

Mental health of individuals who are deaf during COVID-19: Depression, anxiety, aggression, and fear

Salwa A. Al Majali¹  | Emad M. Alghazo²

¹Department of Applied Psychology,
Al Ain University, Abu Dhabi, UAE

²Department of Special Education,
Al Ain University, Al Ain, UAE

Correspondence

Salwa A. Al Majali, Department of Applied
Psychology, Al Ain University, Abu Dhabi
112611, UAE.

Email: salwaalmajaliabd@yahoo.com and
salwa.almajali@aau.ac.ae

Abstract

This study aims to assess depression and anxiety levels among individuals, who are deaf during the lockdown throughout the first wave of the pandemic United Arab Emirates. The sample of the study consisted of 36 ($n = 36$) individuals aged 20.3 ± 1.2 years, who were deaf from birth. The respondents were divided into two groups; (1) those who were living with their parents ($n = 20$), (2) those who were independently living on their own ($n = 16$). Results of the study indicated that from May to October, there was decrease in the number of normal mental health cases among those living with parents ($p \leq 0.05$). The results of the study show that in the time of the pandemic, deaf people constitute a vulnerable portion of the population. The correlation between living alone and stress levels was 0.78. The correlation between living with parents and stress levels was -0.85 .

KEYWORDS

COVID-19, deaf people, depression, living alone, pandemic

1 | INTRODUCTION

Throughout its existence, the mankind has experienced multiple epidemics, but its worst was during the Medieval Period. The bubonic plague that hit Europe in the 14th century killed around 80% of urban population. Medicine, however, was improving and since the second half of the 20th century, no large pandemics have surfaced. There was one exception though, later known as the Spanish flu, which took around 16 million lives around the world in the 30s of the last century. The current coronavirus disease 2019 (COVID-19) pandemic has caught the global community by surprise (Zhou, 2020). COVID-19 was first documented in December 2019 in Wuhan, a Chinese

megacity with a population of 17 million (Banerjee, 2020). A month later, the epidemiological situation in China was officially acknowledged (Wang et al., 2020). On March 11, 2020, COVID-19 was declared a global pandemic (World Health Organization, 2019). As of June 2020, the number of reported cases in the world has reached 6.2 million, while the death toll has hit 400 thousand (Jakovljevic et al., 2020). Quarantine measures adopted in China during the pandemic failed to prevent the spread of the disease (Xiao et al., 2020a). Keeping borders open and allowing free movement facilitated the rapid transmission of infection across the globe. Many nations have prescribed a 14-day isolation period for people who have been in contact with COVID-19 persons. Other quarantine measures included restrictions or a complete ban on the operation of public transport and other crowded places, like shops, cinemas and etc. (Li et al., 2020). According to estimates, more than three billion people were quarantined during the first wave, which is less than half of the world's population (Xiao et al., 2020b). Prolonged lockdown and stay at home had a negative impact on people's mental health (Zandifar & Badrfam, 2020). Divorces, domestic violence, and negative manifestations of mental disorders surged during quarantine (Shigemura et al., 2020). This was due to several factors, namely being confined to home for an extended period, media coverage, which often caused mass panic among people, the fear of job loss, and an impending economic crisis (Shigemura et al., 2020). When dealing with COVID-induced changes, people in most cases went through stages of coping that correspond to the Kübler-Ross model. This model implies the transition from denial to anger, followed by bargaining, depression, and, finally, acceptance. A person who accepts the new reality understands the importance of quarantine restrictions, is ready for implications (change of lifestyle and decrease in the quality of life), and is under no illusion over the danger of the virus. This sequence of changes in mental states was first detected in citizens of China (Dong & Bouey, 2020; Duan & Zhu, 2020). At that time, psychiatrists and psychologists saw an increasing number of calls. Many people reported confusion, feelings of helplessness, anxiety and depression gradually developing into the fear of the unknown (Bao et al., 2020; Ho et al., 2020). To handle the wave of psychologically stressed people and not get infected, psychologists in China have launched virtual appointments to provide psychological services to quarantined patients remotely (Lima et al., 2020).

The experience of previous pandemics has shown that changes in the human psyche are in many ways associated with isolation. Being confined in an isolated environment during health threats can make individuals experience a rich range of negative emotions, including fear of their parents and close friends getting infected, aggression, anxiety, and fear of future chaos. Movement restrictions can also play a significant role, changing ways in which people spend their leisure time (Asmundson & Taylor, 2020; Kadam & Atre, 2020). After the Covid-19 outbreak, people no longer could go to movie theaters, gyms, for walks, and hiking. As a result, they experienced permanent stress (Chen et al., 2020; Dong & Zheng, 2020), feelings of loneliness, and uncertainty. The situation was aggravated by not necessarily adequate government responses and fake news (Horesh & Brown, 2020; Nicol et al., 2020). The pandemic denial also had its negative consequences, such as a sharp increase in the incidence of disease, as can be seen in Belarus (Golubeva et al., 2020).

Amongst studies on mental disorders, This study cites those that subjectively had the most appropriate methodology. All of those studies were conducted in China. According to Wang et al. (2020), for example, 16.5% of respondents had some sort of depression, ranging from moderate to severe among 1210 respondents, and one-third (28%) of respondents reported moderate to severe anxiety. Almost a tenth of the respondents (8%) reported severe stress levels. Another study which surveyed 170 respondents who self-isolated at home for 2 weeks or more showed an average level of anxiety associated with stress (positive correlation) and sleep quality (negative correlation). Furthermore, it was found that limited participation in social interaction can be conducive to better quality sleep (Xiao et al., 2020a). Researchers also compared psychological trauma rates among general public, non-front-line nurses, and front-line nurses who were engaged in the process of treating COVID-19 patients. It turned out that the first two groups had the highest traumatization scores was presented among the first two groups, whereas traumatization scores for front-line nurses were somewhat lower (Li et al., 2020). This means that participation in the fight against pandemic reduces the level of psychological stress. Finally, the study of 180 medical staff members treating COVID-19 patients showed that levels of anxiety were positively associated

with stress levels and negatively associated with sleep quality. Furthermore, anxiety was found to have a negative impact on social support and self-efficacy (Xiao et al., 2020b). According to scientists from China and other countries, the coronavirus pandemic has had a negative impact on the mental health of the population (Dong & Zheng, 2020; Zandifar & Badrfam, 2020), increasing the risk of collapsing mental health system in single countries (Dong & Bouey, 2020). Japanese scientists have emphasized the association between distress symptoms (fear, anxiety, stress and panic) and hoarding behaviors, as well as the negative consequences of COVID-19 for the economy (Shigemura et al., 2020).

COVID-19 can have the most detrimental effect on people with impaired hearing. Due to sensory limitations, deaf individuals may have a range of psychological traits that make them more vulnerable when compared to hearing and speaking individuals. People with hearing impairments make up a rather significant portion of the population; In Russia, for example, there are about 1.3 million cases of hearing loss among children and adolescents. It is known that hearing and visual impairments can provoke cognitive, psychomotor, and communication disturbances, as well as lower one's self-esteem (Shevchenko & Severnyy, 2009). This has far-reaching consequences, namely job-related and social adaptation issues. Hearing loss and associated challenges of oral communication can impair social interaction and thus lead to various types of mental illness (Chubarovsky, 2014).

No studies currently examine how COVID-induced changes of lifestyle and media coverage influence the mental health of deaf individuals. This study seeks to measure anxiety and depression levels among deaf individuals in the United Arab Emirates (UAE) during the first pandemic wave. The research hypothesis is that media and Internet access will have the greatest negative impact on the mental health of subjects. The UAE was decided upon because this country provides high-quality mental healthcare services. Respondents were economically active, socially adapted young people aged 20–22. It was assumed that this group of people might be the most mentally stable when compared to other age groups. Therefore, through assessing their symptoms of anxiety and depression, it is possible to extrapolate data to other age groups.

The aim of this study is to compare depression and anxiety levels among deaf individuals in the UAE at the beginning and at the end of the first coronavirus wave. The objectives of the study were: (1) to establish whether there are gender-based differences in depression and anxiety levels; (2) to establish whether there is a relationship between living with parents and levels of depression and anxiety.

2 | METHODS

2.1 | Research design and sample

The study on 36 people who were deaf from birth was conducted from May to October in 2020. All respondents lived an active social life. The average age of responding individuals was 20.3 ± 1.2 years. The respondents were divided into two groups. The first group was comprised of those who were interested in the news reporting and had access to the Internet as well as regular contacts with other people on social media. Respondents in this group lived together with their parents. The second group consisted of individuals immersed in digital media who lived alone.

The education status (higher, secondary, and no education) of respondents was also taken into account. Respondents with different levels of education were present in each group. There were no significant differences in number of respondents between groups. The study involved 18 women and 18 men.

2.2 | Inclusion and exclusion criteria

The inclusion criteria for the study were as follows: (1) presence of hearing impairment from birth; (2) no severe or chronic diseases of the nervous system; (3) a written consent to participate in the study; (4) can be classified into

either of the two study groups; (5) negative for COVID-19. All individuals who refused to participate in the study or did not meet the inclusion criteria were excluded from the study. All candidates were found through searching social service databases. The surveys were conducted remotely at fixed 2-month intervals, that is, May/June, July/August, and September/October. Therefore, the study presents data from four large-scale surveys of two groups of respondents.

2.3 | Ethical considerations

All respondents were assured of compliance with moral and ethical international standards, as well as confidentiality and anonymity. All procedures involving oral interaction with the respondents were carried out with the help of a sign language interpreter.

2.4 | Methods

This study used a symptom checklist-90-revised (SCL-90-R) inventory to measure the levels of psychological distress in respondents. The SCL-90-R contains 90 items covering dimensions of somatization, anxiety, depression, aggression, emptiness, and phobic anxiety. The SCL-90-R scale employed in this study was designed for individuals aged 18 years and older. Depression severity levels in this study were categorized as “no depression” (score, 0–0.79 points), “low” (score, 0.8–1.59 points), “moderate” (score, 1.60–2.39 points), “severe” (score, 2.4–3.19 points), and “extreme” (scored 3.2–4.0 points). Anxiety levels were measured using the Taylor manifest anxiety scale. Finally, the study employed Buss Durkee hostility inventory to qualitatively and quantitatively assess aggression and concomitant behavioral patterns among respondents in lockdown.

2.5 | Statistical analysis

Statistical data analysis was performed in Statistica v. 8.0 (statSoft Inc.). First, it was established whether the surveyed data perfectly follow a normal distribution. For this, the Kolmogorov–Smirnov and Shapiro–Wilks tests were employed. In most cases, the distribution was not normal. Hence, nonparametric methods of analysis were applied. The nonparametric Mann–Whitney U test was used to compare the two groups or variables. Differences were considered significant at $p \leq 0.05$. The correlation was found using the Spearman's correlation test. The variables were (1) the way of living (living alone/with parents) and (2) the presence of mental health issues (affective disorder, distress symptoms). The present study suggests that in extreme situations, such as a pandemic, the lifestyle can provoke the rapid development of specific mental disorders.

3 | RESULTS

It was found that mental health of respondents in both groups altered significantly during the quarantine period (Table 1). In particular, the number of individuals in Group 1 with no mental health concerns declined by half ($p \leq 0.05$). A significant decrease among healthy respondents was recorded in Group 2 in September/October ($p \leq 0.01$). At the same time, it can be argued that having another person around during the crisis had a positive effect on the mental state of respondents. Starting July/August, for example, the average decline in the number of respondents with no mental health issues in Group 1 was lower than in Group 2.

TABLE 1 Changes over time in the mental health of deaf respondents across the two surveyed groups, as per January/July, 2020

Category	Period	Group 1, total respondents, gender	Group 2, total respondents, gender
Number of respondents		20, 10 (females), 10 (males)	16, 8 (females), 8 (males)
Normal	May/June	14	8
	July/August	9	5
	September/October	8	4
Maladaptation	May/June	1	2
	July/August	9	11
	September/October	11	12
Affective disorders	May/June	0	1
	July/August	3	8
	September/October	6	7
Neurotic-type disorders	May/June	0	2
	July/August	2	10
	4	9	11

At the same time, the survey found signs of maladaptation to lockdown, but its fast-growing prevalence was detected in Group 2, where almost all respondents turned to maladaptive coping strategies by July/August. The number of individuals with maladaptive behaviors in Group 2 was higher than in Group 1 ($p \leq 0.05$).

Starting July/August, the number of affective disorders increased dramatically, that is, it was higher in Group 2 when compared to Group 1 ($p \leq 0.001$). Similar case involved neurotic disorders, which in July/August onwards, accounted for up to two-third of the total number of respondents in Group 2. In Group 1, that number was lower ($p \leq 0.01$). The upward trend in neurotic-type conditions was present in both groups, laying ground for aggression, increased anxiety, and depression. Respondents in Group 2 showed great mental instability during the quarantine period. The survey results showed that access to media and Internet resources did not play a major role in reducing one's ability to cope with stress adequately because of the presence of family members who exhibited a comforting, stress-releasing effect on the respondents. The correlation between living alone and stress level was 0.78 and correlation between living alone and affective disorders was 0.84. For Group 1, where respondents shared space with parents, those correlation values were -0.85 and -0.80 , respectively. Similar trends were observed for aggression (Table 2).

Along with aggression and fear, the survey found an increase in depression levels among respondents in both groups (Figure 1). However, the number of high and extreme depression cases in Group 2 was higher than in Group

TABLE 2 Changes over time in aggression among respondents in lockdown across the two surveyed groups

Category	Period	Group 1	Group 2
Number of respondents		20	16
Aggression	May/June	2	6
	July/August	7	8
	September/October	11	14

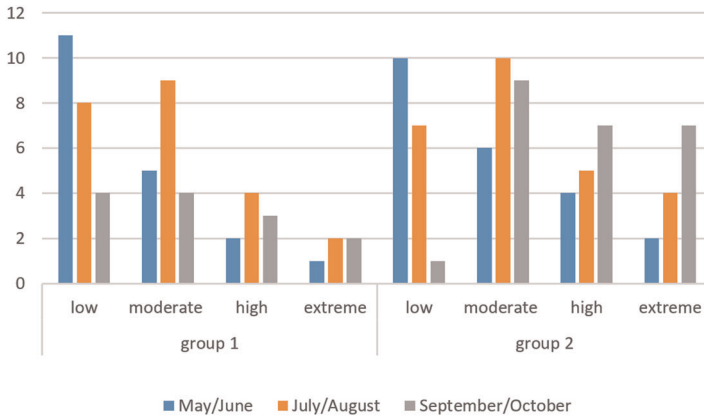


FIGURE 1 Distribution of depression levels among respondents in lockdown across the two surveyed groups

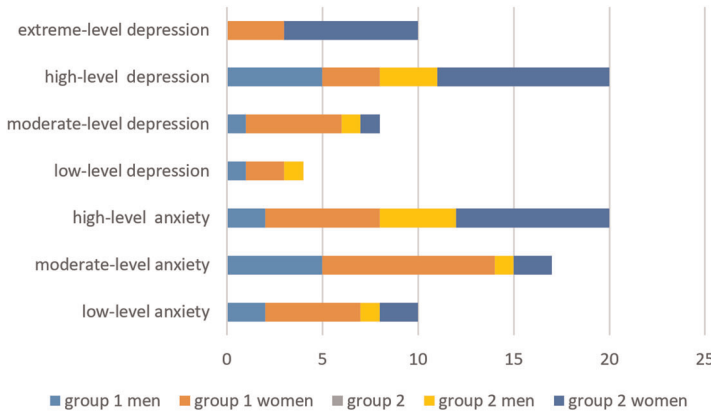


FIGURE 2 Distribution of anxiety and depression levels among men and women within groups

1 ($p \leq 0.01$). In September/October, the number of respondents with severe and extreme levels of depression hit its peak. Thus, the longer the lockdown, the stronger the feeling of depression, especially among those who live alone.

There was a statistically significant difference between anxiety and depression levels in women and men. In particular, anxiety and depression levels increased faster among women than men. Hence, the number of women with elevated symptoms of anxiety and depression was significantly higher than that of men. For instance, Figure 2 shows that there were 1.5–3.0 times more women with strong COVID-19 anxiety and depression in July/August compared to men ($p \leq 0.01$). Furthermore, anxiety levels were found to increase two to three times faster among women than men ($p \leq 0.05$).

Thus, women may be more prone to anxiety and depression during the pandemic. At the same time, depression and anxiety levels were higher among deaf women who lived alone than deaf women who lived together with their family members ($p \leq 0.05$). That number was higher in Group 2 ($p \leq 0.01$) and in Group 1 ($p \leq 0.001$). On the other hand, the survey showed that more men had high depression levels than women in Group 1 ($p \leq 0.05$) and Group 2 ($p \leq 0.05$). This indicates that depression develops at a slower pace among men than women in lockdown and has less severe consequences.

The overall level of aggression was low during the period May/June, but starting July/August, the number of cases of aggression among those who lived alone was higher than in the family group ($p \leq 0.01$).

TABLE 3 Changes over time in number of fears among respondents in lockdown across the two surveyed groups

Category	Period	Group 1	Group 2
Number of respondents		20	16
One fear	May/June	1	5
	July/August	4	8
	September/October	8	9
Two fears	May/June	0	2
	July/August	1	6
	September/October	3	5
Three fears	May/June	0	1
	July/August	0	5
	September/October	1	7

Aggression cases were seen rising in both groups, but their pace of rising in Group 2 was higher when compared to Group 1 ($p \leq .001$). Starting July–August, the growth rate of aggression cases in Group 2 was higher than that in Group 1, largely thanks to online access at home (correlation value is -0.89).

All respondents were found to harbor some sort of fear, such as fear of being infected with COVID19 and fear of destabilization, sometimes more than one. These assets had a negative impact on the mental health of respondents. Data on fear development are presented in Table 3. As it can be seen in Table 3 below, respondents in Group 2 were more prone to develop multiple fears.

Almost all respondents in Group 2 had at least one fear at the end of the study. For comparison, the number of individuals experiencing fear in Group 1 was lower when compared to Group 2 ($p \leq 0.001$). Hence, it can be concluded that pandemic-related fears are more likely to develop among those who live alone. The correlation between fear and living alone was 0.89 and correlation between fear and living with another person was -0.77 . There were no statistically significant correlations between Internet access and fear.

The study shows that deaf ono-oral people are likely to experience depression, anxiety, affective and neurotic disorders, as well as aggression and different types of fear, but individuals who live not alone are less vulnerable to stress and stress-induced consequences.

4 | DISCUSSION

This study touches upon the influence of COVID-19 lockdown on deaf individuals. It was found that the physical presence of close people (i.e., family members) during lockdown keeps the levels of fear, depression, and anxiety down. Available literature on the psychological assistance during the pandemic is rather scarce. Indian experts, for example, emphasized that the general public should be informed about the possible psychological implications of the pandemic (Kadam & Atre, 2020). It is also vital to stress that preventive measures launched as a response to the COVID-19 pandemic are aimed, among other things, at improving mental health of the population (Banerjee, 2020; Liu et al., 2020). Those preventive measures above are based on: (1) providing access to information on mental health maintenance and prevention for the general public, vulnerable populations, mental health service providers; and (2) expanding access to psychiatric and psychological care for different categories of people, including vulnerable populations, with respect for human rights and needs. These steps will accelerate the achievement of a broader coverage of services provided to vulnerable (mentally) populations. Mental health services should be integrated into the primary health care (Kang et al., 2020). There is a need to educate the public

about the strategies that may help during the pandemic (Yang et al., 2020; Yao et al., 2020; Zhai & Du, 2020). It is important to remember that any strategy or response must respect the rights of COVID-19 patients (Yang et al., 2020). Some countries already provide mental health services to medical staff (Liem et al., 2020; Tsai & Wilson, 2020; Zhu et al., 2020), but vulnerable groups of the population, such as hearing and vocally impaired people, should also have the opportunity to receive those services.

Duan and Zhu (2020) suggest that essential members of the primary health care personnel (i.e., nurses) should be taught the basics of mental health care and prevention. Psychologists should provide online assistance to vulnerable groups of the population, including the deaf, to improve their abilities to respond to the pandemic. This requires the efforts of not only a mental health professional, but also a sign language interpreter. Psychologists, psychotherapists, and psychiatrists must be prepared to work with deaf people, and mental illness can be diagnosed online via video conferencing (telepsychiatry). Considering the fact that deaf individuals may not have a job, it is important to make sure that online counseling services are affordable. Finally, the governments should regulate the information provided by the media coverage, since it is normally exaggerated and can sow panic among the population.

Deaf individuals are often unable to communicate with mental health professional because of a doctor's lack of sign language knowledge and a lack of translation services. In these conditions, hospitals and other healthcare centers must be re-organized to meet the needs of patients who are deaf. This problem is especially acute in the face of the pandemic, since, as shown in this study, deaf people are extremely vulnerable to prolonged lockdowns.

5 | CONCLUSION

It was found that living with parents had a positive effect on the ability of deaf respondents to ward off anxiety and depression. The correlation between living alone and stress levels was 0.78 and correlation between living alone and affective disorders was 0.84. The correlation between living with parents and stress levels was -0.85 and correlation between living with parents and affective disorders was -0.80. The correlation between living alone and having fear was 0.89 and correlation between living with parents and having fear was -0.77. There were no statistically significant correlations between online access and fear. The number of fears among those living alone than with parents increased at a higher pace. In addition, this study found that women have developed extreme levels of anxiety and depression faster than men. It seems that deaf people were susceptible to the psychological impact of COVID-19 pandemic. Therefore, immediate actions must be taken to meet their mental health needs, such as the training of sign language interpreters and mental heal professionals. One of the good solutions would be the creation of a special app to help deaf people communicate with a mental health professional at any time.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interest.

PATIENT CONSENT STATEMENT

Prior permission was taken from the respondents and they were all informed about the nature and scope of the research. Respondents' personal information was not disclosed without their consent. Proper care of secrecy and confidentiality was taken.

PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1002/jcop.22539>

DATA AVAILABILITY STATEMENT

Data will be available on request.

ETHICS STATEMENT

The authors declare that the work is written with due consideration of ethical standards. The study was conducted in accordance with the ethical principles approved by the Ethics Committee of Al Ain University.

ORCID

Salwa A. Al Majali  <https://orcid.org/0000-0002-2348-0911>

REFERENCES

- Asmundson, G. J., & Taylor, S. (2020). Coronaphobia: Fear and the 2019-nCoV outbreak. *Journal of Anxiety Disorders*, 70, 102196. <https://doi.org/10.1016/j.janxdis.2020.102196>
- Banerjee, D. (2020). The COVID-19 outbreak: Crucial role the psychiatrists can play. *Asian Journal of Psychiatry*, 50, 102014. <https://doi.org/10.1016/j.ajp.2020.102014>
- Bao, Y., Sun, Y., Meng, S., Shi, J., & Lu, L. (2020). 2019-nCoV epidemic: Address mental health care to empower society. *The Lancet*, 395, 37–38. [https://doi.org/10.1016/s0140-6736\(20\)30309-3](https://doi.org/10.1016/s0140-6736(20)30309-3)
- Chen, Q., Liang, M., Li, Y., Guo, J., Fei, D., Wang, L., He, L., Sheng, C., Cai, Y., Li, X., Wang, J., & Wang, J. (2020). Mental health care for medical staff in China during the COVID-19 outbreak. *The Lancet Psychiatry*, 7, 15–16. [https://doi.org/10.1016/s2215-0366\(20\)30078-x](https://doi.org/10.1016/s2215-0366(20)30078-x)
- Chubarovsky, V. V. (2014). Dynamics of “pre-morbid” borderline mental disorders in adolescents based on empirical data. In *Child psychiatry: diagnosis, therapy, prevention and rehabilitation. Proceedings of the International Scientific and Practical Conference* (pp. 79). 19–21 November, 2014, Saint-Petersburg, Russia.
- Dong, L., & Bouey, J. (2020). Public mental health crisis during COVID-19 pandemic, China. *Emerging Infectious Diseases*, 26, 10–3201. <https://doi.org/10.3201/eid2607.202407>
- Dong, M., & Zheng, J. (2020). Letter to the editor: Headline stress disorder caused by Netnews during the outbreak of COVID-19. *Health Expectations: An International Journal of Public Participation in Health Care and Health Policy*, 23, 259–260. <https://doi.org/10.1111/hex.13055>
- Duan, L., & Zhu, G. (2020). Psychological interventions for people affected by the COVID-19 epidemic. *The Lancet Psychiatry*, 7, 300–302. [https://doi.org/10.1016/s2215-0366\(20\)30073-0](https://doi.org/10.1016/s2215-0366(20)30073-0)
- Golubeva, N. V., Ivanov, D. V., & Troitskiy, M. S. (2020). Panic disorders in family relations as consequences of the coronavirus effects (literature review). *Journal of New Medical Technologies*, 14, 32–38.
- Ho, C. S., Chee, C. Y., & Ho, R. C. (2020). Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. *Annals of the Academy of Medicine, Singapore*, 49, 155–160. <https://doi.org/10.47102/annals-acadmedsg.202043>
- Horesh, D., & Brown, A. D. (2020). Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12, 331–335. <https://doi.org/10.1037/tra0000592>
- Jakovljevic, M., Bjedov, S., Jaksic, N., & Jakovljevic, I. (2020). COVID-19 pandemia and public and global mental health from the perspective of global health security. *Psychiatria Danubina*, 32, 6–14. <https://doi.org/10.24869/psyd.2020.6>
- Kadam, A. B., & Atre, S. R. (2020). Social media panic and COVID-19 in India. *Journal of Travel Medicine*, 27, taaa057. <https://doi.org/10.1093/jtm/taaa057>
- Kang, L., Li, Y., Hu, S., Chen, M., Yang, C., Yang, B. X., Wang, Y., Hu, J., Lai, J., Ma, X., Chen, J., Guan, L., Wang, G., Ma, H., & Liu, Z. H. (2020). The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *The Lancet Psychiatry*, 7, e14. [https://doi.org/10.1016/s2215-0366\(20\)30047-x](https://doi.org/10.1016/s2215-0366(20)30047-x)
- Li, Z., Ge, J., Yang, M., Feng, J., Qiao, M., Jiang, R., Bi, J., Zhan, G., Xu, X., Wang, L., Zhou, Q., Zhou, C. H., Pan, Y., Liu, S. H., Zhang, H., Yang, J., Zhu, B., & Zhou, Q. (2020). Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control. *Brain, Behavior, and Immunity*, 88, 916–919. <https://doi.org/10.1016/j.bbi.2020.03.007>
- Liem, A., Wang, C., Wariyanti, Y., Latkin, C. A., & Hall, B. J. (2020). The neglected health of international migrant workers in the COVID-19 epidemic. *The Lancet Psychiatry*, 7, e20. [https://doi.org/10.1016/s2215-0366\(20\)30076-6](https://doi.org/10.1016/s2215-0366(20)30076-6)
- Lima, C. K. T., de Medeiros Carvalho, P. M., Lima, I. D. A. S., de Oliveira Nunes, J. V. A., Saraiva, J. S., de Souza, R. I., Lian da Silva, C. G., & Neto, M. L. R. (2020). The emotional impact of coronavirus 2019-nCoV (new coronavirus disease). *Psychiatry Research*, 287, 112915. <https://doi.org/10.1016/j.psychres.2020.112915>
- Liu, Y., Li, J., & Feng, Y. (2020). Critical care response to a hospital outbreak of the 2019-nCoV infection in Shenzhen, China. *Critical Care*, 24, 56. <https://doi.org/10.1186/s13054-020-2786-x>
- Nicol, G. E., Karp, J. F., Reiersen, A. M., Zorumski, C. F., Lenze, E. J., Miller, C., & Ryan, S. P. (2020). What were you before the war? *The Journal of Clinical Psychiatry*, 81. <https://doi.org/10.4088/jcp.20com13373>

- Shevchenko, Y.uS., & Severnyy, A. A. (2009). Clinical assessment of children's mental disorders according to modern classifications. *Russian Journal of Social and Clinical Psychiatry*, 19, 29–33.
- Shigemura, J., Ursano, R. J., Morganstein, J. C., Kurosawa, M., & Benedek, D. M. (2020). Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: Mental health consequences and target populations. *Psychiatry and Clinical Neurosciences*, 74, 281–282. <https://doi.org/10.1111/pcn.12988>
- Tsai, J., & Wilson, M. (2020). COVID-19: A potential public health problem for homeless populations. *The Lancet Public Health*, 5, 186–187. [https://doi.org/10.1016/s2468-2667\(20\)30053-0](https://doi.org/10.1016/s2468-2667(20)30053-0)
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health*, 17, 1729. <https://doi.org/10.3390/ijerph17051729>
- World Health Organization. (2019). *Coronavirus disease (COVID-19) pandemic*. Retrieved from <https://www.who.int/ru/emergencies/diseases/novel-coronavirus-2019>
- Xiao, H., Zhang, Y., Kong, D., Li, S., & Yang, N. (2020a). 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. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, 26, e923549-1.
- Xiao, H., Zhang, Y., Kong, D., Li, S., & Yang, N. (2020b). Social capital and sleep quality in individuals who self-isolated for 14 days during the coronavirus disease 2019 (COVID-19) outbreak in January 2020 in China. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, 26, e923921. <https://doi.org/10.12659/msm.923921>
- Yang, Y., Li, W., Zhang, Q., Zhang, L., Cheung, T., & Xiang, Y. T. (2020). Mental health services for older adults in China during the COVID-19 outbreak. *The Lancet Psychiatry*, 7, e19. [https://doi.org/10.1016/s2215-0366\(20\)30079-1](https://doi.org/10.1016/s2215-0366(20)30079-1)
- Yao, H., Chen, J. H., & Xu, Y. F. (2020). Rethinking online mental health services in China during the COVID-19 epidemic. *Asian Journal of Psychiatry*, 50, 102015. <https://doi.org/10.1016/j.ajp.2020.102015>
- Zandifar, A., & Badrfam, R. (2020). Iranian mental health during the COVID-19 epidemic. *Asian Journal of Psychiatry*, 51, 101990. <https://doi.org/10.1016/j.ajp.2020.101990>
- Zhai, Y., & Du, X. (2020). Mental health care for international Chinese students affected by the COVID-19 outbreak. *The Lancet Psychiatry*, 7, e22. [https://doi.org/10.1016/s2215-0366\(20\)30089-4](https://doi.org/10.1016/s2215-0366(20)30089-4)
- Zhou, X. (2020). Psychological crisis interventions in Sichuan Province during the 2019 Novel Coronavirus (2019-nCoV) outbreak. *Psychiatry Research*, 286, 112895. <https://doi.org/10.1016/j.psychres.2020.112895>
- Zhu, Y., Chen, L., Ji, H., Xi, M., Fang, Y., & Li, Y. (2020). The risk and prevention of novel coronavirus pneumonia infections among inpatients in psychiatric hospitals. *Neuroscience Bulletin*, 36, 299–302. <https://doi.org/10.1007/s12264-020-00476-9>

How to cite this article: Al Majali SA, Alghazo EM. (2021). Mental health of individuals who are deaf during COVID-19: Depression, anxiety, aggression, and fear. *J Community Psychol*, 49, 2134–2143. <https://doi.org/10.1002/jcop.22539>