

The Impact of Covid-19 Pandemic on Algerian Education**Asma MERINE1*****Mohamed Elamine MAIDI 2**

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Abstract. Viruses have been increasing exponentially over the past two decades. Recently, the COVID-19 virus has swept across the world expanded globally from Wuhan, China, and subsequently to other countries killing hundreds of thousands of people and affecting global economy and global health systems. On March 11th, 2020, the World Health Organization declared the SARS-Cov-2 virus a global pandemic so that it becomes imperative to understand how to cope with such a major disaster. Although it will be possible to assess the psychological and economic impact of this global disaster just when the pandemic ends, the purpose of this review is therefore to draw attention to the major profound impacts of COVID-19 on the world in general and on Algeria in particular. It represents a brief picture of the current status of education. The present comprehensive review also addresses some perspectives about the educational preventive measures that are globally recommended as all countries are currently making great efforts to prevent the rapid spreading and serious impacts of this potentially deadly virus by implementing control and preventive strategies.

Keywords. COVID-19, Education, Pandemic, Psychology

ملخص. تزايدت الفيروسات بشكل كبير خلال العقدين الماضيين. في الآونة الأخيرة ، انتشر فيروس كورونا في جميع أنحاء العالم وتوسع عالميًا من ووهان ، الصين ، وبعد ذلك إلى دول أخرى مما أسفر عن مقتل مئات الآلاف من الأشخاص والتأثير على الاقتصاد العالمي وانظمة الصحة العالمية. في 11 مارس 2020 ، أعلنت منظمة الصحة العالمية ان هذا الفيروس يعتبر جائحة عالمية ، لذا أصبح من الضروري فهم كيفية التعامل مع مثل هذه الكارثة الكبرى. على الرغم من انه سيكون من الممكن تقييم الأثر النفسي والاقتصادي لهذه الكارثة العالمية فقط فور انتهاء الوباء ، فإن الغرض من هذه المراجعة هو لفت الانتباه إلى الآثار العميقة الرئيسية لهذا الفيروس على العالم بشكل عام وعلى الجزائر بشكل خاص. هذا المقال يمثل صورة موجزة عن الوضع الحالي للتعليم. يتناول أيضًا بعض وجهات النظر حول التدابير الوقائية التعليمية الموصى بها عالميًا حيث تبذل جميع البلدان حاليًا جهودًا كبيرة لمنع الانتشار السريع والآثار الخطيرة لهذا الفيروس القاتل من خلال تنفيذ استراتيجيات المكافحة والوقاية.

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1. Introduction

In late 2019 and in the first ten months of 2020, a new severe acute respiratory syndrome virus SARS-CoV-2 (COVID-19) emerged in Wuhan, China. The World Health Organization declared a “global health emergency” on January 31st, 2020. COVID 19 or what we are calling ‘Coronavirus’ gave rise to a pandemic all over the world. At first, the cases were found only in China but later the disease spread across the globe with an incredible increase in new cases identified in several European countries and then to the United States between early February and early March 2020. Italy was among the European countries which had experienced a destructive effect of the virus because there is a large number of old people in this country who are more vulnerable to the impact of the virus. Consequently, Italy has 233,836 COVID-19 positive cases with 33,601 deaths followed by Spain with 287,406 cases and 27,128 deaths. A total of 5,657,529 cases of COVID-19 were registered worldwide, with 356,254 confirmed deaths on 29th May 2020.

Several veterinary, virologists and biomedical scientists have been active to understand the factors that anticipate its emergence and spread. They have assumed that this virus almost certainly originated in bats which have evolved fierce immune responses to viruses, i.e. Coronavirus moved from a bat into another animal, and that other animal was near a person and that person will spread it to someone else (within about 6 feet) through touch, cough and sneeze. However, it is still unclear exactly how the virus first spread to humans. Furthermore, it was declared by many virologists that many people cannot figure out they have got an infection and so go to work, homes and public places infecting others. Even worse, this virus infects the lungs leading to death in some cases especially when the virus attacks older adults and people with chronic health conditions such as: serious heart conditions, diabetes and kidney disease. The common symptoms of COVID-19 include: breathlessness, a cough, a fever, a sore throat, muscle pain, chills and loss of taste or smell. The aforementioned list is likely to occur 2–15 days after exposure to the virus.

In fact, there were various reasons that made the effect of the virus so severe in different countries. Firstly, there was a delay in analyzing the causes that led to the rapid spread of the virus. Secondly, people could not take proper prevention measures due to the lack of information provided by the policy makers to deal with the pandemic during the initial stages. Moreover, there was lack of adequate protection provided to both the patients and hospital staff such as masks and protective clothing which led to the death of many patients, doctors and nurses as well.

Thus, a series of questions must be constantly raised such as: How does the virus spread and how does it affect people? What is the impact of COVID-19 on the Algerian educational system? How long will the impact be? What can the World Health Organization do to overcome or at least reduce the psychological effects of this virus?

1.1. What is COVID-19?

Throughout history, many viruses emerged in different geographical areas, with pathogens including Zika, Ebola, Nipah, and Coronaviruses (CoVs). According to Holmes (2003), coronaviruses in general cause a substantial fraction of human colds and a number of common respiratory infections in other animals, including livestock and poultry. Recently, a new type of virus emerged in Wuhan City, China known as “Covid-19” which is an

abbreviation that stands for “Corona Virus disease of 2019”. According to Perlman and Netland (2009), Corona Virus Disease is an RNA virus, with a typical crown-like appearance under an electron microscope due to the presence of glycoprotein spikes on its envelope.

As a matter of fact, it is not the first time that a Coronavirus causing an epidemic has been a significant global threat, the Middle East respiratory syndrome (MERS)-CoV appeared on September 2012 (Lu et al, 2020). For Yin and Wunderink (2018), there are four genera of CoVs: On one hand, (I) -coronavirus (alphaCoV), (II) -coronavirus (betaCoV) probably present in rodents and bats. On the other hand, (III) -coronavirus (deltaCoV), and (IV) -coronavirus (gammaCoV) probably represent avian species. The following table summarised the details of the different types that Coronairus has gone through from 1966 to 2019.

Table (1): Types of Coronavirus (General Directorate of Prevention and Promotion of Health)

Coronavirus name	Year of identification	Type	Pathologies caused
HCoV-22E	1966	Alpha-CoV	Mild seasonal infections
HcoV-OC43	1967	Beta-CoV	
HcoV-HKU1	2005	Beta-CoV	
SARS-CoV	2002	Beta-CoV	Pneumonia
MERS-CoV	2012	Beta-CoV	
Covid 2019	2019	Beta-CoV	Breathing illness

It is suspected that the current virus has a zoonotic origin followed by human-to-human transmission; thus, the possibility of other ways such as food-borne transmission should not be excluded. It was also assumed that since this virus has a natural animal origin, it is not a manipulated or constructed virus as it was stated during the initial stages of the virus. The current virus is the third CoV outbreak in the world. COVID-19 shows a higher transmission competence due to the continuously increasing number of confirmed cases all over the world.

Obviously, COVID-19 is spreading on accelerating pace since its emergence in December 2019 till now November 2020 causing great damage to all sectors without any exception including daily life, health, education and the economy around the world. However, the damage differs from one sector to another and from one country to another. The following table is used as an illustration to show the spread of COVID-19 in all continents through the confirmed cases and death cases as well.

Table (2): Situation in Numbers (by WHO Region)

Globally	8 385 440 cases (142 451)	450 686deaths (5 151)
Africa	201 178 cases (6 639)	4 595 deaths (113)
Americas	4 092 526 cases (77 140)	212 517 deaths (3 526)
Eastern Mediterranean	856 650 cases (19 153)	19 041 deaths (466)
Europe	2 490 815 cases (19 033)	190 903 deaths (599)
South-East Asia	541 041 cases (19 459)	16 360 deaths (439)
Western Pacific	202 489 cases (1 027)	7 257 deaths (8)

1.2. The spread COVID-19 in Algeria

Like the other countries all over the world, Algeria was affected by the virus which started to spread at the end of February 2020 exactly on 27th February when the first case was declared from official reports of governmental institutions and official media in Algeria, i.e. two months after the initial outbreak in Wuhan, China. On the 2nd March, Algeria confirmed two new cases of SARS-CoV-2, a woman and her daughter from Mascara city, who attended a wedding in Blida. On March 10, 2020, all kinds of meetings and conferences were cancelled.

As of November 16, Algeria confirmed 68,589 cases of COVID-19 and 2,168 COVID-19 related deaths in its borders. As a result, Algerian people are obliged to wear a protective mask and all land borders remain closed. Additionally, public and private transportation in the provinces which are affected by a curfew has been prohibited. Public transportation is suspended on Fridays and Saturdays in the provinces affected by a curfew including: Algiers, Boumerdes, Souk Ahras, Tissemsilt, Djelfa, Mascara, Oum El Bouaghi, Batna, Bouira, Relizane, Biskra, Khenchela, M'sila, Chlef, Sidi Bel Abbes, Médéa, Blida, Bordj Bou Arreridj, Tipaza, Ouargla, Bechar, Constantine, Oran, Sétif, Annaba, Bejaia, Adrar, Laghouat, El Oued. After each 15 days, curfews are being reviewed to be more restrictive in specific provinces or in certain areas of the provinces above for short periods of time as the health situation develops.

2. The Impact of Covid-19 Pandemic on Algerian Education

The 21st century has experienced an incredible technological advancement, rapid international trade, and vast expansion in different fields: economic, educational, scientific and technical activities. Such enormous developments led to the appearance of two new concepts which are used interchangeably named 'distance education' or 'distance learning'. This kind of education provides an opportunity to everyone to learn throughout their entire life. According to Phipps & Merisotis (1999, p. 11), "It is important to understand what is meant by 'distance learning.' Because the technology is evolving, the definition of what distance learning is continues to change". In the same line of thought, Roblyer & Edwards (2000, p. 192) define distance learning as "the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance."

In fact, distance education is linked with the development of information and communication technologies in contemporary society. Video materials and audio materials are part of education along with printed materials. Furthermore, digital technologies and usage of Internet as an educational environment set a new stage for the development of distance education.

Actually, the virus has a profound impact on education which resulted in schools shut all across the world. As far as the Algerian education is concerned, all universities and educational institutions (primary, middle and secondary schools) have been closed on March 12, 2020; therefore, the ministry of higher education calls for all lecture activities to be carried out online. In this vein, information and communications technology (ICT) has been experiencing an extraordinary growth and impulse in its role as a key to success because the universities were closed and it is uncertain when this outbreak will end. ICT has been recognised as a learning facilitator that helps students in providing access to their lessons so

that policy-makers have recourse to the use of ICT to deliver the lessons and programmes online at a distance to their enrolled students from March 2020.

Consequently, such dramatic change led to the rise of e-learning whereby the teaching process is undertaken remotely and on digital platforms. For instance, 'Moodle platform' was employed by all Algerian institutes and departments to publish courses for all degrees of study and establish online sessions beginning with first year LMD students to first year Master students.

Even though not all Algerian universities could have access to particular devices during this pandemic, some of them moved to virtual classrooms thanks to Microsoft Teams, Zoom and Google Hangouts. In this respect, several conferences were held through the use of Zoom in addition to some PHD viva (defenses). Among the universities that have access to such devices: Mohamed Boudiaf university in M'sila; Abou Bekr Belkaid university in Tlemcen and Ali Lounissi university in Blida.

Concerning second year Master students, they could not complete their academic journey, i.e., theses and academic requirements especially their training at universities, schools or in industrial companies in fields such as economy and languages. For other scientific streams such as biology, laboratories were closed. Such challenges make e-learning a permanent solution for students to contact with their supervisors.

As a matter of fact, not all students could learn using the internet and computers because they are unable to access online education. Additionally, science and technology students were unable to access laboratories for their practicals because the theoretical online lessons are not enough. On the other hand, many learners had technical difficulties with WiFi, or were simply not interested to learn through the new platform; they said that some modules cannot be taught through internet. To this end, it is of great importance to critically analyse the existing situation and courses if they are really accessible or not.

Recently, exactly on August 23, 2020, the students returned back to their studies dividing them into group to avoid infection. To put it in a nutshell, the current situation will get worse so that significant efforts must be made by the government and educational institutions at all levels to find practical solutions concerning online learning in particular and in education in general.

2.1. The major Psychological effects of Covid-19 on Algerian Students

Teaching and learning processes are always challenging tasks when it comes to countries where most of the focus is on traditional techniques. It can be said that teaching in Algeria is still inadequate; no serious decisions and solutions have been taken in this field so far according to several studies that are conducted in Algeria. With the appearance of COVID-19, things are getting worse especially in terms of education and the risk of taking viral infection. As it is stated earlier, universities worldwide closed their doors moving to online platforms to reinforce the learning process.

According to the United Nation's Educational, Scientific, and Cultural Organization (UNESCO), the virus has stopped the learning of more than one billion students in 129 countries around the world. This act induces high levels of anxiety, tremendous stress and acute depression among the students as it is reported in China and some Western countries. Students became stressed, afraid and reluctant to study and go outside home. In this respect, Sharp & Theiler (2018) point out that public health emergency can have many psychological

impacts on learners, which can be expressed in the form of anxiety, fear and stress. Furthermore, Wahyu Irawan et al (2020) declare that: “Continuous dissemination, strict isolation measures, and online learning problems at all levels of education are expected to affect mental health, including students.”

During the COVID-19 outbreak, Cao et al. (2020) investigated the psychological effect on Chinese university students during the COVID-19 pandemic. Out of 7143 students studied, 0.9% had severe anxiety, 2.7% had moderate anxiety, and 21.3% had mild anxiety. In her turn, Odriozola-González et al. (2020) tackled the psychological well-being of Spanish university students during the COVID-19 pandemic. The research was conducted from March 28 to 4 April 2020. In the sample, 34.19% of participants demonstrated moderate to extremely severe depression symptoms; 21.34% expressed extremely severe anxiety symptoms; and 28.14% exhibited moderate to extremely severe stress symptoms.

Again, Sundarasan et al (2020) conducted a research in which they sought to determine the level of anxiety among university students in Malaysia during COVID-19 outbreak exactly on 20 April and 24 May 2020. An exploratory study was conducted using a cross-sectional online survey. The informants were selected from both private and public colleges and universities from all states in Malaysia. A survey invitation was sent to students via WhatsApp messages. At the end, a total of 1054 responses were received. The findings revealed that 20.4%, 6.6%, and 2.8% of the students experienced minimal to moderate, marked to severe, and most extreme anxiety levels, respectively; the results in this study are similar to that of (Cao et al, 2020, Wang et al, 2020; Odriozola-González et al, 2020). Moreover, it was found that the level of anxiety was higher among the female students compared to that among the male students; this result is similar to that of (Azad et al, 2017; Mirza & Jenkins, 2004).

3. Recommendations

Taking into consideration the fact that the impacts of the virus are the starting point for more advanced investigations in Algeria, this part will therefore try to present some useful suggestions and recommendations which may help in reducing the dangerous impact of the virus on education in general and on students in particular.

In fact, proposing solutions is seen as one of the challenging tasks the Algerian authorities are facing for the moment. At the beginning of the pandemic and during the lockdowns, Algeria introduced instructions to both learners and teachers and a ‘one-size-fits-all’ philosophy is imposed with no regard for individual differences and background. Moreover, remote online classes, financial constraints, and uncertainty about the future due to the virus and lockdowns resulted in a higher level of anxiety and stress among students.

Firstly, in terms of finances, it was declared on June, 2020 that 55 million domestic workers significantly impacted by COVID-19 around the world (International Labour Organisation, 2020). Workers who were in lockdown and who were not previously registered to social security were considered to be at a higher risk of losing their jobs and salary. Conversely, workers who were in lockdown, but who were registered to social security, do not face the risk of losing their jobs or income during the pandemic. In Algeria, the authorities adopted either full or partial lockdown measures to prevent transmission of the virus and to facilitate physical distancing. These measures resulted in a reduction of working hours and, in

some cases, a loss of jobs. Many students could not learn through internet because their families lost their job; they could not finance their studies.

Secondly, in terms of remote online classes, the pandemic led to schools shut all over the world so that students and pupils are out of the classroom. In fact, education has changed dramatically with the beginning of the implementation of e-learning on digital platforms in Algeria. However, remote learning is considered as a significant factor leading to stress and anxiety because many students suffer from poor internet connection and technological infrastructure. Furthermore, spending many hours on computers and phones to attend daily online classes without instructors contribute in several health issues especially stress. With the implementation of remote learning, many teachers are still using the same strategies meant for face-to-face teaching which also led to tremendous stress and anxiety. Additionally, the great expectation from their teachers with many activities, tests, exams, completion of their semester and graduation with no flexible deadlines, added to the learners' stress and anxiety.

Based on the aforementioned issues, it is obvious that Algeria enters the most challenging phase of the pandemic to date; the authorities should reimpose different kinds of measures especially in terms of education. There are several measures and possible solutions which can be put forward by the Algerian authorities to reduce the psychological impacts of COVID-19 on education and students:

- ✓ The ministry of higher education should think over again about the inclusion of successful coping methods and strategies that can be used by the students during the COVID-19 pandemic.
- ✓ To maximize the learning outcomes and to minimize stress and anxiety and other psychological effects among students, future researches should be directed toward teaching, learning, and assessment methods as well to avoid misunderstanding and confusion among students.
- ✓ Higher education institutions can play an important role in assisting students to cope with stress and anxiety which reflect the widespread effects of uncertainty and health-related fears (Zung, 1971). To this end, universities should develop digital psychological interventions, such as effective online programmes apps and, alongside other services such as text messages, PowerPoint, forums instead of printed handouts (Holmes et al, 2020). The methods that were employed during the first phase of the pandemic reduced students' motivation towards studies, increased pressures to learn in isolation and independently. It's high time the authorities called for creative strategies that can increase students' motivation and decrease their stress towards the learning process.
- ✓ Either face to face or remotely, psychological services should also be provided at Universities in order to lessen the mental impacts of the virus on students.
- ✓ Equally important is for the teachers to re-examine their learning outcomes, assessment strategies, programmes and the courses that are taught online as they should be distinguished from those meant for face-to-face teaching mode. Furthermore, they must realize that the students are passing through complicated emotions due to the emergence of the virus and lockdowns and the fact that they have to adapt with remote learning and being isolated from their classmates creates anger, frustration and ultimately stress.

- ✓ According to Sundarassen et al (2020),
“ Ministries and related agencies in coordination with the WHO, UNESCO, and CDC need to intensify community mindfulness, specifically for the students, by using artificial intelligence to obtain evidenced-based and scientific measures for pandemics.”
- ✓ Among the main causes that cause undue anxiety amongst students is the social media; so, penalties and strict measures must be applied to punish individuals who spread false information via social media.
- ✓ There must be an urgent call for all stakeholders in the education industry to educate learners on the major causes and results of pandemics in general and of COVID-19 in particular in a clear and supportive manner without causing stress.
- ✓ The Centers for Disease Control (CDC) recommends a number of implications and suggestions for reducing stress:
“minimizing repeatedly watching, reading, and listening to new information and stories on COVID-19, specifically from unreliable sources of social media; maintain healthy diet, exercise, adequate hours of sleep; and keep the mind stress free by virtually connecting with friends and family members; and finally, take time to unwind and indulge in activities one enjoys. As suggested by Fransen et al (2015), it helps to feel that “everyone is in this together.”

4. Conclusion

At present, the world is posing a significant threat to global public health due to the appearance of COVID-19. The current available hypotheses suggest that the virus has a zoonotic source and it is not a laboratory or a constructed virus because if it were a manipulated virus, its genomic sequence would show a mix of known elements. This is not the case. In addition to the infected persons who show symptoms, it was also found that there is another category of people who are infected but do not show symptoms and they can also spread the virus to others. Consequently, severe decisions must be taken, both on national and international levels to prevent infection and the great deal of fear and unrest among people and students in particular.

In term of education, COVID-19 has a great effect on the Algerian universities which were not equipped for such situations during the outbreak of the virus. Such situation left the students in depression. Although several studies tackled the impacts of the virus on education and students, there remains much more to be learnt about the psychological effects facing students and what can be done to reduce their negative attitudes and feelings.

Last but not least, it can be said that this disaster must rapidly be addressed to avoid the collapse of not only the economic side, but also the psychological side. Thus, future research about COVID-19 pandemic and lockdown period should be directed not only toward teaching and learning, but also to assessment strategies which can have the dual benefit of maximizing learning outcomes and minimizing anxiety. Future researches should be mended rather than ended because the current situation requires further examination and immediate intervention.

References and Referrals

- Azad, N., Shahid, A., Abbas, N., Shaheen, A., & Munir, N. (2017). Anxiety and depression in medical students of a private medical college. *Ayub Med. Coll. Abbottabad Pak*, 29, pp.123–127.
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Journal of Psychiatry Research*, 287, 112934. OnLine: <https://www.sciencedirect.com/science/article/abs/pii/S0165178120305400?via%3Dihub>
- Fransen, K., Haslam, S.A., Steffens, N.K., Vanbeselaere, N., De Cuyper, B. & Boen, F. (2015). Believing in “us”: Exploring leaders’ capacity to enhance team confidence and performance by building a sense of shared social identity. *Journal of Experimental Psychology: Applied*, 21(1), pp.89–100. OnLine: <https://psycnet.apa.org/doiLanding?doi=10.1037%2Fvap0000033>
- Holmes K.V. (2003). SARS coronavirus: a new challenge for prevention and therapy. *Journal of Clinical Investigation*, 111(11), pp.1605–1609.
- General Directorate of Prevention and Promotion of Health, (2020). coronavirus infection preparedness and response plan covid – 19. OnLine <https://www.tralac.org/documents/resources/covid-19/countries/3793-algeria-preparation-and-response-plan-covid-19-2020-french/file.html>
- Holmes, E.A., O’Connor, R.C., Perry, V.H., Tracey, I., Wessely, S., Arseneault, L., & Ford, T. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *Lancet Psychiatry*, 7, pp.547–560.
- International Labour Organisation, (2020). Impact of the COVID-19 crisis on loss of jobs and hours among domestic workers. OnLine: https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/publication/wcms_747961.pdf
- Lu, R., Zhao, X., Li, J., Niu, P., Yang, B., Wu, H., Wang, W., Song, H., Huang, B., & Zhu, N. (2020). Genomic characterisation and epidemiology of 2019 novel coronavirus: Implications for virus origins and receptor binding. *Lancet*, 395, pp.565–574.
- Mirza, I., Jenkins, R. (2004). Risk factors, prevalence, and treatment of anxiety and depressive disorders in Pakistan: a systematic review. *BMJ*, 328:794. OnLine: <https://pdfs.semanticscholar.org/1566/ebd6cde3af90ab0715c994b2bd284e2b7148.pdf>
- Odrizola-González, P., Planchuelo-Gómez, Á., Irurtia, M.J., & de Luis-García, R. (2020). Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Journal of Psychiatry Research*, 290, 113108. OnLine: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7236679/>
- Perlman, S., Netland, J. (2009). Coronaviruses post-SARS: Update on replication and pathogenesis. *Nature Reviews Microbiology*, 7(6), pp.439–450. OnLine : <https://doi.org/10.1038/nrmicro2147>
- Phipps, R., Merisotis, J. P. (1999). *What’s the Difference? A review of contemporary research on the effectiveness of distance learning in higher education*. Washington, DC: The Institute for Higher Education Policy.
- Roblyer, M. D., Edwards, J. (2000). *Integrating educational technology into teaching*. (2nd ed.). Upper Saddle River, NJ: Merrill.
- Sharp, J., Theiler, S. A. (2018). Review of Psychological Distress Among University Students: Pervasiveness, Implications and Potential Points of Intervention. *Int J Adv Counselling*, 40, pp.193–212. OnLine: <https://link.springer.com/article/10.1007%2Fs10447-018-9321-7>

- Sundarasan, S., Chinna, K., Kamaludin, K., Nurunnabi, M., Baloch, G.M., Bakr Khoshaim, H., Abid Hossain, S.F. & Sukayt, A. (2020). Psychological Impact of COVID-19 and Lockdown among University Students in Malaysia: Implications and Policy Recommendations. *International Journal of Environmental Research and Public Health*, 17(17), 6206. OnLine: https://www.researchgate.net/publication/343926253_Psychological_Impact_of_COVID19_and_Lockdown_among_University_Students_in_Malaysia_Implications_and_Policy_Recommendations
- United Nations Educational, Scientific and Cultural Organization (UNESCO). (2020). online: https://en.unesco.org/covid19/education_response
- Wahyu Irawan, A., Dwisona, D., & Lestari, M. (2020). Psychological Impacts of Students on Online Learning During the Pandemic COVID-19. *KONSELI Journal Bimbingan dan Konseling (E-Journal)*, 7(1), pp.53-60. OnLine: [10.24042/kons.v7i1.6389](https://doi.org/10.24042/kons.v7i1.6389)
- Yin, Y., Wunderink, R.G. (2018). MERS, SARS and other coronaviruses as causes of pneumonia. *Respirology*, 23, pp.130–137.
- Zung, W. W. (1971). A rating instrument for anxiety disorders. *Psychosomatic*, 12, pp.371–379.