

## The effects of online learning towards students' stress levels during the covid-19 pandemic

Alven Dino Pandairoth<sup>1</sup>, Rebekah Malik<sup>2</sup>

<sup>1</sup> Bachelor of Medicine Study Program, Faculty of Medicine, Tarumanagara University Jakarta

<sup>2</sup> Department of Medical Education, Faculty of Medicine, Tarumanagara University Jakarta

---

### ARTICLE INFO

#### *Article history:*

Received Feb 02, 2023

Revised Feb 16, 2023

Accepted Feb 28, 2023

---

#### *Keywords:*

Covid-19 Pandemic;

Online Learning;

Stress;

---

### ABSTRACT

This study aims to determine the relationship between the influence of online learning and the student's stress level batch 2020 at the Faculty of Medicine, Tarumanagara University. The research methodology used an observational study with an analytic research design. Data collection was carried out by distributing questionnaires to 62 students batch 2020 at the Faculty of Medicine, Tarumanagara University. The research result showed that the effectiveness of online learning during the Covid-19 pandemic was comparable to those ineffective, as many as 31 respondents or each with a value of 50%. Students who experienced mild to moderate stress levels were 30 respondents, and students with moderate to severe stress levels were 32. Online learning that was carried out caused the increase in stress level in students. Thus, there is a relationship between online learning and students' stress levels. However, the results of the effectiveness of online learning during the Covid-19 pandemic were comparable to those that were ineffective. This could happen because of the small number of respondents and the other factors that were not examined. Therefore, it is recommended for further research to analyze samples from all batches.

*This is an open access article under the [CC BY-NC](#) license.*



---

### *Corresponding Author:*

Alven Dino Pandairoth,

Faculty of Medicine,

Tarumanagara University Jakarta

Jl. Letjen S. Parman, RT.6/RW.16, Tomang, Kec. Grogol petamburan, Kota Jakarta Barat, Daerah Khusus Ibukota Jakarta 11440

Email :Alven.405190032@stu.untar.ac.id

---

## INTRODUCTION

The WHO at China Country Office reported a number of mysterious pneumonia cases of unknown cause on December 31, 2019. The case first occurred in the Wuhan area of Hubei province, China. Then, WHO announced regarding the name of the virus as *Coronavirus Disease* (Covid-19) and declared as a pandemic on February 11, 2020. (Jiang et al., 2020)

Based on WHO data, Covid-19 has spread to 216 countries around the world, including Indonesia. The total number of confirmed cases worldwide as of November 27, 2021 reached 259.502.031 cases, with a total of 5.183.003 deaths. Meanwhile, in Indonesia, as of November 27, 2021, based on data from the official Covid-19 website, there were 4.255.672 confirmed Covid-19

and 143.807 deaths.(Gugus Tugas Percepatan Penanganan COVID-19, 2021; World Health Organization Dashboard, 2022). The initial symptoms of Covid-19 infection are cough, tightness, and fever. Other symptoms that can appear include fatigue, myalgia, diarrhea and if the condition is aggravating, it can cause Acute Respiratory Distress Syndrome (ARDS), septic shock, impaired blood clotting function, and metabolic acidosis (E. Sukmawati, 2018; Sukmawati E et al., 2018). The transmission of Covid-19 is also very rapid. (Kementrian Kesehatan Indonesia, 2021) The government finally issued various policies to stop the spread of Covid-19, such as advice to stay at home, no making crowds, and close public places of worship educational institutions (Rantauni & Sukmawati, 2022; E. N. Sukmawati, 2022). At the end of March 2020, the government set the official regulation number 21 of 2020 concerning the implementation of Large Scale Social Restrictions (PSBB). (Kementrian Kesehatan Indonesia, 2021; Livana et al., 2020)

The Ministry of Education and Culture issued a circular stating that the teaching and learning process was carried out from home. So that students did not need to come to the school or campus and learning was carried out using online method. (Kemdikbud, 2020) This change in learning methods is not easy, students should face various obstacles. They need to have communication tools, such as smartphones or laptops and the network must be stable to support the learning process. In addition, especially medical students, they have to prepare various kinds of equipment for skills lab activities which are certainly not easy. Therefore, this can trigger stress to the students due to the online learning process. (Hadi, 2020)

Research conducted by Hadi *et al.*,(Hadi, 2020) in 2020 regarding students' perceptions of online learning during the pandemic shows that students are not familiar with online learning, so they do not understand the learning material. Besides, students also do not understand how to use learning applications, such as Zoom, Google class room and so on, even with poor internet access in some areas. This is an obstacle during the learning process by the online method. (Hadi, 2020)

The facilities to support online learning will avoid students depressed or stressed (Ellyzabeth Sukmawati et al., 2022). But if no facilities support this online learning, it will certainly make students feel stressed. This will have an impact on emotional, physical, and environmental reactions. (Gautam et al., 2021) According to research conducted by Andiarna *et al.*,(Kusumawati & Andiarna, 2020) in 2020, online learning affects student academic stress. Another study conducted by Liviana *et al.*,(Livana et al., 2020) in 2020 regarding stress levels in students found that 55.8% of all study subjects felt stressed during online learning due to the boring learning process. (Livana et al., 2020)

However, in a study conducted by Puspaningtyas *et al.*(Puspaningtyas & Dewi, 2020) in 2020, showed the opposite result, students who do online learning process have a good perception and response because they have support in its implementation. The stress level of a person is influenced by the mindset in dealing with something. Students who successfully adapt to environmental changes, they will have a low level of stress, while those who do not manage to adapt, they will certainly have a severe level of stress. (Musabiq & Karimah, 2018)

Based on the explanation above, the researchers want to examine the effect of online learning during the Covid-19 pandemic on the students' stress level of the class batch 2020, Faculty of Medicine, Tarumanagara University.

## RESEARCH METHODS

This research is an observational analytical study using a cross-sectional design that aims to determine the effect of online learning on the students' stress level batch 2020 during the Covid-19 pandemic. This research was carried out at Medical Faculty Tarmanagara University in June – November 2022 with the subject of the study was the students who met the inclusion criteria, such as students batch 2020 Medical Faculty Tarmanagara University who were willing to fill out a questionnaire. Data collection was carried out by sending a questionnaire in the form of a Google

form provided online. The number of samples in this study was 62 samples obtained through non-random sampling techniques. Data analysis used Chi-Square Test to analyze the relationship between those variables. The collected data were processed using the SPSS program and presented into the tabular form (Sugiyono, 2017, 2018, 2019).

## RESULTS AND DISCUSSION

In this study, researchers collected the research samples at Medical Faculty Tarumanagara University starting from June to November 2022. The sampling in this study had fulfilled the specified sample size of 62 samples, with the number of age ranges respondents in this study were 18-23 years. The age characteristics of respondents consisted of 3 categories, such as 18-19 years old as many as 15 people (24.2%), 20-21 years old as many as 44 people (71%), and 22-23 years old as many as 3 people (4.8%). The table below explains that there are more women total numbers than men in this study. The frequency of women in this study was 40 people (64.5%), while men were 22 people (35.5%).

**Table 1.** Characteristics Responden

Characteristics	Amount	Mean	Median	SD	Min;Max
Age :					
18 - 19 year	15 (24.2%)	19.98	20	0.87	18;23
20 - 21 year	44 (71%)				
22 - 23 year	3 (4.8%)				
Amount	62 (100%)				
Gender :					
Man	22 (35.5%)				
Woman	40 (64.5%)				
Amount	62 (100%)				

The relationship between the gender respondents with the dimensions of the students stress levels is likely to be experienced by men with a total of 14 respondents (36.4%), while the level of severe-very severe stress tends to be experienced by women with a total of 24 respondents or 60%. The results of the analysis can also be seen from the percentage comparison between the two genders, it was found that the most cases occurred to women. (Table 2)

**Table 2.** Relationship Between Age of Respondents and Dimensions of Stress Levels

Age	Stress Level		Total
	Mild-moderate	Wight-Over Weight	
18-19	10 (66.7%)	5 (33.3%)	15 (100%)
20-21	17 (38.6%)	27 (61.4%)	44 (100%)
22-23	3 (100%)	0	3 (100%)
Total	30	32	62

**Table 3.** Relationship Between Gender of Respondents and Dimensions of Stress Levels

Gender	Stress Level		Total
	Mild-moderate	Wight-Over Weight	
Man	14 (63.6%)	8 (36.4%)	22 (100%)
Woman	16 (40%)	24 (60%)	40 (100%)
Total	30	32	62

This study is in line with a study conducted by Kountul *et al.*, 2018 which showed that the women experienced more severe stress by 2 times than the men. Based on the stress that occurs in both genders, men will be more active and exploratory than women, so women will tend to be more easily agitated and sensitive. (Kolibu *et al.*, 2018)

The results on the description of the students' stress level show that the stressors that cause the most stress are academic problems. Students batch 2020 of Medical Faculty Tarumanagara University tend to feel severe stress levels - very heavy, with TLRS, SRS, and DRS stressors. Whereas, the IRS and GARS are mild-moderate stress levels, and ARS has the same proportion between mild-moderate and severe-very severe. In general, the highest level of stress experienced by the students is the level of severe stress and followed by moderate stress levels. (Table 3)

**Table 4.** Description of Stress Levels based on Stressors

Stressor	Stress Level		Total
	Mild-moderate	Wight-Over Weight	
ARS	31 (50%)	31 (50%)	
IRS	37 (59.7%)	25 (40.3%)	
TLRS	27 (43.5%)	35 (56.5%)	
SRS	30 (48.4%)	32 (51.6%)	62 (100%)
DRS	23 (37.1%)	39 (62.9%)	
GARS	34 (54.8%)	21 (45.2%)	

The results of this study are in line with research by Yusoff & Rahim (2010) which states that the highest level of very severe stress in the Faculty of Medicine is generally caused by pressures in academic terms such as exams, deadlines, and the amount of material that needs to be studied. (Yusoff & Rahim, 2010)

The results on the effectiveness of online learning indicates that the total respondents who were effective and ineffective are balanced or 31 respondents each amount (50%). This comparable result between effective and ineffective occurs because each individual can adapt to the environment differently. As many as 31 respondents (50%) of students could adapt to online learning technology. This is in accordance with research by Ratna Yuniarti *et al.* (2020) (Yuniarti & Hartati, 2020) related to the student views on E-Learning application during the Covid-19 emergency for 175 students in STIA Muhammadiyah Selong, which obtained quite good results on the application of e-learning. (Andiarna & Kusumawati, 2020).

**Table 4.** Characteristics of the Variable Effectiveness of Online Learning

effectiveness	Amount	Percent
Effective	31	50
Ineffective	31	50
Total	62	100

The bivariate analysis results showed the effect of Online learning during the Covid-19 pandemic on the stress level of medical students batch 2020 with a p-value of 0.002 ( $<0.05$ ). The stress level experienced by the respondents was divided into 2 categories, namely mild-moderate stress and severe-very severe stress. The crosstab results in this study showed that students assumed online learning during the Covid-19 pandemic was effectively carried out with stress levels experienced in the mild-moderate category, with a percentage of 33.9%. Meanwhile, students who feel that online learning is not effective with a severe-very heavy stress level with a percentage of 35.5%.

**Table 5.** The Relationship of Online Learning During the Covid-19 Pandemic to Stress Levels

Online Learning	Total		Stress Level	<i>p value</i>
	Mild-moderate	Wight-Over Weight		
Effective	21 (33.9%)	10 (16.1%)	31 (50%)	
Ineffective	9 (14.5%)	22 (35.5%)	31 (50%)	0.002
<b>Total</b>	30 (48.8%)	32 (51.6%)	62 (100%)	

The relationship between online learning during Covid-19 and students' stress levels is that the higher the student's stress level, the more interest in learning will decrease. Thus, online learning that was carried out needs to be more effective. Based on the results of research conducted by Funsu Andiarna (2020), a *p* value of 0.023 ( $< 0.05$ ) was obtained, which means that online learning has a significant impact on student academic stress during the Covid-19 pandemic.<sup>16</sup>

The very high stress levels on each dimension of the questionnaire in the students Medical Faculty is more due to various pressures of motivational and desire, learning, academic, group activities, social and interpersonal relationships. The academic stress experienced, of course, will have a negative impact on academic performance. Therefore, educational institutions play an important role in helping to provide a solution of the stress level experienced by the students through providing seminars about stress management and increasing the role of academic supervisors as a substitute for the student parents role in the campus environment.

## CONCLUSIONS

Based on the research results on learning online during Covid-19 pandemic towards students' stress level batch 2020, the conclusion was obtained that a research sample consisting of 62 respondents has effective results online learning during the Covid-19 pandemic which is comparable to ineffective, 31 respondents or 50% of the total participants. Students batch 2020 of the Faculty of Medicine, Tarumanagara University tend to experience severe stress levels in TLRS, SRS, and DRS stressors. Whereas, the IRS and GARS tend to experience mild-moderate stress levels, and ARS has an equal proportion between mild-moderate and severe-very severe. The

stressors that cause the most severe stress are internal or external coercion (DRS), which is 39 participants or 62.9%. Based on the *chi square* test result, a *p* value = 0.002 (< 0.05) was obtained, which showed a relationship between the effect of online learning on the stress level experienced by medical students batch 2020 Tarumanagara University.

## Reference

- Andiarna, F., & Kusumawati, E. (2020). Pengaruh Pembelajaran Daring terhadap Stres Akademik Mahasiswa Selama Pandemi Covid-19. *Jurnal Psikologi*, 16(2), 139. <https://doi.org/10.24014/jp.v16i2.10395>
- Ellyzabeth Sukmawati, Iwan Adhicandra, & Nur Suchahyo. (2022). Information System Design of Online-Based Technology News Forum. *International Journal Of Artificial Intelligence Research*, 1.2. <https://doi.org/https://doi.org/10.29099/ijair.v6i1.2.593>
- Gautam, S., Imteyaz, S. P., & Alam, M. I. (2021). COVID-19 Pandemic: Assessment of Stress and Perception of E-Learning amongst First Year Undergraduate Medical Students. *Journal of Clinical and Diagnostic Research*. <https://doi.org/10.7860/jcdr/2021/46998.14643>
- Gugus Tugas Percepatan Penanganan COVID-19. (2021). *Peta Sebaran COVID-19 \_ Covid19*. Komite Penanganan Covid-19 Dan Pemulihan Ekonomi Nasional.
- Hadi, L. (2020). Persepsi Mahasiswa Terhadap Pembelajaran Daring Di Masa Pandemi Covid-19 Student Perceptions of Online Learning During Covid-19 Pandemic. *Jurnal Zarah*, 8(2), 56–61.
- Jiang, F., Deng, L., Zhang, L., Cai, Y., Cheung, C. W., & Xia, Z. (2020). Review of the Clinical Characteristics of Coronavirus Disease 2019 (COVID-19). *Journal of General Internal Medicine*, 35(5), 1545–1549. <https://doi.org/10.1007/s11606-020-05762-w>
- Kemdikbud. (2020). Surat Edaran Mendikbud No 4 Tahun 2020 Tentang Pelaksanaan Kebijakan Pendidikan Dalam Masa Darurat Penyebaran Corona Virus Disease (Covid- 19) - Pusdiklat Pegawai Kementerian Pendidikan Dan Kebudayaan. <https://Pusdiklat.Kemdikbud.Go.Id/>.
- Kementerian Kesehatan Indonesia. (2021). Pedoman Pencegahan dan Pengendalian Coronavirus Disease (COVID-19). *Jurnal Kesehatan Lingkungan Indonesia*, 20(2), 1–214.
- Kolibu, F. K., Korompis, G. E. C., & Kountul, Y. P. (2018). Hubungan Jenis Kelamin dan Pengaruh Teman Sebaya dengan Tingkat Stres Mahasiswa Fakultas Kesehatan Masyarakat Universitas Sam Ratulangi Manado. *Kesmas*, 7(5), 1-7III.
- Kusumawati, E., & Andiarna, F. (2020). Pengaruh pembelajaran daring terhadap stres akademik mahasiswa selama pandemi Covid-19. *Jurnal Psikologi*, 16(2).
- Livana, P. H., Mubin, M. F., & Basthomi, Y. (2020). “Tugas pembelajaran” penyebab stres mahasiswa selama pandemi Covid-19. *Jurnsl Ilmu Keperawatan Jiwa*, 3(2), 203–208.
- Musabiq, S., & Karimah, I. (2018). Gambaran Stress dan Dampaknya Pada Mahasiswa. *Insight: Jurnal Ilmiah Psikologi*, 20(2), 74. <https://doi.org/10.26486/psikologi.v20i2.240>
- Puspaningtyas, N. D., & Dewi, P. S. (2020). Persepsi Peserta Didik Terhadap Pembelajaran Berbasis Daring. *Jurnal Pembelajaran Matematika Inovatif (JPMI)*, 3(6), 703–712. <https://doi.org/10.22460/jpmi.v3i6.703-712>
- Rantauni, D. A., & Sukmawati, E. (2022). Correlation of Knowledge and Compliance of Implementing 5m Health Protocols in the Post-Covid-19 Pandemic Period. In *Science Midwifery* (Vol. 10, Issue 4). Online. [www.midwifery.iocspublisher.orgjournalhomepage:www.midwifery.iocspublisher.org](http://www.midwifery.iocspublisher.orgjournalhomepage:www.midwifery.iocspublisher.org)
- Sugiyono. (2017). *metode penelitian kualntitatif, kuallitatif,daln R&D*. Alfabeta.
- Sugiyono. (2018). *Metode Penelitian Kuantitatif, Kualitatif dan R & D*. Alfabeta.
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D* (1st ed.). Penerbit Alfabeta.
- Sukmawati, E. (2018). wahyunita yulia sari, indah sulistyoningrum. Farmakologi Kebidanan. *Trans Info Media (TIM)*.
- Sukmawati, E. N. (2022). PEMBELAJARAN DARING BERBASIS MASALAH DALAM PENINGKATAN MOTIVASI BELAJAR. *Juli*, 2(2), 196–199. <https://journal.amikveteran.ac.id/index.php/jurdikbud/article/view/299>
- Sukmawati E, wahyunita yulia sari, & indah sulistyoningrum. (2018). *Farmakologi Kebidanan*. Trans Info Media (TIM). <https://scholar.google.com/scholar?oi=bibs&cluster=1176077044389442881&btnI=1&hl=id>
- World Health Organization Dashboard. (2022). *WHO Coronavirus (COVID-19) Dashboard With Vaccination Data*. <https://Covid19.Who.Int/>.
- Yuniarti, R., & Hartati, W. (2020). Persepsi Mahasiswa Tentang Penerapan E-learning pada Masa Darurat

Covid-19. *APOTEMA: Jurnal Program Studi Pendidikan Matematika*, 6(2), 158-167.  
Yusoff, M. S. B., & Rahim, A. F. A. (2010). *The Medical Student Stressor Questionnaire (MSSQ) Manual*.