. Another advantage is that students find an abundance of suggestions to support new learning activities such as clinical key highlights or 'take aways'. Additionally, during the pandemic, students also do not need to go to campus, so more costs do not need include subsidies, such as transportation money, housing or rent[16].

Online learning has a significant effect on students' language literacy skills. Online learning provides many advantages for students, including being able to create a learning community, efficiency in learning time and costs, and learning materials that can be accessed and used anytime thanks to technological sophistication. Students' language literacy skills have a close relationship with online learning[13].

The results in this study show that there is a change in students' perceptions of online or online distance learning. Initially, the majority of students had a high level of stress when doing distance learning, however, the adaptation made by each individual was very important in order to neutralize the stress level of students. Especially for medical students, adaptation is important so that distance learning becomes an arena to strengthen medical theories so that when the pandemic begins to subside, when they go directly to laboratories, communities, and hospitals, they become more skilled with strong roots. Another advantage of holding distance learning is that the country becomes more conducive and reduces the incidence of COVID-19 in Indonesia. Some of the limitations of the research are that the small sample surveyed in the study are from only one faculty.

## CONCLUSIONS

Online teaching was found to not cause significant stress on medical students at university of Ciputra, Surabaya, Indonesia.

### Ethical approval and consent to participate

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