

## Original Article

**Effects of Information About COVID-19 on Social Media on Students****Eda Unal, RN, BSN(c)**

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**Corresponding author:** Aysel Ozdemir, Bursa Uludag University Institute of Health Sciences, Bursa, Turkey E-mail: ayozdemir@uludag.edu.tr**Abstract****Aim:** This study aimed to determine how students had been affected by the COVID-19 pandemic, and effects of information about it that was shared via social media.**Methods:** This descriptive and qualitative study was conducted with 126 students. A questionnaire was prepared, and data were collected via computers.**Results:** It was found that 29.4% of the students were negatively affected by TV programs about Covid-19 virus, 31.0% were negatively affected by Facebook and Instagram, and 9.5% were negatively affected by Twitter. Information about Covid-19 from TV, Facebook and Instagram, and Twitter caused the students experience feelings such as worry, anxiety, fear and uncertainty. It was determined that the students who were negatively affected by social media were not negatively affected by the information and hygiene-related warnings of health professionals ( $p < 0.05$ ). Those who were negatively affected by TV programs were also negatively affected by Facebook and Instagram ( $p < 0.05$ ). It was also found that those who were negatively affected by Facebook and Instagram were also negatively affected by Twitter ( $p < 0.05$ ).**Conclusion:** Covid-19 pandemic is an ongoing health problem. Social media content concerning it may lead to an increase in psychological problems.**Keywords:** COVID-19, pandemic, effects, social media, information.**Introduction**

In December 19, various pneumonia cases with unknown etiology were reported in Wuhan, China. The World Health Organization (WHO) defined coronavirus 2019 (COVID-19) on February 11, 2020, which was caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Basch et al., 2020). As COVID-19, which was first seen in China in March, spread all around the world, it became a major pandemic and a threat to public health. The WHO declared that it was a pandemic on March 11. Europe was the epicenter of this pandemic (Demirbilek et al., 2020). It has been reported that since March 14, there have been approximately 156 thousand cases of COVID-19 (Sahu, Mishra & Lal, 2020). In Turkey, the Covid-19 pandemic began on

March 9, 2020, and the first death occurred on March 17, 2020 (Demirbilek et al., 2020). Covid-19 is a single-stranded RNA virus (Wang et al., 2020). The infection spreads through direct contact with respiratory droplets and secretions of individuals infected with COVID-19 (Li et al., 2020). Epidemiological studies have shown that the incubation period of the virus ranges from 1 day to 14 days, and 3 to 7 days on average (Jin et al., 2020). The symptoms of the Covid-19 include coughing, difficulty breathing and fever. It causes irreversible results in people, especially those over 65 years of age who have additional chronic illnesses (Huang et al., 2020). Factors such as the fatality rate of the illness, the fact that its infectiousness is uncertain, that it causes simple flu symptoms in some people, and that there is no

specific treatment or vaccine for it have accelerated its spread. While the severity of the illness and the death risk is higher for the elderly population, comorbidities make it even worse (Basch et al., 2020).

To prevent the spread of COVID-19, strict public health measures should be taken (Adhikari et al., 2020). The COVID-19 science committee have taken a range of measures throughout Turkey to prevent the pandemic from threatening public health: flight restrictions to certain countries, 14-day quarantine for individuals coming from abroad, administrative leave for individuals with chronic illnesses, closing schools and universities, imposing a curfew for individuals under 20 and over 65 years of age, and implementing flexible working hours for many public and private organizations (Demirbilek et al., 2020).

Outbreaks of infectious illnesses such as COVID-19 cause psychological problems such as anxiety, fear, depression and insomnia for society, patients and healthcare professionals because of the public health measures (quarantine, restrictions, etc.) and the fatality rate of the illness (Bao et al., 2020). The most effective way to inform people about the public health measures against COVID-19 is social media. The WHO have updated content about this virus since the day it started and published them on the internet. The Ministry of Health uses various communication channels (radio, television and social media) to educate healthcare professionals and society about Covid-19 (Demirbilek et al., 2020). Along with the scientific information on social media about COVID-19, people also share inaccurate information. The WHO has defined the increase of information about COVID-19 as an "infodemic" (Zarocostas, 2020). In new and quickly developing outbreaks such as Covid-19, inaccurate information and disinformation have the potential to spread on the internet (Basch et al., 2020). This study was planned using a descriptive and qualitative design to determine how students were affected by the Covid-19 pandemic and information about it shared on social media.

**Materials and Method:** This descriptive and qualitative study was conducted in April 2020. The study population included 155 students in an undergraduate public health nursing course. The study sample included 126 students who agreed to participate. The data were collected using computers. The questionnaire included 30 multiple-choice questions and 3 were qualitative

questions. The statistical data were evaluated with SPSS (Statistical Package for Social Sciences) Windows 20.0 software using numbers, means, percentages and Pearson's chi-square test. The threshold for statistical significance level was  $p < 0.05$ .

**Ethical approval:** The study was conducted in conformity with the principles of the Declaration of Helsinki and approved by the Ethics Committee of Republic of Turkey Ministry of Health (no. 2020-05-02T21\_55\_27.xml).

## Results

The mean age of the students was  $21.44 \pm 1.21$ , and 86.5% of them were female. It was found that 92.1% of the students lived with their families, 74.6% lived with four or more people, and 76.4% were living in environments that provide contact isolation within their families. Of the students, 65.1% had a household member who had to go out because of their job. Individuals under 20 and over 65 years of age are under curfew in Turkey. The rate of such individuals in the students' families were 54% and 15.1%, respectively. The individuals older than 65 reported that they were bored, uneasy, that their mental health was negatively affected, and that they could not meet their needs. The individuals younger than 20 years of age reported that they were uneasy and bored because they could not go out, play games, had difficulties with their lessons, cannot attend school, meet their needs, had to play with their tablets all day, and that they were angry (Table 1). It was found that because of the Covid-19 virus, 92.1% of the students were negatively affected by the fear of losing family members, 79.4% by not attending school, 52.42% by changing cities, 46.8% by the quarantine, 21.4% by not being able to sleep enough, and 11.2% by being excessively careful about hygiene rules. Students reported that they were negatively affected by the characteristics of the virus such as the fact that it spreads rapidly (96.0%), its incubation period is unknown (96.0%), it is fatal (92.9%), and carriers show no symptoms (92.9%). During the pandemic, 99.2% of the students monitored their families and themselves for Covid-19 symptoms. It was found that 42.1% of the students were most negatively affected by information given by the people around them (Table 2). It was found that 31.0% of the students were most negatively affected by information about the Covid-19 virus on Facebook and Instagram because of lies and baseless news. Mental health is affected because

people believe them, and inaccurate information causes fear. People's baseless comments cause fear. Continuous inaccurate and baseless news, hopeful and desperate news, and contradictory information cause anxiety. Seeing infected people having difficulty breathing and suffering from pain, information pollution, difficulty distinguishing accurate and inaccurate information, and continuous repetition of the same news cause pessimism. This process feels like it never ends. People feel anxious because others do not obey the quarantine or public health measures, which causes the virus to spread, and because healthcare professionals share videos of hospitals during the pandemic (Table 3). The quarantine was found to have more negative effects on the females than the males ( $p=0.038$ ). The females were found to suffer more from insufficient sleep than the males ( $p=0.022$ ). The younger individuals were affected more negatively by the rapid spread of Covid-19 ( $p=0.013$ ). They were also affected more

negatively by information from Facebook and Instagram ( $p=0.010$ ). It was found that those who were affected by TV programs about Covid-19 were not negatively affected by the information given by the health professionals and warnings about hygiene rules ( $p<0.05$ ). It was found that the students who were negatively affected by TV programs about Covid-19 were also negatively affected by the ideas of people around them and Facebook and Instagram ( $p<0.05$ ). Most of the students who were negatively affected by the Covid-10 posts on Facebook and Instagram said that they were sleeping enough ( $p<0.05$ ). It was found that the students who were negatively affected by Facebook and Instagram were not negatively affected by the warnings about hygiene rules by health professionals ( $p<0.05$ ). The students who were negatively affected by Facebook and Instagram were also negatively affected by the ideas of people around them and Twitter ( $p<0.05$ ).

**Table 1. Distribution of the students' descriptive characteristics.**

Mean $\pm$ SD	n	%
<b>Age</b>		
21.44 $\pm$ 1.21		
<b>Gender</b>		
Female	109	86.5
Male	17	13.5
<b>Relationship with co-residents</b>		
Family	116	92.1
Other	10	7.9
<b>Number of co-residents</b>		
3 or less	32	25.4
4	47	37.3
5 or more	47	37.3
<b>Living in an environment that will prevent the spread of Covid-19</b>		
Yes	94	76.4
No	32	25.4

<b>Whether household members have to go outside because of their job</b>		
Yes	82	65.1
No	44	34.1
<b>*Having a family member who is 65 and older and is under curfew</b>		
Yes	19	15.1
No	107	84.9
<b>**Having a family member who is under 20 and is under curfew</b>		
Yes	68	54
No	58	46
<b>*Curfew-related problems of individuals over 65</b>		
Uneasiness, boredom, mental health disorders, inability to meet needs		
<b>**Curfew-related problems of individuals under 20</b>		
Boredom, not being allowed to play, difficulty with lessons, playing with tablets all day, not attending school, not seeing friends, being unable to meet their needs, being angry		

**Table 2. Distribution of the negative effects of Covid-19 on the students.**

	Yes		No	
	n	%	n	%
<b>Negative effects of the virus-related changes in our lives on the students</b>				
No school	100	79.4	26	20.6
Quarantine	59	46.8	67	53.2
Moving to another city	66	52.4	60	47.6
Extreme hygiene rules	14	11.2	112	88.9
Fear of losing family members	116	92.1	10	7.9
Insufficient sleep	27	21.4	99	78.6
<b>Characteristics of the virus that negatively affected the students</b>				
It is fatal	117	92.9	9	7.1

It spreads rapidly	212	96.0	5	4
Its incubation period is unknown	122	96.0	4	4
The carriers show no symptoms	117	92.9	9	7.1
<b>Students concerns during the Covid-19 pandemic</b>				
Adequate and balanced nutrition	85	67.5	41	32.5
Sufficient sleep	64	50.8	62	49.2
Monitoring their families and themselves for Covid-19 symptoms	125	99.2	1	0.8
<b>Information about the fight against the virus that negatively affected the students</b>				
Information about the virus given by health professionals	17	13.5	109	86.5
Hygiene warnings shown as advertisements	5	4	121	96
Hygiene warnings by healthcare professionals	7	5.6	119	94.4
Information from the people around me	53	42.1	73	57.9

**Table 3. The distribution of negative effects of Covid-19 information on social media on the students.**

	<b>Yes (n)</b>	<b>%</b>	<b>No (n)</b>	<b>%</b>
<b>Being negatively affected by TV programs about Covid-19</b>	37	29.4	89	70.6
<b>The negative effects of TV programs about Covid-19 (n=37)</b>				
Pessimistic results and news				
Disaster scenarios				
Talking about uncertainties				
Confusion because of different approaches				
Inability to distinguish who is the specialist				
Inaccurate information				
Repetitiveness				
Talking about Covid-19 with different people every day				
Difficult distinguishing accurate and inaccurate information				

<p>Not knowing when the pandemic will end                  Negative content about Covid-19 around the world</p>				
<p><b>State of the individuals negatively affected by the content about Covid-19 (n=37)</b></p> <p>Pessimistic thoughts                  Psychological changes                  Depression                  Anxiety                  Stress and concentration problems                  Feeling like the virus is everywhere                  Not even going out on the balcony                  Unhappiness, boredom, tiredness and anxiety because of hearing the same things continuously                  Feeling uneasy because of people who do not obey the quarantine and public health measures</p>				
<p><b>Being negatively affected by information about the Covid-19 virus on Facebook and Instagram</b></p>				
	39	31.0	87	69.0
<p><b>The negative effects of Facebook and Instagram (n=39)</b></p> <p>Fake news                  Getting up-to-date information                  Access to the number of cases and deaths                  Negative impact on mental health because of the fact that people believe baseless news                  Trying to access useful information because of the fear caused by inaccurate information                  Fear caused by baseless comments                  Hope and despair caused by continuous inaccurate news                  Anxiety caused by hearing different comments                  Infected people having difficulty breathing and suffering from pain                  Information pollution                  Information overload and difficulty distinguishing accurate and inaccurate information                  Continuous repetition of the same news causing pessimism                  Feeling that this will never end                  Showing the same bad news continuously                  Baseless news on social media                  Feeling anxious because people do not obey the quarantine or public health measures                  Healthcare professionals sharing videos of hospitals during the pandemic</p>				

<b>Being negatively affected by information about Covid-19 on Twitter</b>	12	9.5	114	90.5
<b>The negative effects of Twitter</b>				
Inaccurate information				
Fear, anxiety and panic caused by the fact that the number of deaths are gradually increasing and are shown publicly				

**Table 4. Gender distribution of the students negatively affected by Covid-19.**

	Gender		Total	X <sup>2</sup>	SD	p
	Female	Male				
<b>Quarantine</b>						
Yes	55	4	59			
No	54	13	67			
Total	109	17	126	4.283 <sup>a</sup>	1	<b>0.038</b>
<b>Insufficient sleep</b>						
Yes	27	0	27			
No	82	17	99			
Total	109	17	126		1	<b>0.022</b>

**Table 5. The age distribution of the students negatively affected by Covid-19.**

Age	N	Mean rank	U	p
Rapid spread of Covid-19				
<b>Yes</b>	121	61.95		
<b>No</b>	5	101.10	114.500	<b>0.013</b>
Information about the Covid-19 virus on Facebook and Instagram				
<b>Yes</b>	39	51.72	1237.000	<b>0.010</b>

No 87 68.78

**Table 6. Analysis of the effects of social media posts about Covid-19 and independent variables.**

	Yes	No	Total	X <sup>2</sup>	SD	p
<b>Being negatively affected by TV programs about Covid-19</b>						
<b>Information about the virus given by the health professionals</b>						
Yes	9		17		1	<b>0.041</b>
No	8		109			
Total		28	126			
		81				
		37				
		89				
<b>Hygiene warnings given by healthcare professionals</b>						
Yes		5	7			<b>0.023</b>
No		2	119		1	
Total		32	126			
		87				
		37				
		89				
<b>Information given by the people around me</b>						
Yes		24	53			<b>0.001</b>
No		29	73	11.17	1	
Total		13	126	5 <sup>a</sup>		
		60				
		37				
		89				
<b>Being affected by Facebook and Instagram</b>						
Yes		19	39	10.19	1	<b>0.001</b>
No		20	87	9 <sup>a</sup>		
Total		18	126			
		69				
		37				
		89				

<b>Being negatively affected by Facebook and Instagram posts about Covid-19</b>					
<b>Insufficient sleep</b>					
Yes	13	27	4.754 <sup>a</sup>	1	<b>0.036</b>
No	14	99			
Total	26	126			
	73				
	39				
	87				
<b>Hygiene warnings given by health professionals</b>					
Yes	6	7		1	<b>0.004</b>
No	1	119			
Total	33	126			
	86				
	39				
	87				
<b>Ideas of the people around me</b>					
Yes	27	53	17.10 <sup>a</sup>	1	<b>&lt;0.001</b>
No	26	73			
Total	12	126			
	61				
	39				
	87				
<b>Being affected by Twitter</b>					
Yes	9	12		1	<b>0.001</b>
No	3	114			
Total	30	126			
	84				
	39				
	87				

## Discussion

Outbreaks are emergency public health problems that need to be addressed. Using social media to publish decisions made during the pandemic is a good method. Poor management of pandemics affects the psychology, behavior and daily life of society by creating traumatic stress. This study was planned using a descriptive and qualitative design to determine how the students were affected by the Covid-19 pandemic and information about it shared on social media

(Garfin, Silver & Holman, 2020). Table 1 shows the students' descriptive characteristics. It was found that 15.1% of the students had family members older than 65. The problems experienced by the older population during the quarantine include: uneasiness, boredom, mental health disorders, and inability to meet their needs. This study found that they have experienced difficulty meeting their needs during the quarantine, so it is important to point out their needs and try to meet them. It was found that 54%

of the students had family members younger than 20. During the quarantine, individuals under 20 experienced problems such as boredom, not being allowed to play, difficulty with their lessons, playing with tablets all day, not attending school and not seeing their friends. These problems show that a good management plan is needed to prevent students from being negatively affected by the pandemic. Poor management of this outbreak can cause psychological and educational problems for young people. This study found that, during the Covid-19 pandemic: 92.1% of the students were negatively affected by the fear of losing family members, 79.4% were negatively affected by not attending school, 52.4% were negatively affected by changing cities, 46.8% were negatively affected by the quarantine, 21.4% were negatively affected by insufficient sleep, and 11.2% were negatively affected by excessive concern about hygiene rules. The participants in a previous study said that insufficient information about measures against Covid-19 and the quarantine caused stress (Pellecchia et al., 2015). This study found that the characteristics of the virus (rapid spread, unknown incubation period, high fatality, symptom-free carriers) negatively affected the students at a high rate (Table 2). Another study found that uncertainty about the Covid-19 virus affected students (Garfin, Silver & Holman, 2020). It was found that the students tried to manage this situation properly by monitoring their families and themselves for Covid-19 symptoms, eating balanced diets and getting enough sleep (Table 2). This shows that information on social media and communication tools can be useful. This study found that: 13.5% of the students were negatively affected by information about the virus, 5.6% were negatively affected by the information about hygiene rules given by the health professionals, 4% were negatively affected by the information provided as advertisements, and 42.1% were negatively affected by the information heard from the people around them. In another study, the participants said that their most reliable information source was healthcare professionals and health authorities, and that the least reliable information source was social media (Fadden et al., 2020). This study determined that the quarantine affected females more negatively (Table 4). Another study found that the quarantine caused psychological problems and affected females more negatively than males. Those who were under quarantine experienced uncertainty and boredom (Brooks et al., 2020; Yoon et al., 2016). In order to maintain public health, it will

help to organize the quarantines with these negative effects in mind. This study found that the rapid spread of the virus, information on Facebook and Instagram affected the younger students more negatively (Table 5). Accurate information and guidance about personal behavior is highly important for the prevention of Covid-19. The primary measures against infectious diseases should reduce exposure and vulnerability. Since no vaccine has been developed to reduce vulnerability, it is important to prevent exposure (Basch et al., 2020). Information about this has been shared on social media. In this study, 29.4% of the students said that they were negatively affected by TV programs. The reasons for these negative effects were: pessimistic news, uncertainty, different approaches without a common message, inaccurate information, everyone continuously talking about Covid-19 and negative content from around world. TV programs caused the students to have: pessimistic thoughts, experience negative mood changes, psychological changes, anxiety, stress, worry, unhappiness, uneasiness, difficulty concentrating and the feeling that the virus is everywhere. These data indicate that short- and long-term solutions should be implemented to maintain public mental health. This study found that Facebook and Instagram negatively affected 31.0% of the students. Baseless news posted on Facebook and Instagram caused pessimism in the students and negatively affected their mental health. Inaccurate information and comments cause fear in society. Technology facilitates access to information, but can also facilitate the spread of information pollution. Social media being full of accurate and inaccurate information at the same time caused anxiety in the students. Images of sick people having difficulty breathing and suffering from pain and healthcare professionals' showing the hospitals during the pandemic on Facebook and Instagram negatively affected the students. People who do not obey the quarantine or public health measures caused anxiety among students since they facilitate the spread of the virus. The results of this study are important in terms of determining the negative effects of videos posted on Facebook and Instagram on students (Basch et al., 2020). Active social media users and the recorders of these videos have important responsibilities in the proper management of this situation. In order to maintain public mental health, it is important that people should consider the effects of their posts on the public before posting them. It was found

that 9.5% of the students were negatively affected by Twitter posts that caused fear, panic and anxiety. These negative effects are caused by inaccurate information, the increasing number of deaths and the fact that these data are shared publicly (Kouzy et al., 2020). This study found that the students who were negatively affected by TV programs about Covid-19 were not negatively affected by the information provided by health professionals and the warning about hygiene rules, but were negatively affected by the ideas of people around them and by Facebook and Instagram. The results indicate that information provided by health professionals did not negatively affect the students, but the information pollution on Facebook and Instagram did (Basch et al., 2020).

This study found that the students who were negatively affected by Facebook and Instagram were not negatively affected by hygiene warnings of health professionals, but were negatively affected by the ideas of people around them and Twitter. The results of this study are similar to those of other studies of social media's important role in the spread of inaccurate information (Wang et al., 2020).

**Conclusion:** The characteristics of the Covid-19 virus (spreads rapidly, high fatality) and public health measures (quarantine, hygiene rules) affect students, people older than 65 and people younger than 20. The students were negatively affected by the TV programs, Facebook, Instagram and Twitter from which they obtained information about the Covid-19 pandemic. This study determined that information sources about Covid-19 caused the students to experience feelings such as worry, anxiety, fear and uncertainty. The students who were negatively affected by social media were not negatively affected by the information and hygiene-related warnings of health professionals. The students who were negatively affected by TV programs were also negatively affected by Facebook and Instagram. Those who were negatively affected by Facebook and Instagram were also negatively affected by Twitter. Negative events caused by the pandemic quickly affected many people's mental health because of inaccurate information on social media. The contents, images and messages posted on social media should be posted after psychologists evaluate their psychological, sociological and developmental effects. Although this study's sample size was small, its qualitative questions effectively show the negative effects of

the COVID-19 pandemic on mental health. More comprehensive studies should be carried out in the future to evaluate the effects of the COVID-19 pandemic.

## References

- Adhikari S.P., Meng S., Wu Y.J., Mao Y.P., Ye R.X., Wang Q.Z.,... & Zhou H. (2020). Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review. *Infectious diseases of poverty*; 9:1-12.
- Bao Y., Sun Y., Meng S., Shi J., & Lu L. (2020). 2019-nCoV epidemic: address mental health care to empower society. *The Lancet*; 395: e37-38.
- Basch C.H., Hillyer G.C., Meleo-Erwin Z.C., Jaime C., Mohlman, J., & Basch C.E. (2020). Preventive Behaviors Conveyed on YouTube to Mitigate Transmission of COVID-19: Cross-Sectional Study. *JMIR Public Health and Surveillance*; 6:e18807.
- Brooks S. K., Webster R. K., Smith L. E., Woodland L., Wessely S., Greenberg N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*; 395: 912-920.
- Demirbilek Y., Pehlivanurk G., Ozguler Z. O., & Mese E. A. (2020). COVID-19 outbreak control, example of ministry of health of Turkey. *Turkish Journal of Medical Sciences*; 50: 489-494.
- Garfin D.R., Silver R.C., & Holman E.A. (2020). The novel coronavirus (COVID-2019) outbreak: Amplification of public health consequences by media exposure. *Health Psychology*; 39:355.
- Huang C., Wang Y., Li X., Ren L., Zhao J., Hu Y., ... & Cheng Z. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*; 395: 497-506.
- Jin Y. H., Cai L., Cheng Z. S., Cheng H., Deng T., Fan Y. P., ... & Han Y. (2020). A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus (2019-nCoV) infected pneumonia (standard version). *Military Medical Research*; 7:1-4.
- Kouzy R., Abi Jaoude J., Kraitem A., El Alam M. B., Karam B., Adib E., ... & Baddour K. (2020). Coronavirus goes viral: Quantifying the covid-19 misinformation epidemic on twitter. *Cureus*; 12: e7255.
- Li Q., Guan X., Wu P., Wang X., Zhou L., Tong Y., ... & Xing X. (2020). Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *New England Journal of Medicine*; 382: 1199-1207.
- McFadden S.M., Malik A.A., Aguolu O.G., Willebrand K.S., & Omer S.B. (2020). Perceptions of the Adult US Population regarding the Novel Coronavirus Outbreak. *PloS one*; 15: e0231808.

- Pellecchia U., Crestani R., Decroo T., Van den Bergh R., & Al-Kourdi Y. (2015). Social consequences of Ebola containment measures in Liberia. *PLoS One*; 10:e0143036-e0143036.
- Sahu K. K., Mishra A. K. & Lal A. (2020). COVID-2019: update on epidemiology, disease spread and management. *Monaldi Archives for Chest Disease*; 90: 1292.
- Wang C., Pan R., Wan X., Tan Y., Xu L., McIntyre R. S. ..& Ho C. (2020). A Longitudinal Study on the Mental Health of General Population during the COVID-19 Epidemic in China. *Brain, Behavior, and Immunity*;
- Yoon M.K., Kim S.Y., Ko H.S. & Lee M.S. (2016). System effectiveness of detection, brief intervention and refer to treatment for the people with post-traumatic emotional distress by MERS: a case report of community-based proactive intervention in South Korea. *International Journal of Mental Health Systems*;10: 51.
- Zarocostas, J. (2020). How to fight an infodemic. *The Lancet*; 395: 676.