Stigma, Uncertainty, and Coping at the Time of COVID-19 Pandemic Amid Health Care Professionals

How Far Have We Gone?

Doaa R. Ayoub, MD,* Sherif M. Gohar, MD,* Mohamed A. Khalil, MD,* Hoda M. Abdel-Hamid, MD,† and Shirin Mostafa El-Makawi, MD*

Abstract: Stigma and uncertainty are noticed in global pandemics. Their impacts on health care providers tend to persist notably during and after the outbreaks. Our objective was to assess stigma, uncertainty, and coping among health care providers through an online survey using the Discrimination and Stigma Scale Version 12 (DSSC-12) modified version to assess stigma related to treating COVID-19, the Intolerance of Uncertainty Scale, and the Brief Resilient Coping Scale (BRCs). Of the respondents (n = 65), 63.1% treated patients with COVID-19, and 21.5% worked in isolation hospitals. Physicians who treated patients with COVID-19 had significantly higher BRCs scores. We concluded that frontline physicians had significantly higher scores in all DSSC subscales: unfair treatment (8.73 ± 6.39, p = 0.001), stopping self from doing things (2.05 ± 1.41, p = 0.019), overcoming stigma (1.17 ± 0.80, p = 0.035), and positive treatment (1.90 ± 1.65, p = 0.005). Unfair treatment was negatively correlated with BRCs (r = −0.279, p = 0.024). On the other hand, physicians who did not treat patients with COVID-19 experienced greater stigma associated with lower resilient coping strategies.

Key Words: Stigma, uncertainty, coping, health care providers, COVID-19

(J Nerv Ment Dis 2022;210: 264–269)

Background

The 2019 coronavirus disease (SARS-CoV-2) outbreak has been declared an international public health emergency in January 2020 by the World Health Organization (WHO) as the disease continues to surge through the continents, affecting many countries rigorously (Dubey et al., 2020).

A wide fragment of the world's population became restricted to their homes because of nationwide lockdowns and home confinement strategies implemented in most of the COVID-19–hit countries to prevent further disease spread (Rubin and Wessely, 2020).

Many health care workers have been redeployed to areas outside their specialty and/or expertise, often working extra shifts and longer hours to meet high-volume patient demand, and are at very high risk for acquiring and possibly transmitting COVID-19 to coworkers, family, and friends (Shechter et al., 2020). As a result, health care workers found themselves facing unprecedented amounts of COVID-19–related psychological stress across professional and personal domains (Chen et al., 2020; Kang et al., 2020; Lai et al., 2020).

Stigma and Pandemics

During the SARS-CoV outbreak in Singapore in 2015, 27% of health care workers reported psychiatric symptoms (Lee et al., 2018). Similarly, during the Ebola outbreaks in 2014 and Congo in 2018, medical staff reported high levels of anxiety, stigma, and discrimination among those who were in direct contact with infected patients (Park et al., 2018).

Pescosolido (2013) stated that stigma can be defined as a mark of disgrace that sets a person apart from others (e.g., discrimination and devaluation by others) and has a variety of negative consequences that inhibit recoveries, such as shame, embarrassment, and the “why try” phenomenon (Corrigan et al., 2016).

The COVID-19 emergency has significantly transformed the working environment as providing care was emotionally difficult for health care providers, with feelings of stigmatization and discrimination as prominent themes during this crisis (Kang et al., 2020). Health care providers involved in SARS-affected patient care were found to be more prone to stigmatization. Similarly, the COVID-19 outbreak may also give rise to stigmatizing factors like fear of isolation, racism, and marginalization with all its social and economic ramifications (Siu, 2008). This pushed the WHO to issue a specific psychosocial statement for abating the growing stigma of COVID-19 (WHO, 2020).

Stigma toward the COVID-19 epidemic may lead to negative consequences of disease control, as prior SARS and Ebola outbreaks were vivid proof (Cheung, 2015; Maunder et al., 2003).

Stigma and discrimination have a propensity to persist in an extended tenure, even after quarantine has ended and the epidemic has been contained (Ramaci et al., 2020), making it difficult for many when restarting the customs of day-to-day life (Person et al., 2004; Siu, 2008).

In developing countries like India, where the health care system is overburdened, surges of COVID-19 cases provoked anxiety, fear, irritation, and a sense of uncertainty among doctors and nurses. This might be compounded by the insufficient hospital supply of required personal protective equipment among health care staff (Dubey et al., 2020).

Intolerance of Uncertainty and Coping Strategies

Intolerance of uncertainty (IU) has been defined as the tendency of an individual to refuse to admit that something negative, although unlikely, might occur (Dugas et al., 2005). Uncertainty about a possible future threat disrupts people’s ability to avoid it or to decrease its negative impact, and thus results in anxiety (Grupe and Nitschke, 2013).

Carlet et al. (2012) clarified that IU can be represented as having two dimensions: prospective IU, that is, the cognitively focused dimension of IU, and inhibitory IU, that is, the behaviorally focused dimension of IU. Each of the dimensions has been associated with different anxiety disorder symptoms; the prospective IU subscale was expected to be more related to worry, whereas the inhibitory IU subscale was expected to be more related to panic, agoraphobia, and depression.
In the current pandemic, the general population and health workers from all professions are facing significant challenges in coping with the crisis (Kar et al., 2021; Man et al., 2020).

There have been few studies that have investigated the coping strategies that frontline medical staff can use during disease epidemics; personality traits, such as optimism and resilience, have previously been shown to have positive effects on reducing psychological stress (Park et al., 2018). Other objective measures that might reduce psychological stress include personal protective measures, recognition, and appreciation of the efforts by the medical personnel (Cai et al., 2020).

**Aim of the Study**

These challenging times are hard not only for the patients but also to the health care staff. There is a need to assess the fears, uncertainties, and expectations of health care workers. Doctors are there to treat, but their concerns should be considered and addressed (Urooj et al., 2020). This work aimed to assess the level of stigma health care staff face during this period and their coping strategies in the face of these stressful circumstances, as well as to measure the degree of uncertainty health care providers experience during the pandemic.

**METHODS**

This study included 65 physicians from different medical specialties and varying levels of experience who are working in Kasr Al Ainy Hospital. This is a governmental university hospital in Cairo that has 150 isolation beds for treating COVID-19–infected patients who needed hospitalization. The hospital also treats patients with COVID-19 who are not in need of hospitalization and those with other medical comorbidities in outpatient clinics. Physicians treating patients in isolation spent 2 weeks isolated in the hospital, whereas those working in the outpatient clinics were not isolated.

The study survey was completed online by the 65 invited physicians. It included demographic data, the Discrimination and Stigma Scale Version 12 (DISC-12), the Brief Resilient Coping Scale (BRCS), and the Intolerance of Uncertainty Scale Short Form 12 (IUS-12).

The DISC-12 was originally designed to assess stigma in patients with mental illness (Brohan et al., 2013). The scale includes quantitative and qualitative experiences in work, marriage, parenting, housing, leisure, and religious activities. The DISC-12 consists of four subscales, with a total of 32 questions rated on a 4-point Likert scale. The subscales assess the following: being treated unfairly (subscale 1), stopping self from doing things (subscale 2), overcoming stigma and discrimination (subscale 3), and positive treatment (subscale 4). The four responses are the following: not at all, a little, moderately, and a lot, in addition to the “not applicable” response. Subscale 1 (21 items) assesses unfair treatment, subscale 2 (4 items) assesses stopping self, subscale 3 assesses overcoming stigma (2 items), and subscale 4 assesses positive treatment (5 items) (Brohan et al., 2013). The scale was modified by the researchers to assess the stigma related to treating COVID-19 without changing the details of different items. To maintain as much as possible the established psychometric properties that only apply to the original version, we made relatively minor modifications by replacing “mental health problems” with “coming in contact with people who have/had, or might have/had, COVID-19.” In addition, we added at the end of the scale three open text questions to ensure that the health care professionals understand the different adapted items of the scale. This version of the DISC-12 has been adapted with the permission of Professor Graham Thornicroft, Institute of Psychiatry at King’s College, London. For further details on the published scores for each of the DISC subscales in the original mental illness population, please review the following studies (Corker et al., 2013, 2015; Khan et al., 2015; Kim et al., 2020).

Coping was assessed using the BRCS. It is a scale assessing resilience and coping with stressors. It consists of four items. Five responses are available to be chosen for each item: does not describe me at all, does not describe me, neutral, describe me, or describe me very well. Total sum scores range from 4 to 20. Scores of 4 to 13 indicate low resilient coping, 14 to 16 indicate medium resilient coping, and 17 to 20 indicate high resilient coping. Higher scores indicate higher resilience (Kocalevent et al., 2017).

The IUS-12 (Carleton et al., 2007) consists of 12 items that measure responses to uncertainty, ambiguous situations, and the future (Carleton et al., 2010). The 12 items are rated on a 5-point Likert scale ranging from 1 (not at all characteristic of me) to 5 (entirely characteristic of me). The IUS-12 is composed of two subscales: the seven-item prospective IU subscale and the five-item inhibitory IU subscale.

All participating physicians approved to participate in the survey, and their responses were anonymous. Data were analyzed using SPSS version 20 (IBM, 2011).

**RESULTS**

Participating physicians have an age of 35.35 ± 7.84 years; about two thirds (64.6%) of them were female, and pulmonology was the most common specialty (20%). Academic degrees of the physicians were different; 27.7% had only MBBCM, 35.4% had MSc, and 36.9% had MD, with about half (47.7%) of them with at least 10 years of experience. They worked 39.89 ± 30.47 hours weekly during the last month. Among this sample, 63.1% of the physicians treated patients with COVID-19, 21.5% of them worked in isolation hospitals, and 6 physicians were infected with COVID-19 (Table 1).

The total scores of the four subscales of DISC were as follows: 6.77 ± 6.23 (unfair treatment subscale), 1.74 ± 1.45 (stopping self subscale), 1.01 ± 0.78 (overcoming stigma subscale), and 1.52 ± 1.63 (positive treatment subscale). The BRCS total score was 13.46 ± 2.24, with 58.5% with low resilience, 33.8% with medium resilience, and 7.47% with high resilience. The IUS total score was 31.06 ± 8.52; the prospective anxiety subscale was 18.92 ± 5.38 and the inhibitory anxiety subscale was 12.14 ± 3.87 (Table 1). More details on the item-level responses for each participant on the DISC-12 are displayed in Supplementary Table 1 (Supplemental Digital Content, 1, http://links.lww.com/JNMD/A128).

Physicians who treated patients with COVID-19 had significantly higher total scores in the four subscales of DISC (p = 0.001, 0.019, 0.035, and 0.005, respectively) (Table 2). On the other hand, physicians who did not treat patients with COVID-19 had a significantly higher BRCS total score (p = 0.029) with a significant difference (p = 0.010) between the two groups in the resilient groups (Table 2). There was no significant difference between physicians who treated patients with COVID-19 and those who did not with regard to IUS total scores and subscales (Table 2).

The correlation between levels of discrimination and stigma measured by DISC-12, degree of intolerance to uncertainty measured by IUS, and degree of coping measured by BRCS revealed a significant negative correlation between unfair treatment subscale 1 total score of the DISC and the coping scale (BRCS) (r = −0.279, p = 0.024). BRCS was also negatively correlated with the IUS inhibitory anxiety subscale (r = −0.330, p = 0.024). On the other hand, positive treatment subscale 4 of DISC showed a significantly positive correlation with the inhibitory anxiety subscale of IUS (r = −0.311, p = 0.012) (Table 3).

**DISCUSSION**

The study aimed to assess the degree of stigma, resilience, uncertainty, and fears in physicians facing the COVID-19 epidemic. It also aimed to detect the relationship between these variables in physicians who were treating patients with COVID-19. We hypothesized that physicians who are treating patients with COVID-19 show higher levels of discrimination and social stigma, less adaptive coping strategies, and more anxiety, irritation, and fear of uncertainty.

To our knowledge, this is the first study that assesses discrimination and stigma in physicians facing COVID-19 in Egypt. Our study
showed statistically significant difference between physicians treating patients with COVID-19 and physicians not treating patients with COVID-19 with regard to all subscales of the DISC-12 (Table 2). This is consistent with the study conducted by Singh and Subedi (2020), who found that frontline health care providers are discriminated against by the staff at hotels and are facing difficulties finding food and shelter. Furthermore, people and even some health care workers involved in non–COVID-19 responses have been showing discrimination toward the frontline health care providers through behaviors such as refusal to talk to them and depicting disapproval to eat in the same cafeterias. Besides, neighbors and people in the community have been showing displeasure in allowing frontline health care providers to reside in their homes even though health care workers are working with all necessary precautions (Bagcchi, 2020). Even health care professionals in the field of psychiatry faced difficulty at the workplace initially because of incomplete information and fear associated with COVID-19 (Tandon, 2020).

Furthermore, the presence of higher rates of experiencing and anticipating discrimination in the group of physicians treating patients with COVID-19 could limit their activity of daily living (e.g., work) because of fear of stigma. In addition, the positive treatment received because of treating patients with COVID-19 could not help in overcoming the stigma associated with COVID-19–treating health care providers. This goes in line with the study by Liu et al. (2020), who found that from March to April 2020, the overall percentage of US residents who experienced COVID-19–related discrimination more than doubled from 4% to 10%, according to researchers. The sharpest increase was among Asians and African-Americans, who were most likely to report
TABLE 2. Results Differentiating Between Physicians Who Treated Patients With COVID-19 and Those Who Did Not

|                       | Treating Patients With COVID-19 |                      |                  |                  |
|-----------------------|---------------------------------|----------------------|------------------|------------------|
|                       | Yes (n = 41)                    | No (n = 24)          | p                |
| DISC-12               |                                 |                      |                  |
| Subscale 1: unfair treatment, total score, mean ± SD | 8.73 ± 6.39 | 3.42 ± 4.31 | 0.001 |
| Subscale 2: stopping self from doing things, total score, mean ± SD | 2.05 ± 1.41 | 1.21 ± 1.38 | 0.019 |
| Subscale 3: overcoming stigma, total score, mean ± SD | 1.17 ± 0.80 | 0.75 ± 0.67 | 0.035 |
| Subscale 4: positive treatment, total score, mean ± SD | 1.90 ± 1.65 | 0.87 ± 1.39 | 0.005 |
| BRCS                  |                                 |                      |                  |
| Total score, mean ± SD | 12.95 ± 1.97 | 14.33 ± 2.42 | 0.029 |
| Low-resilient copers  | 26 (63.4%)                      | 12 (50%)             | 0.010            |
| Medium-resilient copers | 15 (36.6%) | 7 (29.2%) |                      |
| High-resilient copers | 0 (0%)                          | 5 (20.8%)            |                  |
| IUS-12                |                                 |                      |                  |
| Total score, mean ± SD | 31.26 ± 8.82 | 30.71 ± 8.14 | 0.951 |
| Prospective anxiety subscale, mean ± SD | 18.78 ± 5.54 | 19.17 ± 5.20 | 0.759 |
| Inhibitory anxiety subscale, mean ± SD | 12.49 ± 4.03 | 11.54 ± 3.57 | 0.401 |

TABLE 3. Correlative Studies Among the Research Sample

| N = 41 | DISC-12 |
|--------|---------|
|        | Subscale 1 | Subscale 2 | Subscale 3 | Subscale 4 |
|        | Unfair Treatment | Stopping Self From Doing Things | Overcoming Stigma | Positive Treatment | BRCS |
| Age    | r = -0.135 | -0.094 | -0.213 | -0.094 | 0.136 |
|        | p = 0.282 | 0.456 | 0.088 | 0.455 | 0.280 |
| Working hours per week during the last month | r = 0.053 | 0.105 | 0.162 | 0.014 | -0.191 |
|        | p = 0.678 | 0.406 | 0.197 | 0.910 | 0.127 |
| BRCS   | r = -0.279 | -0.161 | -0.119 | -0.194 | 1.000 |
|        | p = 0.024 | 0.199 | 0.344 | 0.122 |                  |
| IUS-12 | r = 0.096 | -0.010 | 0.096 | 0.150 | -0.179 |
|        | p = 0.448 | 0.934 | 0.445 | 0.233 | 0.153 |
| IUS prospective anxiety | r = 0.044 | -0.086 | 0.085 | 0.053 | -0.070 |
|        | p = 0.728 | 0.494 | 0.502 | 0.677 | 0.577 |
| IUS inhibitory anxiety | r = 0.143 | 0.077 | 0.116 | 0.311 | -0.330 |
|        | p = 0.255 | 0.541 | 0.356 | 0.012 | 0.007 |

The experiences of discrimination based on the perception they were infected with COVID-19 (Liu et al., 2020). The study conducted by Rzymski and Nowicki (2020) on medical students from Asia who study at Poznan University of Medical Sciences in Poland revealed that 61.2% of the surveyed students have experienced prejudice in the form of unfair treatment in Poland related to the current corona virus epidemic.

On the other hand, the results differ from studies on mental illness such as schizophrenia, bipolar disorder, and major depressive disorder (Farrelly et al., 2014; Lasalvia et al., 2013), where service users reported more anticipated and experienced discrimination in at least one life area. Farrelly et al. (2014) in their study found that 87.6% of service users reported experienced discrimination and a higher percentage of anticipated stigma in at least one life area. This could be explained by the difference between mental illness and associated ignorance about the novel virus.

Regarding anxiety and sense of uncertainty measured by the IUS, it is worth noting that in such an unprecedented pandemic, coping strategies and resilience of health care providers could play an important role especially because they have the responsibility to care for patients with COVID-19 and their families (Li et al., 2020). We found that physicians who are not treating patients with COVID-19 had significantly higher resilience than the frontline physicians did. Moreover, lower resilience levels in frontline physicians have been associated with higher rates of experienced discrimination in the form of unfair treatment and higher levels of behavioral anxiety related to uncertainty. This result coincides with the study conducted by Wang et al. (2020) in the early stage of the COVID-19 epidemic in mainland China, which concluded that negative coping processes were associated with a higher level of...
of psychological distress, and they recommended urgent psychological interventions targeting coping strategies during the pandemic. To improve the resilience and mental health of the frontline health workers, Ho et al. (2020) recommended that health care providers should have more regular breaks, shorter shifts, and online psychological support. Besides, the use of relaxation techniques, regular exercise, adequate sleep, and sharing fear with others could help in coping with the distressful situation related to corona virus anxiety (Kecmanovic, 2020).

Despite the significant findings generated from the current study, we should be cautious regarding the generalization of the results because of some limitations. First, the study was conducted on a relatively small sample size in one main hospital in Cairo. Second, we included only the physicians and excluded other important health care workers, for example, nursing staff. Third, the study design was cross-sectional, thus preventing us from examining causality. Fourth, we used a self-report online survey that could affect the results, but this was the only safe and feasible way to communicate with the frontline physicians in an isolation hospital. Finally, we used three open test questions to assess the understandability of the adapted scale instead of pilot testing. Thus, we strongly recommend further assessment of the psychometric properties of the adapted DISC-12 scale in future studies.

RECOMMENDATIONS

As the current pandemic is still present worldwide, we strongly recommend monitoring carefully the short- and long-term implications of COVID-19–related stigma. In light of the findings of the current study, future studies should include more specified COVID-19 stigma-related items and a more in-depth coping strategies questionnaire in different languages to design target-oriented psychological interventions for health care professionals. Such interventions will help in improving the moral, mental health, and coping styles of the frontline health workers who are facing a challenging unprecedented situation.

CONCLUSION

Health professionals who treated patients with COVID-19 had a far greater COVID-19–related stigma and discrimination as found by Ramaci et al. (2020); long-term implications of this stigma should be monitored carefully. Unfair treatment was negatively associated with coping. There is a negative link between coping level and uncertainty intolerance.

ACKNOWLEDGMENT

The authors would like to thank Professor Sir Graham Thornicroft and his team, Institute of Psychiatry at King’s College-London, for the great assistance they offered during this research and the permission to make the necessary adaptations for the DISC-12 questionnaire to be suitable to measure COVID-related stigma. The authors would moreover like to express their deep gratitude to the frontline health care providers for accepting to join the study in such arduous and formidable junctures amidst the pandemic.

DISCLOSURE

The authors declare no conflict of interest.

REFERENCES

Bagchi S (2020) Stigma during the COVID-19 pandemic. Lancet Infect Dis. 20:782.
Brohan E, Clement S, Rose D, Sartorius N, Slade M, Thornicroft G (2013) Development and psychometric evaluation of the Discrimination and Stigma Scale (DISC). Psychiatr Res. 208:33–40.
Brohan E, Rose D, Clement S, Corker E, Bortel T, Sartorius N, Farrell S, Thornicroft G (2013) Discrimination and Stigma Scale (DISC) version 12. Manual version 3. Available at: https://www.kcl.ac.uk/ioppn/depts/hspr/archive/cmh/CMH-Stigma-Measures/2DISC12manualversion3MAY2013.pdf. Accessed June 14, 2020.
Cai H, Tu B, Ma J, Chen L, Fu L, Jiang Y, Zhuang Q (2020) Psychological impact and coping strategies of frontline medical staff in hunan between January and March 2020 during the outbreak of coronavirus disease 2019 (COVID-19) in Hubei, China. Med Sci Monit. 26:e924171.
Carleton RN, Gosselin P, Asmundson GJG (2010) The intolerance of uncertainty index: Replication and extension with an English sample. Psychol Assess. 22:396–406. Erratum in: Psychol Assess. 2016 Feb;28(2):244.
Carleton RN, Mulvogue MK, Thibodeau MA, McCabe RE, Antony MM, Asmundson GJG (2012) Increasingly certain about uncertainty: Intolerance of uncertainty across anxiety and depression. J Anxiety Disord. 26:468–479.
Carleton RN, Norton MAPJ, Asmundson GJG (2007) Fearing the unknown: A short version of the Intolerance of Uncertainty Scale. J Anxiety Disord. 21:105–117.
Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, He L, Sheng C, Cai Y, Li X, Wang J, Zhang Z (2020) Mental health care for medical staff in China during the COVID-19 outbreak. Lancet Psychiatry. 7:e15–e16.
Cheung E (2015) An outbreak of fear, rumours and stigma: Psychosocial support for the Ebola Virus Disease outbreak in West Africa. Intervention. 13:45–84. doi:10.1097/WTF.0000000000000079.
Corker E, Hamilton S, Henderson C, Weeks C, Pinfold V, Rose D, Williams P, Flach C, Gill V, Lewis-Holmes E, Thornicroft G (2013) Experiences of discrimination among people using mental health services in England 2008–2011. Br J Psychiatr Suppl. 55:558–563.
Corker EA, Beldie A, Brain C, Jakow/ievie M, Jarema M, Karamustafaloglu O, Marksteiner J, Mohr P, Prehpecuane V, Vasilache A, Waern M, Sartorius N, Thornicroft G, FEDORA Study Group (2015) Experience of stigma and discrimination reported by people experiencing the first episode of schizophrenia and those with a first episode of depression: The FEDORA project. Int J Soc Psychiatry. 61:438–445.
Corrigan PW, Bink AB, Schmidt A, Jones N, Rüschn (2016) What is the impact of self-stigma? Loss of self-respect and the “why try” effect. J Ment Health. 25:10–15.
Dubey S, Biswas P, Ghosh R, Chatterjee S, Dubey MJ, Chatterjee S, Dubey MJ, Chatterjee S, Lahiri D, Lavie C (2020) Psychosocial impact of COVID-19. Diabetes Metab Syndr. 14:779–788.
Dugas MJ, Hedayati M, Karavdas C, Buhr K, Francis K, Phillips NA (2005) Intolerance of uncertainty and information processing: Evidence of biased recall and interpretations. Cognit Ther Res. 29:57–70.
Farrelly S, Clement S, Gabbidon J, Jeffery D, Dockery L, Lasman E, Brohan E, Henderson RC, Williams P, Howard LM, Thornicroft G, MIRIAD study group (2014) Anticipated and experienced discrimination amongst people with schizophrenia, bipolar disorder and major depressive disorder: A cross sectional study. BMC Psychiatry. 14:157.
Grape DW, Nitschke JB (2013) Uncertainty and anticipation in anxiety: An integrated neurobiological and psychological perspective. Nat Rev Neurosci. 14:488–501.
Ho CS, Chee CY, Ho RC (2020) Mental health strategies to combat the psychological impact of coronavirus disease 2019 (COVID-19) beyond paranoia and panic. Ann Acad Med Singapore. 49:155–160.
IBM (2011) IBM SPSS Statistics for Windows (Version 20.0). Armonk, NY: IBM Corp.
Kang L, Li Y, Hu S, Chen M, Yang C, Yang BX, Wang Y, Hu J, Lai J, Ma X, Chen J, Guan L, Wang G, Ma H, Liu Z (2020) The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. Lancet Psychiatry. 7:614.
Kar N, Kar B, Kar S (2021) Stress and coping during COVID-19 pandemic: Result of an online survey. Psychotherapy. Res. 295:113598.
Kecmanovic J (2020) 7 science-based strategies to cope with coronavirus anxiety. Available at: https://theconversation.com/7-science-based-strategies-tocope-with-coronavirus-anxiety-133207. Accessed June 14, 2020.
Khan N, Kausar R, Khalid A, Farooq A (2015) Gender differences among discrimination & stigma experienced by depressive patients in Pakistan. Pak J Med Sci. 31:1432–1436.
Kim GO, Yoo TY, Kim NJ, Lee JJ, Jhon M, Kim JW, Kang HJ, Kim SW, Kim JM (2020) Standardization of the Discrimination and Stigma Scale-Korean Version (DISC 12-K) in patients with depressive disorders. Psychiatry Investig. 17:654–661.
Kocalevent R-D, Zanger M, Hinz A, Klapp B, Brähler E (2017) Resilient coping in the general population: Standardization of the Brief Resilient Coping Scale (BRCS). *Health Qual Life Outcomes* 15:251.

Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, Wu J, Du H, Chen T, Li R, Tan H, Kang L, Yao L, Huang M, Wang H, Wang G, Liu Z, Hu S (2020) Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open*. 3:e203976.

Lasalvia A, Zoppe S, Van Bortel T, Bonetto C, Cristofalo D, Wahlbeck K, Vasseur Bacle Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, Wu J, Du H, Chen T, Li R, Tan H, Kang L, Kocalevent R-D, Zenger M, Hinz A, Klapp B, Brähler E (2017) Resilient coping in the general population: Standardization of the Brief Resilient Coping Scale (BRCS). *Health Qual Life Outcomes* 15:251.

Lee SM, Kang WS, Cho A-R, Kim T, Park JK (2018) Psychological impact of the 2003 SARS outbreak in a teaching hospital. *Int J Environ Res Public Health* 15:251.

Liu Y, Finch BK, Brenneke SG, Thomas K, Le PD (2020) Perceived discrimination and mental distress amid the COVID-19 outbreak in China. *Int J Biol Sci*. 16:1732–1738.

Liu Y, Finch BK, Brenneke SG, Thomas K, Le PD (2020) Perceived discrimination and mental distress amid the COVID-19 pandemic: Evidence from the understanding America study. *Am J Prev Med*. 59:481–492.

Man MA, Toma C, Motoc NS, Necrolescu OL, Bondor CI, Chis AF, Levan A, Pop CM, Todea DA, Dantes E, Puiu R, Rajnoveanu R-M (2020) Disease perception and coping with emotional distress during COVID-19 pandemic: A survey among medical staff. *Int J Environ Res Public Health*. 17:4899.

Maunder R, Hunter J, Vincent L, Bennett J, Peladeau N, Leszcz M, Sadavoy J, Verhaeghe LM, Steinberg R, Mazzulli T (2003) The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *CMAJ*. 168:1245–1251.

Park JS, Lee EH, Park NR, Choi YH (2018) Mental health of nurses working at a government-designated hospital during a MERS-CoV outbreak: A cross-sectional study. *Arch Psychiatr Nurs*. 32:2–6.

Person B, Sy F, Holton K, Goyert B, Liang A, National Center for Infectious Diseases/SARS Community Outreach Team (2004) Fear and stigma: The epidemic within the SARS outbreak. *Emerg Infect Dis*. 10:358–363.

Pescosolido BA (2013) The public stigma of mental illness: What do we think; what do we know; what can we prove? *J Health Soc Behav*. 54:1–21.

Ramuci T, Barattucci M, Ledda C, Rapisarda V (2020) Social stigma during COVID-19 and its impact on HCWs outcomes. *Sustainability*. 12:13.

Rubin GI, Wessely S (2020) The psychological effects of quarantining a city. *BMJ*. 368:m313.

Rzynski P, Nowicki M (2020) COVID-19–related prejudice toward Asian medical students: A consequence of SARS-CoV-2 fears in Poland. *J Infect Public Health*. 13:873–876.

Shechter A, Díaz F, Moise N, Anstey DE, Ye S, Agarwal S, Birk JL, Brodie D, Cannone DE, Chang B, Claassen J, Cornelius T, Derby L, Dong M, Givens RC, Hochman B, Honma S, Kronsht M, Lee SAI, Manzano W, Mayer LES, Murdoch CL, Moitra V, Pham P, Rabbani I, Rivera RR, Schwartz A, Schwartz JE, Shapiro PA, Shaw K, Sullivan AM, Vose C, Wason L, Edmondson D, Abdalla M (2020) Psychological distress, coping behaviors, and preferences for support among New York healthcare workers during the COVID-19 pandemic. *Gen Hosp Psychiatry*. 66:1–8.

Singh R, Subedi M (2020) COVID-19 and stigma: Social discrimination towards frontline healthcare providers and COVID-19 recovered patients in Nepal. *Asian J Psychiatr*. 53:102222.

Siu JY (2008) The SARS-associated stigma of SARS victims in the post-SARS era of Hong Kong. *Qual Health Res*. 18:729–738.

Tandon R (2020) The COVID-19 pandemic, personal reflections on editorial responsibility. *Asian J Psychiatr*. 50:102100.

Urooj U, Ansari A, Siraj A, Khan S, Tariq H (2020) Expectations, fears and perceptions of doctors during COVID-19 Pandemic. *Pak J Med Sci*. 36(COVID19-S4):S37–S42.

Wang H, Xia Q, Xiong Z, Li Z, Xiang W, Yuan Y, Liu Y, Li Z (2020) The psychological distress and coping styles in the early stages of the 2019 coronavirus disease (COVID-19) epidemic in the general mainland Chinese population: A Web-based survey. *PloS One*. 15:e0233410.

WHO (2020) World Health Organization mental health and psychosocial considerations during the COVID-19 outbreak. Available at: https://www.who.int/docs/default-source/communicable-diseases/mental-health-considerations.pdf. Accessed June 30, 2020.