



The Anxiety and Stress of the Public during the Spread of Novel Coronavirus (COVID-19)

Nehad J. Ahmed^{1*}, Abdulrahman S. Alrawili² and Faisal Z. Alkhawaja²

¹*Department of Clinical Pharmacy, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia.*

²*College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia.*

Authors' contributions

This work was carried out in collaboration among all authors. Author NJA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors ASA and FZA managed the analyses of the study. Author NJA managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: This study aims to assess the public anxiety and stress during the spread of novel Coronavirus (COVID-19).

Methodology: The survey was prepared using CDC "Daily Life & Coping with Coronavirus Disease 2019" section. The data were collected and analyzed using Excel software. The descriptive data were represented by frequencies and percentages.

Results: About 91% of the 304 respondents fear and worry about their own health and the health of their families and about 82.24% of them are worried about the effect of the disease spreading on work and study. The majority of the respondents think that people infected with the Coronavirus will experience social rejection and avoidance from others (61.51%) but only 12.5% think that people with the disease may be deprived of health care, education, housing and work.

Conclusion: COVID-19 spreading increase the stress and worry of the public regarding their health, their family health and negative economic effect of the disease. It is important to increase the awareness regarding COVID-19 and to improve the communication of health care professionals and the public with infected patients.

Keywords: Anxiety; coronavirus; COVID-19; stigma; stress.

*Corresponding author: E-mail: pharmdnehadjaser@yahoo.com, n.ahmed@psau.edu.sa;

1. INTRODUCTION

A novel coronavirus (COVID-19) has been isolated in Wuhan, Hubei Province, China could result in acute illness with serious symptoms [1]. On 11 February 2020, the WHO officially named the disease caused by the 2019-nCoV as coronavirus disease (COVID-19) [2]. Coronavirus 2 (SARS-CoV-2) is spreading in numerous countries, threatening a pandemic that could affect millions of people. This virus seems to be a novel human pathogen. Presently, there are no vaccines to prevent it nor drugs available for SARS-CoV-2 treatment [3].

The clinical symptoms of COVID-19 patients include fatigue, cough, fever and some gastrointestinal infection symptoms [4]. Moreover, many patients develop pneumonia or acute distress syndrome. Approximately a third of patients who were infected with SARS-CoV-2 become critically ill and need an admission to intensive care unit [5].

The best way to stop illness is to avoid being exposed to this virus. This coronavirus is thought to spread mainly from one person to another person, specially, between people who are in close contact with one another and when an infected person coughs or sneezes through respiratory droplets [6].

The outbreak of coronavirus disease 2019 may be stressful for people. Anxiety and fear caused by the disease spreading can be overwhelming and could cause strong emotions. Coping with stress is very important because it will make the patient, patient relatives and the community stronger [7].

In addition to the anxiety over personal and family health, and disruptions to social relations and jobs, the stress caused by spreading disease such as flu can lead to the stigmatization of marginalized social groups [8]. People who are subjected to rejection or social avoidance frequently internalize the stigma they experience, a process that leads to intensified psychological stress and anxiety and in some cases it could lead to an increased susceptibility to illness [9-11]. Coughlin reported that there are important linkages between anxiety and depression and viral diseases [12].

In order to lessen the undesirable consequences of stigmatization during pandemic outbreaks, public health officials must learn to identify the dynamics that underlie this process, specially to protect members of disadvantaged population

groups [9,13]. This study aims to assess the public anxiety and stress during the spread of novel Coronavirus (COVID-19).

2. METHODOLOGY

This was a cross-sectional study included a survey that was prepared using CDC "Daily Life & Coping with Coronavirus Disease 2019" section [7]. Sample size was calculated by Raosoft 'sample size calculator using margin of error =5 %, confidence level=90% and response distribution of 50%. The minimum recommended sample size of the survey is 271 participants.

The survey was prepared in English and after that translated to Arabic to help the public to fill it. The survey was validated by health care specialists and after modifications it is prepared using google form and was sent to be filled online.

Only participants less than 10 years old were excluded, the other participants were included. The survey includes 3 parts:

The first part includes demographic data and includes age, gender, Occupation and a close ended question if any of the respondents' relatives or friend has coronavirus infection.

The second part include close ended questions about the stress during the infection outbreak and includes the following questions:

1. Are you fear and worry about your own health and the health of your loved ones?
2. Do you feel any changes in sleep patterns?
3. Do you feel any changes in eating patterns?
4. Do you have difficulty in sleeping or concentrating?
5. Do you think that the infectious disease outbreak leads to worsening of chronic health problems?
6. Do you consume more drinks such as coffee, tea or energy drinks in this period and if you are smoker, do you smoke more cigarettes daily?
7. Are you worried about increasing unemployment and about bad economic conditions due to the disease spreading?
8. Are you worried about the effect of the disease spreading on work and study?
9. Has the purchase and storage of food and basic commodities increased with the spread of the disease?

The third part include information about the social effects of the disease and includes the following questions:

1. Do you think that people infected with the coronavirus will experience social rejection and avoidance from others?
2. Do you think people with the disease may be deprived of health care, education, housing and work?
3. Do you think that people with the disease may experience physical violence?

The data in the study were general and therefore the ethical approval wasn't needed.

The data were collected and analyzed using Excel software. The descriptive data were represented by frequencies and percentages.

3. RESULTS

The number of respondents who filled the survey was 304. About 78% of them were female. The majority of the participants were in the age level between 10-29. Table 1 shows the age of the participants and Table 2 shows the demographic data of the respondents.

Table 1. Age of the participants

| Age | Number | Percentage |
|-------|--------|------------|
| 10-19 | 164 | 53.94 |
| 20-29 | 107 | 35.20 |
| 30-39 | 21 | 6.91 |
| 40-49 | 10 | 3.29 |
| 50-59 | 2 | 0.66 |

About 91% of the respondents are feared and worried about their own health and the health of their families and about 82.24% of them are worried about the effect of the disease spreading on work and study. The stress during the infection outbreak is shown in Table 3.

The majority of the respondents think that people infected with the coronavirus will experience

social rejection and avoidance from others (61.51%) but only 12.5% think that people with the disease may be deprived of health care, education, housing and work. Table 4 shows the social effects of the COVID-19 disease.

4. DISCUSSION

The number of respondents who filled the survey was 304. The majority of them were female and more than half of the respondents were between 10-19 years old. Most of the participants don't feel any changes in sleeping, concentrating or in eating patterns. Moreover, the majority didn't consume more drinks that include caffeine such as tea and coffee.

On the other hand, the majority of the respondents said that they are feared and worried about their own health and the health of their loved ones. Additionally, most of them think that the infectious disease outbreak leads to worsening of chronic health problems and lead to unemployment and bad economic conditions. Moreover, they are worried about the effect of the disease spreading on work and study.

About 52.63% of them purchased and stored food and basic commodities with the spread of the disease more than normal purchasing and storage.

The public are worried about the spreading of the infection and its consequences but the majority of them are young, students and don't have chronic problems. If they are older, if they have chronic diseases or if they are health care providers their stress and worry will be more. CDC reported that some people may respond more strongly to the stress of a crisis such as old people, people with chronic diseases, children and teens people who are helping with the response to COVID-19 like health care providers and people who have mental health conditions including problems with substance use [7].

Table 2. Demographic data

| Variable | Category | Number | Percentage |
|--|----------------------------|--------|------------|
| Gender | Male | 67 | 22.04% |
| | Female | 237 | 77.96% |
| Employment status | Employer | 43 | 14.14% |
| | Student or not an employer | 261 | 85.86% |
| Does any of your relatives or friend has coronavirus infection | Yes | 6 | 1.97% |
| | No | 298 | 98.03% |

Table 3. The stress during the infection outbreak

| Variable | Category | Number | Percentage |
|---|----------|--------|------------|
| Are you fear and worry about your own health and the health of your loved ones? | Yes | 278 | 91.45% |
| | No | 26 | 8.55% |
| Do you feel any changes in sleep patterns? | Yes | 87 | 28.62% |
| | No | 217 | 71.38% |
| Do you feel any changes in eating patterns? | Yes | 56 | 18.42% |
| | No | 248 | 81.58% |
| Do you have difficulty in sleeping or concentrating? | Yes | 111 | 36.51% |
| | No | 193 | 63.49% |
| Do you think that the infectious disease outbreak leads to worsening of chronic health problems? | Yes | 247 | 81.25% |
| | No | 57 | 18.75% |
| Do you consume more drinks such as coffee, tea or energy drinks in this period and if you are smoker, do you smoke more cigarettes daily? | Yes | 67 | 22.04% |
| | No | 237 | 77.96% |
| Are you worried about increasing unemployment and bad economic conditions? | Yes | 213 | 70.07% |
| | No | 91 | 29.93% |
| Are you worried about the effect of the disease spreading on work and study? | Yes | 250 | 82.24% |
| | No | 54 | 17.76% |
| Have the purchase and storage of food and basic commodities increased with the spread of the disease? | Yes | 160 | 52.63% |
| | No | 144 | 47.37% |

Table 4. The social effects of the disease

| Variable | Category | Number | Percentage |
|--|----------|--------|------------|
| Do you think that people infected with the Coronavirus will experience social rejection and avoidance from others? | Yes | 187 | 61.51% |
| | No | 117 | 38.49 % |
| Do you think people with the disease may be deprived of health care, education, housing and work? | Yes | 38 | 12.5% |
| | No | 266 | 87.5% |
| Do you think that people with the disease may experience physical violence? | Yes | 18 | 5.92% |
| | No | 286 | 94.08% |

Most of the participants didn't have a problem in eating or sleeping pattern and this is a good practice because according to CDC there are some activities that leads to decreasing the stress such as eating a healthy well-balanced meal, exercise regularly and to get plenty of sleep [7]. So there is an increasing incidence of stress and anxiety associated with the spreading of the disease although the mortality rate is low in our region.

The majority of the participants also think that people infected with the coronavirus will experience social rejection and avoidance from others. On the other hand, the majority of them don't think that people with the disease may be deprived of health care, education, housing and work and the majority don't think that people with the disease may experience physical violence.

Los Angeles County Department of Mental Health reported that in order to manage people stress there are many activities that you can apply such as to connect with the community and to keep contact with family and friends [14], this is important for the patients to contact with others and it is important for the public to deal with the COVID-19 patients appropriately and they should not avoid the communication with the patients. CDC stated that it is important for the patients to connect with others and to talk with people they trust about their concerns.

Other negative practice that maybe developed is that fear and anxiety about the disease could lead to social stigma toward people, places, or things. For example, some groups of people who may be experiencing stigma because of COVID-19 include persons of Asian descent, people who

have traveled and emergency responders or healthcare professionals. Stigmatized groups may be subjected to social avoidance, rejection or other negative practices [15].

Several previous studies showed that there was a significant psychological impact for the spreading of COVID-19, specially for health care workers. Wang et al reported that more than half of the respondents rated the psychological impact as moderate-to-severe, and about one-third reported moderate-to-severe anxiety [16]. Xiao et al stated that medical staff in China who were treating patients with COVID-19 infection during January and February 2020 had levels of anxiety, stress, and self-efficacy that were dependent on sleep quality and social support [17]. Zhu et al reported that women and those who have more than 10 years of working, concomitant chronic diseases, history of mental disorders, and family members or relatives confirmed or suspected are susceptible to stress, depression and anxiety among health workers during the COVID-19 pandemic [18]. Furthermore, Lai et al stated that participants reported that they experienced psychological burden, particularly women, nurses, those in Wuhan and health care workers who were directly engaged in the diagnosis, management and care for COVID-19 patients [19].

There are numerous psychosocial interventions that might meaningful to help those with high anxiety and stress such as behavior therapies, cognitive behavior therapies, psychodynamic therapies and other psychosocial interventions. Additionally, there are other non-psychological therapies such as pharmacotherapy for stress, depression and anxiety [20].

5. CONCLUSION

The present study shows that COVID-19 spreading increase the stress and worry of the public regarding their health, their family health and negative economic effect of the disease. They also feel that the community will avoid COVID-19 patients. On the other hand, the disease didn't affect the sleeping and eating pattern of the respondents. It is important to increase the awareness of the health care professionals and the public regarding COVID-19.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Yee J, Unger L, Zdravcevic F, Cariello P, Seibert A, Johnson MA, et al. Novel coronavirus 2019 (COVID-19): Emergence and implications for emergency care. *JACEP Open*. 2020;1-7.
2. Who.int. Coronavirus Disease (COVID-19) - events as they happen; 2020. [Cited 30 March 2020]. Available:<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>
3. Casadevall A, Pirofski L. The convalescent sera option for containing COVID-19. *J. Clin Invest*; 2020.
4. Guo Y, Cao QD, Hong Z, Tan Y, Chen SD, Jin HJ, et al. The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak – an update on the status. *Military Med Res*. 2020;7(11).
5. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020;395(10223): 497-506.
6. Centers for Disease Control and Prevention. 2020. Coronavirus Disease 2019 (COVID-19) – Prevention & Treatment. [Cited 30 March 2020] Available:<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>
7. Coronavirus Disease 2019 (COVID-19) [Internet]. Centers for Disease Control and Prevention; 2020 [Cited 30 March 2020] Available:https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html?CDC_AA_refVal=https%3A%3A

- 2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fmanaging-stress-anxiety.html
8. McCauley M, Minsky S, Viswanath K. The H1N1 pandemic: Media frames, stigmatization and coping. *BMC Public Health*. 2013;13(1).
 9. CDC. Crisis and Emergency Risk Communications: Countering Stigmatization; 2020 [Cited 30 March 2020] Available: http://www2c.cdc.gov/podcasts/media/pdf/H1N1_CERC_Stigma.pdf
 10. Scott KA, Tamashiro KLK, Sakai RR. Chronic social stress: Effects on neuroendocrine function. In Fink G, Pfaff DW, Levine JE (Eds.), *Handbook of neuroendocrinology*. Elsevier Academic Press. 2012;521–534.
 11. Bos AE, Pryor JB, Reeder GD, Stutterheim SE. Stigma: advances in theory and research. *Basic Appl Soc Psych*. 2013;35: 1-9.
 12. Coughlin SS. Anxiety and depression: Linkages with viral diseases. *Public Health Rev*. 2012;34(2):92.
 13. DeBruin D, Liaschenko J, Marshall MF. Social Justice in pandemic preparedness. *Am J Public Health*. 2012;102:586-591.
 14. lacounty. Coping with stress during infectious disease outbreaks; 2020 [Cited 30 March 2020] Available: http://file.lacounty.gov/SDSInter/dmh/1069578_CommunicableDisease-StrategiesforCoping-FinalEnglish.pdf
 15. CDC. Coronavirus Disease 2019 (COVID-19); 2020. [Cited 30 March 2020] Available: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/reducing-stigma.html>
 16. 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. *Int. J. Environ. Res. Public Health*. 2020;17:1729.
 17. Xiao H, Zhang Y, Kong D, Li S, Yang N. The effects of social support on sleep quality of medical staff treating patients with Coronavirus disease 2019 (COVID-19) in January and February 2020 in China. *Med Sci Monit*. 2020;26:e923549.
 18. ZHU Z, Xu S, Wang H, Liu Z, WU J, Li G et al. COVID-19 in Wuhan: Immediate Psychological Impact on 5062 Health Workers. *medRxiv*; 2020.
 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(3): e203976.
 20. Thabrew H, Stasiak K, Hetrick SE, Wong S, Huss JH, Merry SN. Psychological therapies for anxiety and depression in children and adolescents with long-term physical conditions. *Cochrane Database Syst Rev*. 2017;1:CD012488.

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