

Stress and anxiety resulting from COVID-19 in the Iranian population – a questionnaire-based study

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Abstract

Introduction

The COVID-19 disease, which has come to be known as Corona, is a new virus from the generation of coronaviruses. The aim of this study was investigated the stress and anxiety caused by COVID-19 among the Iranian population.

Method and materials

This is a cross-sectional and descriptive – analytical study with the available (easy) sampling method over the period of July 2020 to Jan 2021 on the Iranian population using a questionnaire. A researcher-made questionnaire was used. The data collection tool of this study was a questionnaire containing demographic information (age, gender, and marital status), general questions and questions related to the stress of COVID-19. The collected information were analyzed using t- test, chi2 and the SPSS21 software.

Results

In the present study, 6752 questionnaires were distributed, 6534 of which were filled out. 3456 of the respondents were female and the remaining 3078 were male. The average age of participants was 39.41 ± 12.4 . The results of this study showed that 98.2% (No: 6425) of the individuals agreed that their stress was related to this natural disease. The results showed that the stress caused by corona has the most significant impact on the social aspect and then on the physical behaviors of the patients. The present study showed that the average score obtained from the questionnaire was 97.2 ± 15.3 out of 130 which was an indication of high levels of stress caused by this disease. There was a significant relationship between the scores associated with gender ($P = 0.001$), job ($P = 0.01$), one's infection ($P = 0.001$) and one's family's viral infection ($P = 0.02$).

Conclusion

It seems that the psychological role of this disease on the people involved and on the public is completely known to everyone. In fact, it must be mentioned that focusing on the physical health structures and preventing the prevalence and treating this disease, special attention must be paid to the mental health of the society as well. For this purpose, basic psychological interventions and psychiatric disorders, including anxiety and depression, among members of a society seems necessary.

Introduction

The Corona viruses are a large group of viruses that infect animals and humans and cause respiratory problems and distresses; which could be as mild as a cold or as severe as a pneumonia. In rare cases, animal corona viruses can infect humans as well and spread among them (SARS virus in the years 2002–2003 and the MERS virus in 2012) (1).

The COVID-19 disease, which has come to be known as Corona, is a new virus from the generation of coronaviruses. On the 31st of December of 2019, the World Health Organization (WHO) discovered some reports on a cluster of viral pneumonia with unknown causes in Wuhan, Hubei and investigation began in early January of 2020. On the 30th of January, WHO announced the outbreak of a global public health emergency as an international concern(2, 3).

There is no definitive cure for this disease to date and the medical knowledge and information about it is still very little. This epidemic has caused global economic and social disorders. The news of the diseases and casualties caused by this virus, along with the fact that many people might be a carrier of this virus for two weeks or even more, without knowing it, in addition to the inaccurate information that is shared on social media and collective media about the virus, the level of stress and fear people experience when facing this virus is quite high (4, 5, 6).

Despite continuous efforts on the part of researchers all over the world, to this date, a vaccine or antiviral drug has yet to be provided for COVID-19 infections which would be clinically effective on human beings. In addition, lack of a certain treatment or prevention method has caused societies to be quite stressed and worried. The fear and anxiety caused by the probable infection have created a great deal of damaging mental load which can lead to mental and spiritual abnormalities, weaken the immune system and reduce the body's ability to fight illnesses in members of the society. The most stress is caused because an individual feels that their own life, their future as well as the lives of their loved ones and families are in danger. However, stress is the emotion that keeps humans away from harmful situations. If the stress caused by COVID-19 makes individuals observe individual hygiene and health, to avoid getting together with other people and forming communities and to observe house quarantine, this stress will be quite useful and constructive; only if it does not exceed logical behaviors and does not get damaging and disorder-like (8, 7).

Based on the announcement of WHO, from December of 2019 to May of 2020, in more than 490 countries of the world, around 6,299,019 new cases and 112,966 deaths were reported. During the same period of time, in Iran, the number of new cases was 416,661 and the number of deaths was 6000 new cases. Russia, Brazil and USA were the countries with the highest number of cases. In the January of 2020, WHO declared the COVID-19 epidemic to be a public health emergency of international concern. Based on the global statistics, the mortality rate of 3.4% has been recorded for this disease (9). In Iran, the first confirmed case of infection was on February 19th in Qom. According to the ministry of health and medical education, two people lost their lives that day (10). The present study has aimed to investigate the stress and anxiety caused by COVID-19 among the Iranian population.

Method And Materials

This is a cross-sectional and descriptive – analytical study with the available (easy) sampling method over the period of July 2020 to Jan 2021 on the Iranian population using a questionnaire. The criteria for entering this study was 18 or higher year of age, literacy or the ability to read and write, expressing

informed verbal consent and not being in a critical situation (such as divorce, loss of a loved one, illness or hospitalization experienced by themselves or their immediate family and loved ones). Individuals who entered the study were reassured that in case they were willing to fill out the questionnaire, their information would remain confidential and it is merely meant for statistical analysis. A researcher-made questionnaire was used and in order to confirm its validity, it was given to three psychiatrists and a statistics specialist who confirmed the validity of the questionnaire. In addition, to test the reliability of the questionnaire, it was given to 20 of the members of the research population within ten days. It was proved that this questionnaire was properly reliable (coefficient of Cronbach's alpha = 0.85).

By taking the conditions of each individual into consideration, sufficient time was considered for filling out the questionnaire. The data collection tool of this study was a questionnaire containing demographic information (age, gender, and marital status), general questions and questions related to the stress of COVID-19. The questions were scored based on the Likert scale (scaling from totally agree with the score 5 to totally disagree with the score 1). Thus, the score obtained for this questionnaire was between 26 and 130. The collected information were analyzed using t-test, χ^2 and the SPSS21 software.

Results

In the present study, 6752 questionnaires were distributed, 6534 of which were filled out. 3456 of the respondents were female and the remaining 3078 were male. The average age of participants was 39.41 ± 12.4 . Most individuals were freelancers or employed workers. Most of the respondents had an associate degree and then a diploma. Table 1

Table 1
Demographic characteristics of the participants (N = 6543)

Characteristic	No	%
Gender	3078	47.1
Male	3456	52.9
female		
Age (Mean ± SD) (years)	37.23 ± 9.61	
Male	41.61 ± 15.28	
female		
Age range	18–72	
Male	19–95	
female		
Age	3265	49.9
35≥	3278	50.1
35<		
Marital status	2100	32.1
Married	4443	67.9
No married		
Education	1025	15.7
≤Diploma	5518	84.3
>diploma		
Occupation	4002	61.2
Employee	2541	38.8
No employee		

This study shows that 5.7% of the respondents had been infected by the corona virus, and 12.4% of the respondents have had one of their family members dealing with the infection. In addition, 24.9% of the respondents considered themselves to be an anxious person. Table 2

Table 2
The participants' answers to the general questions (N = 6543)

Characteristic	Yes		No	
	No	%	No	%
Have you had corona?	831	12.7	5712	87.3
Has any of your family members, friends or associates had corona?	1596	24.4	4947	75.6
Are you an anxious person with high stress levels in general?	1629	24.9	4914	75.1

The results of this study showed that 98.2% (No: 6425) of the individuals agreed that their stress was related to this natural disease. The present study showed that highest levels of stress was associated with this viral infection and the second highest level was associated with the family member's viral infection.

The results showed that the stress caused by corona has the most significant impact on the social aspect and then on the physical behaviors of the patients. In such a way that the stress caused by this viral infection increases one's heart rate and causes sleeping problems. In addition, as far as the social aspect is concerned, because of COVID-19, individuals did not visit the dentist as much and were worried about losing their teeth too. The effect of corona on one's job, education and even daily workouts were other factors that caused stress. Table 3

Table 3
The participants' answers to the questionnaire questions (N = 6543)

Question	Totally Agree	Agree	No Opinion	Disagree	Totally Disagree
I am very much afraid of the coronavirus.	3251	2254	214	582	242
Thinking about the coronavirus makes me sad.	3025	2013	102	558	845
Thinking about the coronavirus makes me anxious and stressed.	3214	2256	11	458	413
I am worried that I might be infected by the coronavirus without any symptoms and infect other people.	2514	3012	105	502	410
I am worried that my observation of health protocols is not enough.	2581	3458	151	261	92
I am afraid that my job would require the observation of health protocols that have not been thought about yet.	2547	3560	261	521	129
I am afraid that I would be forced to stop working out as it is quite risky.	2563	3103	201	547	129
Due to the high transmission of coronavirus through dental works, I am afraid of going to the dentist and I feel like I need to tolerate the pain and I might ultimately lose my tooth.	3256	2089	202	508	488
Due to the high chance of transmission of the coronavirus through dental work, the dentists must limit their works, or do them faster with a lower quality.	3041	2753	205	503	41
When I think about the coronavirus or talk about it, my body shakes.	2563	3014	241	523	202
When I think about the coronavirus or talk about it, I experience muscle spasm.	2984	2501	231	542	281
I am afraid that the diagnostic kit is not accurate, and I am affected, because I have symptoms similar to the coronavirus symptoms.	2541	3404	211	246	41
When I think about the coronavirus, my hand sweats.	3202	2408	203	248	82
I am worried of losing my life because of the coronavirus.	2874	3531	251	371	16
I am worried of losing my family because of the coronavirus.	2563	3605	208	107	60

Question	Totally Agree	Agree	No Opinion	Disagree	Totally Disagree
I am worried of losing my friends because of the coronavirus.	2601	3045	208	561	128
I am worried of losing my job because of the coronavirus.	2531	3413	251	321	27
I am afraid that my academic condition would be harmed because of the coronavirus.	2989	2801	262	280	111
I am afraid that my economic condition would be harmed because of the coronavirus.	3350	2601	242	223	97
I get nervous and angry when I see or read the news about the coronavirus.	2698	3403	258	161	23
I am experiencing sleep disorders because of the coronavirus.	2458	3414	248	248	175
I am experiencing some food-related problems because of the coronavirus.	2339	3556	256	330	62
When I think about the coronavirus my heart rate goes up.	3557	2556	215	162	53
Because I am afraid of being infected with corona, I do not visit the hospital.	3602	2289	218	241	93
My fear of the coronavirus has affected my family as well.	3312	2805	217	104	105
My fear of the coronavirus has affected my social relationship as well.	2564	3403	256	221	101

The present study showed that the average score obtained from the questionnaire was 97.2 ± 15.3 out of 130 which was an indication of high levels of stress caused by this disease. There was a significant relationship between the scores associated with gender ($P = 0.001$), job ($P = 0.01$), one's infection ($P = 0.001$) and one's family's viral infection ($P = 0.02$).

By comparing the score of stress based on the age variable, it was shown that there was a higher level of stress in the age group of 30 to 40 years and 50 to 60 years which is statistically significant ($P = 0.001$). In addition, the level of stress was higher in female respondents than male ones ($P = 0.001$), in employed respondents than in those without a job (0.001), in married respondents than single respondents ($P = 0.03$). Table 4

Table 4
Relationship between demographic characteristics and score higher than the questionnaire in participants

Demographic characteristics	Score higher than the questionnaire
	P value
Age (equal to and less than 35 vs. more than 35)	*0.001
Gender (female vs. male)	*0.001
Married (married vs. single)	*0.003
Job (having a job versus not having a job)	*0.001
Infection of the Covid 19	*0.001
One's family's Covid 19 infection	*0.02
*P < 0.05 is significant	

Discussion

Fear and anxiety caused by the possibility of infection are quite harmful and damaging and can cause mental – spiritual abnormalities and disorders as well as stress. The fear and stress are created through the stimulation of hypothalamus in the brain and the increased secretion of cortisol from the adrenal cortex and stimulation of the sympathetic nerves throughout the whole body in the short term for the body to overcome stressful factors. However, if this fear and stress and body's response, i.e. increased level of cortisol and sympathetic stimulation, remains in the body in the long run, it would be harmful and damaging, weakens the immune system and reduces body's ability to fight diseases such as corona. Therefore, coping with stress makes the society more resistance to illnesses (6, 11, 12).

When one faces severe and long-term stress and is not able to manage this stress, due to the severe and long-term increase of the cortisol hormone in the body, they would face issues such as sleep disorders, obesity, decreased tolerance threshold and weakened performance of the defensive system (13).

Clinical observations and studies have shown that during this pandemic, many people have dealt with the stress associated with the fear of being infected, touching different surfaces and objects that might be infected, and the fear of social – economical consequences caused by the pandemic (14).

Stress can weaken the body's immune system and make it vulnerable to diseases such as the corona virus. In such cases, the elderly and the people suffering from chronic diseases are more likely to be affected by COVID-19 and the stress caused by it. Children and teenagers, individuals that help others due to their responsibilities (such as doctors and other caretakers or social workers) and individuals who consume drugs due to certain mental health conditions experience more stress. According to the findings

of previous studies conducted at the time of spread of the SARS and the Ebola, psychological disorders such as anxiety, stress and depression were reported to be highly prevalent (15).

This study showed that those under study have had high levels of stress. Also, there was a significant relationship between the scores associated with gender, job, one's infection and one's family's viral infection. By comparing the score of stress based on the age variable, it was shown that there was a higher level of stress in the age group of 30 to 40 years and 50 to 60 years which is statistically significant. In addition, the level of stress was higher in female respondents than male ones, in employed respondents than in those without a job, in married respondents than single respondents.

With the spread of corona in China in the December of 2019 and in Europe in the February of 2020, national polls showed an increase in the intensity of the fears and concerns associated with the virus (16).

In another poll from 44000 participants in early April of 2020 in Belgium, 20% of the respondents reported to have anxiety and 16% of them reported depression disorders; which showed a 11-percent increase in comparison with the poll done in 2018, which is a significant increase (17).

Preliminary reports showed the negative approach in countries fighting with corona is intensely affected by the coronavirus. Preliminary reports show that people are afraid of the virus due to numerous reasons. Especially, Taylor et al. (18) have recently developed the coronavirus stress scale (CSS) and identified five stress factors and the symptoms of anxiety associated with the coronavirus in two big cases, i.e. Canada and USA: (1) risk and infection, (2) fear of economic consequences, (3) coronavirus-related Xenophobia, (4) obligatory examination for reassurance and (5) harmful stress factors.

Lai et al. (19) in a study done on the doctors and nurses in Wuhan, China at the time of the spread of the coronavirus, stated that medical care workers experience high levels of stress. These findings are compatible with the findings of the study of Koh et al (20).

The findings of the present study showed that the scores associated with stress were higher in women than men. The study conducted by Li et al. (21) showed that women report a higher level of stress and anxiety related to COVID-19. Gerhold et al. (22) conducted a study in Germany and concluded that women were more worried about COVID-19 than men.

According to the findings of Bakioğlu et al. (23) the fear of COVID-19 was significantly higher in women than in men and it is also higher in individuals suffering from chronic illnesses in comparison with those that do not suffer from any chronic illness.

Gender-related differences in association with the fear caused by COVID-19 comply with this finding that the coronavirus pandemic causes more mental effects in women, which is compatible with the findings of previous studies about the mental health of women (24).

Gender is a factor that affects the health of individuals (25). In general, women deal with pressures caused by the environment much better; nonetheless, they are usually physically weaker and get sick easier (26). Another factor that might be effective in this regard is that women are more vulnerable, weaker, and more delicate and culturally, it is easier for them to voice their complaints and fears about the illness. On the other hand, the role of gender focuses on the power, bravery and fearlessness of men is emphasized.

In the present study, there was a significant relationship between age and stress. It seems that as people get older, their level of energy reduces, they have more responsibilities and other social communications. In addition, physical problems occur much more as people get older, which correlated with mental issues which justifies the relationship between age and stress.

This study showed that individuals infected by COVID-19, or those with a family member who was infected, experience a higher level of stress. In this pandemic, many people lost their loved ones which increases the mental pressures and threats they face. Individuals who have gone through the infection might feel ashamed and guilty. This only makes the condition of those suffering from special mental disorders worse. These people might face many psychological problems such as depression, anxiety, intense panic attacks, physical symptoms, nervous shocks and post-traumatic stress, delusions, psychosis and even suicide attempts. At younger ages, this makes people blame themselves more.

Mertens et al. (27) showed that the stress caused by losing one's family member or friends is more intense than the stress associated with one's life. In the study of Mertens et al., (27) worrying about the health of family members is reported to be the most significant concern of people and the best predictor of the coronavirus. These findings are compatible with the findings about the swine flu in 2009–2010. The findings of the study conducted by Mertens et al. (27) that another factor that has drawn lots of attention to itself, along with worrying about one's safety and behaviors associated with safety is the effect of the coronavirus on the health care system, economy and society. The participants of this study were worried about losing their job and/or changes that are made in their daily routines. These findings are compatible with the results of the present study.

By reviewing the results of various studies focused on COVID patients in China at the time of spread of the coronavirus, it was reported that psychological disorders, such as depression, fear, anxiety, emotional transformations, insomnia, post-traumatic stress, were highly prevalent among these patients. The unbridled spread of COVID-19, the poor conditions of patients with respiratory problems isolated in the intensive care unit of the hospital, lack of an effective medicine and finally, the deaths caused by this disease, there are most important factors that can affect the patients' mental health (28, 29).

According to the examinations, COVID-19 patients have a lower psychological tolerance. Given the current condition of this virus all around the world, these people are highly exposed to psychological disorders such as anxiety, stress, fear, depression as well as negative thoughts (29).

The results of a research on the quality of sleep of people in quarantine for 14 days at the time of spread of COVID-19 in China showed that sleep disorders are related to the anxiety and stress of these individuals and with the help of proper social support, the quality of sleep could be improved.

It also seems that there are some factors could affect the occurrence of such psychological symptoms in most people. Some of these factors are concerns with the risk of being infected, status of future career, source of income of individuals and families, as well as a long period of home quarantine (30).

University students are considered as other people who are likely to show such psychological symptoms at the time of the spread of the coronavirus. In such a way that at the beginning of the spread of this disease in Iran, like other countries in the world, the universities were among the first organizations to be shut down as an effort to prevent the spread of COVID-19 at a larger scale. Based on the results of a research conducted in China throughout the H1N1 flu pandemic in 2011, about two percent of university students showed symptoms such as post-traumatic stress (31).

According to the results of a study conducted in China on more than 1172 students at the time of spread of COVID-19, it was concluded that about 24.9% of the students experienced anxiety. Out of all students, about 9% of students reported symptoms of severe anxiety and mild anxiety (32).

One of the most important causes of anxiety among students is the concern with the effect of the coronavirus on the academic future, professional future and reduction of social communications. In addition, the anxiety factor among students might be the problem they face in paying the fees of their universities due to the loss of their source of income which might be caused by unemployment and loss of job.

Finally, based on the findings of a research, one's family member's COVID-19 infection is another one of the factors that causes anxiety among students.

Various attempts have been made to support one's self and to reduce stress such as avoiding watching, listening to or reading about the same repeated news about the coronavirus which are shared by social media. Listening to the news over and over again in Iran and around the world is quite stressful and increases fear and concern (4).

At the time of quarantine, taking care of one's body by controlling stress becomes more and more important. Relaxation techniques, deep mindful breathing techniques, stretching and sports such as yoga are highly recommended. In addition, having a healthy and balanced diet, regularly working out, enough sleep and rest and finally, not smoking or consuming alcohol are some ways to take care of our body (5).

Conclusion

It seems that the psychological role of this disease on the people involved and on the public is completely known to everyone. In fact, it must be mentioned that focusing on the physical health structures and preventing the prevalence and treating this disease, special attention must be paid to the mental health of

the society as well. For this purpose, basic psychological interventions and psychiatric disorders, including anxiety and depression, among members of a society seems necessary.

Declarations

- Ethical Approval and Consent to participate

This study was designed as a descriptive analytic and cross-sectional study with the ethical code of IR.Kmu. 449/99. It was approved by the Institutional Human Research and Ethics Committee of Kerman University of Medical Sciences, Kerman, Iran.

- Consent for publication

All authors Consent to publish this article

- Availability of supporting data

Yes

- Competing interests

No conflict of interest

- Funding

No funding

- Authors' contributions

Ali Sadeghi Goghari: data collection

Amirhossein Gandjalikhan Nassab: Study design, data collection

Maryam Alsadat Hashemipour^{manuscript} preparation, study design

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References

1. Lau SKP, Luk HKH, Wong ACP, Li KSM, Zhu L, He Z, et al. Possible bat origin of severe acute respiratory syndrome coronavirus 2. *Emerg Infect Dis.* 2020;26:1542-1547.

2. Sun J, He WT, Wang L, Lai A, Ji X, Zhai X, et al. COVID-19: epidemiology, evolution, and cross-disciplinary perspectives. *Trends Mol Med*. 2020;26:483-495.
3. Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The fear of COVID-19 scale: development and initial validation. *Int J Ment Health Addict*. 2020 ;27:1-9.
4. Asmundson GJG, Taylor S. Coronaphobia: Fear and the 2019-n CoV outbreak. *J Anxiety Disord*. 2020;70:102196.
5. Asmundson GJG, Taylor S. How health anxiety influences responses to viral outbreaks like COVID-19: What all decision-makers, health authorities, and health care professionals need to know. *J Anxiety Disord*. 2020;71:102211.
6. Aderson RM, Heesterbeek H, Klinkenberg D, Hollingsworth TD. How will country-based mitigation measures influence the course of the COVID-19 epidemic? *The Lancet*2020;10228:931-4.
7. Taylor S, Landry CA, Paluszczek MM, Fergus TA, McKay D, Asmundson GJG. Development and initial validation of the COVID Stress Scales. *J Anxiety Disord*. 2020;72:102232.
8. Li R, Pei S, Chen B, Song Y, Zhang T, Yang W, et al. Substantial undocumented infection facilitates the rapid dissemination of novel coronavirus (SARS-CoV2). *Science*. 2020;368: 489–493.
9. Sutton D, Fuchs K, D'Alton M, Goffman D. Universal screening for SARS-CoV-2 in women admitted for delivery. *N Engl J Med*. 2020;382:2163-2164.
10. Naserghandi A, Allameh SF, Saffarpour R. All about COVID-19 in brief. *New Microbes New Infect*. 2020;35:100678.
11. Barrett KE, Barman SM, Brooks HL, Yuan J. *Ganong's Review of Medical Physiology*. 26th Edition. McGraw- Hill Education: 2019.
12. Yaribeygi H, Panahi Y, Sahraei H, Johnston TP, Sahebkar A. The impact of stress on body function: A review. *EXCLI J*. 2017;16: 1057–72.
13. Satici B, Gocet-Tekin E, Deniz ME, Satici SA. Adaptation of the fear of COVID-19 scale: Its association with psychological distress and life satisfaction in Turkey. *Inter J Mental Health Addict*. 2020; <https://doi.org/10.1007/s11469-020-00294-0>.
14. Pakpour AH, Griffiths MD. The fear of COVID-19 and its role in preventive behaviors. *J Con Dis* .2020;2:58–63.
15. Giorgi G, Lecca LI, Alessio F, Finstad GL, Bondanini G, Lulli LG, al. COVID-19-related mental health effects in the workplace: a narrative review. *Int J Environ Res Public Health*. 2020 27;17:7857.
16. Asmundson GJG, Taylor S. Coronaphobia: Fear and the 2019-nCoV outbreak. *J Anx Dis*. 2020;70:102196.
17. Sciensano. 2020. COVID-19 gezondheidsenquête: Enkele voorlopige resultaten.https://www.sciensano.be/sites/www.wiv-isp.be/files/report_final_nl_0.pdf
18. Taylor S, Landry CA, Paluszczek MM, Fergus TA, McKay D, Asmundson GJG. Development and initial validation of the COVID stress scales. *J Anx Dis*. 2020;72:102232.

19. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to Coronavirus disease 2019. *JAMA Netw Open*. 2020 ;3: e203976.
20. Koh D, Lim MK, Chia SE, Ko SM, Qian F, Ng V, et al. Risk perception and impact of severe acute respiratory syndrome (SARS) on work and personal lives of healthcare workers in Singapore what can we learn? *Medical Care*. 2005;676-82.
21. Li S, Wang Y, Xue J, Zhao N, Zhu T. The impact of covid-19 epidemic declaration on psychological consequences: A study on active Weibo users. *Int J Environ Res Public Health* 2020, 17, 2032.
22. Gerhold L. COVID-19: Risk perception and Coping strategies. *Psy Ar Xiv Prepr*. 2020;12:124-128
23. Bakioğlu F, Korkmaz O, Ercan H. Fear of COVID-19 and positivity: mediating role of intolerance of uncertainty, depression, anxiety, and stress. *Int J Ment Health Addict*. 2020;28:1-14.
24. Lim GY. Prevalence of depression in the community from 30 countries between 1994 and 2014. *Scientific Reports* 2018; 8, 28–61.
25. Eryiğit Günler O. Hemodiyaliz hastalarında hastalığa bağlı toplumsal rol değişimi beklenti ve sorunları: bir sağlık sosyolojisi çalışması. unpublished master's thesis. Konya: Selçuk Üniversitesi, Sosyoloji Anabilim Dalı. Euronews. (2020a).
26. Pakpour AH, Griffiths MD. The fear of COVID-19 and its role in preventive behaviors. *J Con Diso*. 2020;2(1), 58–63.
27. Mertens G, Gerritsen L, Duijndam S, Salemink E, Engelhard IM. Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. *J Anxiety Disord*. 2020;74:102258.
28. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al.. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Inter J Envi Res Public Health*. 2020; 17:17– 29.
29. Nicomedes CJC, Avila RMA. An analysis on the panic of Filipinos during COVID-19 pandemic in the Philippines. *J Affect Disord*.2020; 276: 14–22.
30. Huang Y, Zhao N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: A web-based cross-sectional survey. *Psychiatry Res*.2020; 288: 112954.
31. Xu J, Zheng Y, Wang M, Zhao J, Zhan Q, Fu M, et al. Predictors of symptoms of posttraumatic stress in Chinese university students during the 2009 H1N1 influenza pandemic. *Med Sci Monit*. 2011 ;17:PH60-4.
32. Wang C, Zhao H, Zhang H. Chinese college students have higher anxiety in new semester of online learning during COVID-19: A machine learning approach. *Front Psychol*. 2020 3;11:587413.