Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

American Journal of Emergency Medicine 48 (2021) 367–368

Contents lists available at ScienceDirect

American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajem

The impact of previous epidemic disease on mental health in physicians and nurses during COVID-19 pandemic

The coronavirus disease (COVID-19) pandemic has resulted in tremendous medical care and social cost for more than one year. As this report is being written (January 23th, 2021), there are approximately 100 million confirmed COVID-19 cases worldwide, and most of the cases are in the United States. The healthcare system is overwhelmed by the increased number of cases, growing medical cost, and changing vaccination policy during this outbreak [1]. Definite treatment for COVID-19 remains unclear. The variant virus seems to result in another severe spread of the disease, and numerous medical challenges lie ahead.

The importance of mental health before the COVID-19 pandemic was neglected for the past decades, which is the physiological stress that this pandemic imposed on health care providers, especially on physicians and nurses. During this pandemic, in the previous one year, several studies have demonstrated that healthcare providers experienced unprecedented levels of workload and pressure that influenced their mental health [2,3]. Health care providers, including physicians and nurses, suffered anxiety, depression [4], burnout [5,6], and being isolated at different extents [7]. However, few studies focused on the effect of previous experience with severe acute respiratory syndrome (SARS) or middle east respiratory syndrome (MERS) on mental health in physicians and nurses. We conducted a population-based study with a snowball-sampling technique to evaluate whether previous epidemic disease influenced mental health during this COVID-19 pandemic.

We used e-mail, Facebook, and LINE (the most popular messaging app in Taiwan) to circulate the survey link among physicians and nurses in hospitals. This anonymous survey was conducted in the early stage of the COVID-19 pandemic, from March to April 2020. Anxiety and depression disorders were assessed using the State-Trait Anxiety Inventory and the Center for EpidemiologicalStudies of Depression (CESD-10), respectively [8,9]. Burnout was assessed using the Physician Work Life Study, and a score of ≥3 implied burnout [10]. A total of 1421 physicians and nurses responded to the questionnaire, of which one-fourth were physicians. The departments of internal medicine, surgery, and emergency medicine were the top three departments where the responders took care of patients. We found that there was no significant difference between the without experience and with experience groups in physicians and nurses, such as moderate and high degree of anxiety (moderate anxiety, without: with = 11.37%: 14.96%; high anxiety, without: with = 79.02%: 75.64%, $p = 0.302$), depression (without: with = 46.59%:48.29%, $p = 0.633$) and burnout (without: with = 40.52%: 44.87, $p = 0.217$). The previous experience in handling COVID-19 may not increase the physiological stress from the levels of anxiety, depression, and burnout (Table 1).

Table 1
Comparison of baseline characteristic and variables by experiencing SARS or not

Variables	Total ($n = 1421$)	Without experience ($n = 1187$)	With experience ($n = 234$)	p
Age (years)	36.64 ± 8.13	35.25 ± 7.73	43.70 ± 6.21	<0.001
Male	262(18.44)	213(17.94)	49(20.94)	0.280
Education				<0.001
College	1237(87.05)	1062(89.47)	175(74.79)	
Graduate and above	178(12.53)	121(10.19)	57(24.36)	
Occupation group				0.147
Physicians	357(25.12)	307(25.86)	50(21.37)	
Nurse	1064(74.88)	880(74.14)	184(78.63)	
Division				0.028
Internal medicine	437(30.75)	362(30.50)	75(32.05)	
Surgery	193(13.58)	158(13.31)	35(14.96)	
Obstetrics and gynecology	63(4.43)	57(4.80)	6(2.56)	
Pediatrics	79(5.56)	69(5.81)	10(4.27)	
Emergency medicine	248(17.45)	191(16.09)	57(24.36)	
Anesthesiology	33(2.32)	27(2.27)	6(2.56)	
Family medicine	32(2.25)	27(2.27)	5(2.14)	
Others	303(21.32)	264(22.24)	39(16.67)	
Contact confirmed cases	557(39.20)	450(37.91)	107(45.73)	0.025
Burnout	586(41.24)	481(40.52)	105(44.87)	0.217
STAI index				0.302
No or low anxiety	136(9.57)	114(9.60)	22(9.40)	
Moderate anxiety	170(11.96)	135(11.37)	35(14.96)	
High anxiety	1115(78.47)	938(79.02)	177(75.64)	
Depressive disorder	666(46.87)	553(46.59)	113(48.29)	0.633

Data are presented as number (%); SARS = severe acute respiratory syndrome; STAI = state-trait anxiety inventory.

https://doi.org/10.1016/j.ajem.2021.01.082

The current results indicate that the previous disease pandemic did not have an influence on the mental health in medical workers during the COVID-19 pandemic. It might originate from the fact that the COVID-19 pandemic is relatively less severe in Taiwan. As a country that is 81 miles off the coast of mainland China, Taiwan was expected to have the second highest number of COVID-19 cases due to its proximity and close relationships with China [11]. At the early stage of the COVID-19 pandemic, before March 2020, only 513 COVID-19 cases and 7 deaths [12] had been reported on the island of a population of 23 million. Most of the cases were not from local transmission, and only one episode of health care-associated infection was noted in February. As for the 2002 outbreak of SARS, in one hospital in Taipei, 57 medical workers were infected and 7 of them died from the disease. The hospital was thus shut down for two weeks [13].

Owing to the painful memories in the SARS epidemic, many standardized operation procedures have been drafted by the National Health Command Center. The disease reporting system and border control efficiently decreased the possibility of community spread. The personal protection equipment protocol for medical workers, especially when facing the suspected cases, led to extremely low health care-associated infection, posing less threat to the frontline staff. Previous lessons from SARS or MERS did not significantly increase the physiological stress of medical workers during the COVID-19 pandemic; however, turn into precious experience controlling the transmission of the disease.

The current study indicated that previous experience of epidemic diseases such as SARS or MERS did not significantly increase the rate of anxiety, depression, or burnout in frontline physicians and nurses at the early stage of the COVID-19 pandemic. The efforts and lessons learned in fighting previous epidemics may be rewarded in fighting another disease, like COVID-19. Further studies should be required to identify the causality and effect in other countries and occupations.

Declaration of Competing Interest

None.

References

[1] Baroutjian A, McKenney M, Elkbuli A. The impact on outcomes of the ACS committee on trauma delayed trauma center verifications secondary to COVID19. Am J Emerg Med. 2021;39:219–20. https://doi.org/10.1016/j.ajem.2020.04.087.
[2] Si MY, Su XY, Jiang Y, Wang WJ, Gu XF, Ma L, et al. Psychological impact of COVID-19 on medical care workers in China. Infect Dis Poverty. 2020;9(1):113. https://doi.org/10.1186/s40249-020-00724-0.
[3] Lim R, Ali H, Gagnier R, Marlborough M, Northcott S. Emergency physician mental health during the subacute phase of the COVID-19 pandemic. CJEM. 2020;22(6):E13. https://doi.org/10.1017/cem.2020.442.
[4] Faisal RA, Jobe MC, Ahmed O, Sharker T. Mental health status, anxiety, and depression levels of Bangladeshi university students during the COVID-19 pandemic. Int J Ment Health Addict. 2021:1–16. https://doi.org/10.1007/s11469-020-00458-y.
[5] Almeida M, DeCavalcante G. Burnout and the mental health impact of COVID-19 in anesthesiologists: a call to action. J Clin Anesth. 2021;68:110084. https://doi.org/10.1016/j.jclinane.2020.110084.
[6] Joshi G, Sharma G. Burnout: a risk factor amongst mental health professionals during COVID-19. Asian J Psychiatr. 2020;54:102300. https://doi.org/10.1016/j.ajp.2020.102300.
[7] Lopez Steinmetz LC, Dutto Florio MA, Leyes CA, Fong SB, Rigalli A, Godoy JC. Levels and predictors of depression, anxiety, and suicidal risk during COVID-19 pandemic in Argentina: the impacts of quarantine extensions on mental health state. Psychol Health Med. 2020:1–17. https://doi.org/10.1080/13548506.2020.1867318.
[8] Marteau TM, Bekker H. The development of a six-item short-form of the state scale of the Spielberger State-Trait Anxiety Inventory (STAI). Br J Clin Psychol. 1992;31(3):301–6. https://doi.org/10.1111/j.2044-8260.1992.tb00997.x.
[9] Arbona C, Burridge A, Olvera N. The Center for Epidemiological Studies Depression Scale (CES-D): measurement equivalence across gender groups in Hispanic college students. J Affect Disord. 2017;219:112–8. https://doi.org/10.1016/j.jad.2017.05.024.
[10] Dolan ED, Mohr D, Lempa M, Joos S, Fihn SD, Nelson KM, et al. Using a single item to measure burnout in primary care staff: a psychometric evaluation. J Gen Intern Med. 2015;30(5):582–7. https://doi.org/10.1007/s11606-014-3112-6.
[11] Wang CJ, Ng CY, Brook RH. Response to COVID-19 in Taiwan: big data analytics, new technology, and proactive testing. JAMA. 2020;323(14):1341–2. https://doi.org/10.1001/jama.2020.3151.
[12] Control] NNHCCTCTCfD. Number of confirmed cases of COVID-19 - By date of Onset. https://sites.google.com/cdc.gov.tw/2019-ncov/taiwan; 2020.
[13] Hsieh YH, Chen CW, Hsu SB. SARS outbreak, Taiwan, 2003. Emerg Infect Dis. 2004;10(2):201–6. https://doi.org/10.3201/eid1002.030515.

Chien-Tai Huang
Department of Emergency Medicine, National Taiwan University Hospital, Taipei, Taiwan

Chih-Wei Sung
Department of Emergency Medicine, National Taiwan University Hsin-Chu Hospital, Hsinchu, Taiwan

Chi-Hsin Chen
Department of Emergency Medicine, National Taiwan University Hsin-Chu Hospital, Hsinchu, Taiwan

Cheng-Yi Fan
Department of Emergency Medicine, National Taiwan University Hsin-Chu Hospital, Hsinchu, Taiwan

Cheng-Heng Liu
Department of Emergency Medicine, National Taiwan University Hsin-Chu Hospital, Hsinchu, Taiwan

Tony Szu-Hsien Lee
Department of Health Promotion and Health Education, National Taiwan Normal University, Taipei, Taiwan

Edward Pei-Chuan Huang
Department of Emergency Medicine, National Taiwan University Hospital, Taipei, Taiwan
Department of Emergency Medicine, National Taiwan University Hsin-Chu Hospital, Hsinchu, Taiwan
*Corresponding author at: No.7, Zhongshan S. Rd., Zhongzheng Dist., Taipei 10022, Taiwan.
E-mail address: edward56026@gmail.com

26 January 2021