



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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



## Health-care professionals coping responses to the COVID-19 pandemic in Pakistan

Sabir Zaman, PhD<sup>a,\*</sup>, Shahid Irfan, PhD<sup>b</sup>, Shazia Khalid, PhD<sup>c</sup>, Alam Zeb Khattak<sup>a</sup>, Basharat Hussain<sup>d</sup>

<sup>a</sup> Department of Psychology, International Islamic University Islamabad, Pakistan

<sup>b</sup> Department of Psychology, Foundation University Islamabad, Pakistan

<sup>c</sup> Department of Social & Behavioral Sciences, National University of Medical Sciences Rawalpindi, Pakistan

<sup>d</sup> Department of Psychology and Human Development, Karakoram International University, Gilgit-Baltistan, Pakistan

### ARTICLE INFO

**Keywords:**  
Health  
Coping responses  
COVID-19  
Pandemic

### ABSTRACT

**Background:** In the initial stage of infectious diseases such as COVID-19 creates a prodigious uncertainty not only in general population but also in health care professionals. This often leads to emotional distress in general public and particularly in health care professionals.

**Objectives:** During COVID-19 pandemic in Pakistan, the health care professionals experienced unusual stressors. This study aimed to examine the coping responses, optimism, pessimism and psychiatric morbidity of health professionals serving the COVID-19 patients.

**Participants:** Total 87, health care professionals take part in study, whom 36 were physicians and 51 nursing staff. Among these 44 were male, and 43 were female.

**Method:** Researchers used cross sectional research design in this study. Physicians and nurses completed self-reported questionnaires. Participants provided demographics data and recorded their responses to self-administered questionnaires. Researchers administered Brief coping orientation to problems experiences (COPE) for assessing the coping strategies, while they assessed psychiatric morbidity through general health questionnaires. Similarly, future expectancy of health care professional was assessed by using life orientation scale. Participants were recruited from quarantine wards in two federal government hospitals providing health care services to COVID-19 patients in Pakistan.

**Result:** The result showed a significant relationship in optimism and problem focus coping style and avoidance coping style. Moreover, male health professionals score high on optimism as compared to female health professionals. While, avoidance coping style were seen higher in female health professional as compare to male. The result revealed that optimism and psychiatric morbidity were significantly positive in health professionals having problem focus and avoidance coping style.

### 1. Introduction

The COVID-19 was first reported in the city of Wuhan, China, in late 2019 and began to spread throughout the world including Pakistan. The novel coronavirus is caused by a virus named severe acute respiratory syndrome coronavirus 2 (SARS CoV-2) (Organization, 2020; Wu et al., 2020). This rapid increase of pandemic has stressed the entire Pakistani health care system particular in Islamabad. When the confirmed and suspected cases of COVID-19 pandemic increased, the general wards immediately transform into isolation wards, and the health care

professionals who did not have any expertise about COVID-19 were recruited to provide care for such patients. Health care professional are the key staff of any country. Their health and wellbeing are significant not for patient safety, but play important role in controlling the pandemic outbreak (Chang et al., 2020). However, previous literature revealed that health care professionals were under stress due to stigmatization, risk of infections, inadequate number of staff, comprehensive support and uncertainty during and afterward severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) outbreak (Lee et al., 2018; Maunder et al., 2003). Another study

\* Corresponding author.

E-mail address: [sabir.zaman@iiu.edu.pk](mailto:sabir.zaman@iiu.edu.pk) (S. Zaman).

<https://doi.org/10.1016/j.apnr.2021.151509>

Received 22 February 2021; Received in revised form 14 September 2021; Accepted 3 October 2021

Available online 6 October 2021

0897-1897/© 2021 Elsevier Inc. All rights reserved.

shown that 29% staff had psychiatric morbidity in Toronto hospital, competency, life style and part time job of nurses were the risk factors of psychiatric morbidity (Nickell et al., 2004). Similarly a study conducted in Toronto health care workers revealed that 36% staff have traumatic stress using impact event scale (Maunder, 2004). In addition, a comparative study of health care worker directly contact with SARS and HCW have no such contact compared with general staff, health care worker and nurses reported high level of anxiety than administrative staff and physicians (Cheong & Lee, 2004). Furthermore, quantitative studies have revealed that frontline health care professionals treating COVID-19 patients were high risk of psychological problems such as depression, anxiety, stress and insomnia (Liu et al., 2020). From the beginning, the virus targeted the general public; however, health-care professionals and other workers in the field, including those providing prehospital ambulatory services, are the most vulnerable to the disease COVID-19. The forefront medical doctors and nurses who had lack of experience and competency about infectious disease like COVID-19 pandemic had additional challenges for them to adjust themselves in entirely new and stressful environment. Pakistan experienced the COVID-19 pandemic from March 2020; during the early stage of the pandemic outbreak in first few months, hospitals were closed for all other patients and the research study only focused on COVID-19 patients. The objective of the study was to determine the coping strategies, psychiatric morbidity and optimistic and pessimistic thinking of frontline physicians and nurses in quarantine wards treating and caring COVID-19 patients.

## 2. Method

### 2.1. Study design and participants

Self-administered Urdu questionnaires were used. Participants were recruited through purposive sampling techniques. Physicians and nurses who had directly contacts with COVID-19 patients were included in the study, while exclusion criteria were physician and nurses who have no treatment contacts with patients during outbreak. All the participants were well educated of both English and Urdu language. Study was conducted in urban area of Pakistan and data were collected from two federal government hospital providing care and treatment to people aged 13 years or older in COVID wards. They have good written and verbal communication skills. Written consent form was taken before using self-administered scale. Ethics approval was taken from institutional ethics review committee.

### 2.2. Procedure

Self-administered structured questionnaires were used in month of June and July 2020. Before applying the original scales, demographics baseline such as age, gender, year of experience, marital status, department, the date they have started working on the COVID-19 wards and number of days they have worked in COVID-19 wards were taken from target participants.

### 2.3. Measures

Urdu translated version of Brief Coping Orientation to Problem Experience (COPE) and Urdu version of General Health Questionnaires (GHQ-28) were used (Carver, 1997; Nisa & Siddiqui, 2020; Riaz & Reza, 1998). The Brief COPE Urdu Scale (Nisa & Siddiqui) has three factors emotion and avoidance focused coping responsible for psychological distress while problem focused coping correlated with life satisfaction. Brief COPE has good divergent, convergent validity and good internal consistency. High scores in any factor indicate more use of that coping strategy. The Urdu version of General Health Questionnaire (GHQ-28; Riaz & Reza, 1998) is a screening tool used for assessing the risk of developing psychiatric disorder and it has high reliability. It consisted of

28 items that measure emotional distress in medical setting. It has divided into four subscales somatic symptoms (1–7 items), anxiety symptoms (8–14 items), social dysfunction (15–21 items), severe depression (22–28 items) (Goldberg, 1978). High scores on general health questionnaire indicate more chances of developing psychiatric disorders. Furthermore, The Urdu version of Life Orientation Test-Revised (Burke et al., 2000) was used to measure the optimistic and pessimistic thinking of individuals and this scale has high reliability and validity. It has closed ended structured test and it consisted of 10 items measuring optimism and pessimism on a five point Likert scale (Carver et al., 1989; Scheier & Carver, 1985). High scores in optimism subscale indicate positive thinking, while high scores on pessimistic subscale indicate negative thinking.

## 3. Results

Initially, researchers computed psychometrics of the Urdu Versions of Life Orientation Test-Revised, Brief Coping Orientation to Problem Experience (COPE) and General Health Questionnaire (GHQ-28). Results showed that all these scales and subscales were internally consistent as they have alpha reliability above 0.7. Moreover, the values of skewness and kurtosis were in acceptable ranges (−1 to +1) indicating that data is normally distributed. There were no outliers in the data. The major findings of the study are as under:

Table 1 showed the demographic characteristics of the participants. Eighty-seven health professionals take part in the study, whom 22, (61.15) were male, and 14 (38.9) were female physician. Among these 22, (53.15) were male, and 29 (56.9%) were female nurses. Most of the health professionals worked in quarantine ward for a month and more than a month.

Table 2 measured the psychiatric morbidity, coping strategies, and pessimism and optimism differences among men and women health care professionals. The result showed that optimism was higher in male professionals, while avoidance coping was higher in female health professionals. There were no differences in other variables of the study.

Results in Table 3 showed that the differences between physician and nurses on pessimism, optimism, coping strategies, and general health symptoms.

Findings in Table 4 assessed the mean score of coping style, the result showed that optimism and psychiatric morbidity were significant in problem focus and avoidance focus coping.

## 4. Discussion

Health professionals and workers are the most vulnerable groups as compared to other people of society. These health professionals are

**Table 1**  
Demographic characteristics of respondent (N = 87).

Characteristics	Physicians n = 36	Nurses = 51
Gender		
Men	22 (61.1%)	22 (43.1%)
Women	14 (38.9%)	29 (56.9%)
Education		
Graduation	16 (44.4%)	26 (51.0%)
Post-graduation	20 (55.6%)	25 (49.0%)
Marital status		
Married	23 (63.9%)	40 (78.4%)
Unmarried	13 (36.1%)	11 (21.6%)
Religion		
Islam	35 (97.2%)	27 (52.9%)
Christianity	1 (2.8%)	24 (47.1%)
Family system		
Joint family	22 (61.1%)	30 (58.8%)
Nuclear family	14 (38.9%)	21 (42.2%)
Duty in quarantine wards (months)		
One month	22 (61.1%)	26 (51.0%)
More than one month	14 (38.9%)	25 (49.0%)

**Table 2**

t-Test for gender differences on pessimism, optimism, coping strategies, and general health symptoms (N = 87).

Variables	Men (n = 44)	Women (n = 43)	t (85)	p	Cohen's d
	M (SD)	M (SD)			
Pessimism	4.64 (1.83)	5.09 (2.20)	-1.16	.25	0.12
Optimism	4.16 (3.09)	2.80 (2.21)	2.38	.02*	0.51
Problem focus coping	21.52 (1.84)	21.74 (1.81)	0.78	.57	0.06
Emotional coping	14.48 (3.16)	13.95 (3.32)	0.81	.45	0.09
Avoidance coping	13.66 (6.22)	16.16 (4.75)	2.06	.04	0.45
Somatic symptoms	4.23 (4.21)	4.35 (4.50)	0.71	.90	0.03
Anxiety/insomnia	4.28 (5.36)	5.95 (6.48)	0.19	.34	0.03
Social dysfunction	4.52 (3.19)	4.80 (3.85)	0.44	.72	0.08
Depressive symptoms	3.87 (3.77)	3.60 (4.39)	0.37	.75	0.07

**Table 3**

t-Test for professional groups on pessimism, optimism, coping strategies, and general health symptoms (N = 87).

Variables	Physician (n = 36)	Nurses (n = 51)	t (85)	p	Cohen's d
	M (SD)	M (SD)			
Pessimism	4.64 (2.07)	5.02 (1.68)	0.23	.36	0.01
Optimism	4.11 (3.03)	3.04 (2.49)	0.03	.08	0.02
Problem focus coping	21.89 (1.67)	21.45 (1.91)	0.03	.26	0.00
Emotional coping	14.14 (3.45)	14.27 (3.10)	0.46	.85	0.04
Avoidance coping	15.31 (5.62)	14.67 (5.72)	0.56	.61	0.11
Somatic symptoms	4.39 (4.32)	4.22 (4.38)	0.65	.86	0.04
Anxiety/insomnia	5.28 (5.96)	5.37 (5.98)	0.85	.94	0.02
Social dysfunction	4.58 (3.97)	4.71 (3.19)	0.44	.87	0.04
Depressive symptoms	3.78 (4.41)	3.73 (3.85)	0.62	.95	0.01

directly exposed to COVID virus infected patients. In addition, they feel more stress while attending the infected patients in inadequate working condition. Due to this exposure, the health professionals have the risk of becoming ill with coronavirus depending different types of exposure such as infection and factors related to the working condition. These professionals may variously and differently affected by COVID pandemic because of physical fatigue, stress, and insufficient health care protection. Moreover, it is also important that the health professional may not homogeneously affected by coronavirus because of differences in gender, social class, ethnicity, education and number of working hour duty in isolation words, and professional training courses.

The current study intended to explore the coping strategies, psychiatric morbidity, and optimism and pessimism among health care professionals. The result of the current study showed a significant relation in optimism and problem focus coping style and avoidance coping style. The problem focus style indicated planning, active coping, pursuing helpful support, suppression competitive events. Furthermore, the result revealed that optimism has positive significance with avoidance oriented coping style. The avoidance oriented coping involves behavioral and cognitive efforts of denying, minimize, avoid the stressful situation.

The current study showed that male health professionals score high on optimism as compared to female health professionals. Similarly, the avoidance coping style was seen higher in female health professional as compare to male health professional. Furthermore, the result revealed that optimism and psychiatric morbidity were significantly positive in

**Table 4**

Mean score (95% confidence interval) on coping response (N = 87).

	Problem focus coping M (SD)	Emotional focus coping M (SD)	Avoidance coping M (SD)
<i>Professional group</i>			
Physician (n = 36)	21.89 (1.67)	14.14 (3.45)	15.31 (5.62)
Nurses (n = 51)	21.45 (1.91)	14.27 (3.09)	14.67 (5.72)
p-Value	.27	.85	.61
<i>Duty in quarantine words in month</i>			
<Month	21.88 (1.68)	14.00 (3.36)	14.31 (5.47)
>Month	21.33 (1.95)	14.49 (3.09)	15.69 (5.85)
p-Value	.17	.49	.26
<i>Psychiatric morbidity GHQ28</i>			
>23 (n = 63)	22.38 (2.00)	14.58 (2.57)	17.92 (0.41)
<23 (n = 24)	21.35 (2.00)	14.08 (3.46)	13.79 (6.28)
p-Value	.01	.52	.001
<i>Optimism Score range (0–12)</i>			
<1 (n = 21)	20.86 (2.22)	15.00 (1.73)	9.14 (1.49)
>1 (n = 66)	21.88 (1.61)	13.97 (3.55)	16.77 (5.22)
p-Value	.02	.21	.001
<i>Pessimism Score range (0–12)</i>			
<1 (n = 2)	23.00 (0.00)	15.00 (0.00)	10.00 (0.00)
>1 (n = 85)	21.60 (18.83)	14.20 (3.27)	15.05 (5.67)
p-Value	.28	.73	.21

health professional having problem focus and avoidance coping style. Previous studies showed that 66.6% participants have mental health problems, the result based on GHQ12 scores. On the bases of previous studies that 30%–40% general Japanese populations has mental health problems, scored on GHQ-12 (>4), pre-COVID-19 pandemic (Nagasu et al., 2019; Pappa et al., 2020). A study also revealed that stress level was higher among health professionals than general populations (Bazzazan et al., 2018). Furthermore, previous studies on mental health problems on health professionals and general population were reported (Chew et al., 2020; Stuijzand et al., 2020; Zürcher et al., 2020).

## 5. Conclusion

Nurses as well as physicians have equal chances of being affected from COVID 19 pandemic while working in an environment that is adding to threat of being affected. That is why, nurses as well as physicians have poor coping strategies, psychiatric morbidity, and pessimistic thoughts occasionally. Psychologists should join hand with these healthcare professionals for their healing and care with latest therapeutic interventions and counselling techniques.

### 5.1. Limitations

The study was conducted in the city of Islamabad Pakistan, and data was collected from only two federal hospitals, so the result cannot be generalized to other health professionals belonging from different culture and regions of a country. The data was collected from two health professional's doctors and nurses while ignoring the other frontline such paramedics, and supporting staff, therefore the result are restricted to these target populations (doctors and nurses).

## Funding

The current research received no external funding.

## Informed consent

Informed consent was obtained from study participants.

## Data availability

The data of the current study are available on the request from corresponding author.

## Declaration of competing interest

No conflict of interest.

## Acknowledgement

We would like to thank of the health care professionals who participated in the study during the harsh condition of COVID-19.

## References

- Bazazan, A., Dianat, I., Rastgoo, L., & Zandi, H. (2018). Relationships between dimensions of fatigue and psychological distress among public hospital nurses. *Health Promotion Perspective, 8*(3), 195–199.
- Burke, K. L., Joyner, A. B., Czech, D. R., & Wilson, M. J. (2000). An investigation of concurrent validity between two optimism/pessimism questionnaires: The life orientation test-revised and the optimism/pessimism scale. *Current Psychology, 19* (2), 129–136.
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief cope. *International Journal of Behavioral Medicine, 4*(1), 92–100.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267–283.
- Chang, D., Xu, H., Rebaza, A., Sharma, L., & Cruz, C. S. D. (2020). Protecting health-care workers from subclinical coronavirus infection. *The Lancet Respiratory Medicine, 8*(3), Article e13.
- Cheong, D., & Lee, C. (2004). Impact of severe acute respiratory syndrome on anxiety levels of front-line health care workers. *Hong Kong Medical Journal, 10*(5), 325–330.
- Chew, Q. H., Wei, K. C., Vasoo, S., & Sim, K. (2020). Psychological and coping responses of health care workers toward emerging infectious disease outbreaks: A rapid review and practical implications for the COVID-19 pandemic. *The Journal of Clinical Psychiatry, 81*(6), 1–12. <https://doi.org/10.4088/JCP.20r13450>
- Goldberg, D. (1978). *Manual of the general health questionnaire*. Nfer Nelson.
- Lee, S. M., Kang, W. S., Cho, A.-R., Kim, T., & Park, J. K. (2018). Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. *Comprehensive Psychiatry, 87*, 123–127.
- Liu, S., Yang, L., Zhang, C., Xiang, Y.-T., Liu, Z., Hu, S., & Zhang, B. (2020). Online mental health services in China during the COVID-19 outbreak. *The Lancet Psychiatry, 7*(4), e17–e18.
- Maunder, R. (2004). The experience of the 2003 SARS outbreak as a traumatic stress among frontline healthcare workers in Toronto: Lessons learned. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences, 359*(1447), 1117–1125.
- Maunder, R., Hunter, J., Vincent, L., Bennett, J., Peladeau, N., Leszcz, M., ... Mazzulli, T. (2003). The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *Cmaj, 168*(10), 1245–1251.
- Nagasu, M., Kogi, K., & Yamamoto, I. (2019). Association of socioeconomic and lifestyle-related risk factors with mental health conditions: A cross-sectional study. *BMC Public Health, 19*(1), 1–13.
- Nickell, L. A., Crighton, E. J., Tracy, C. S., Al-Enazy, H., Bolaji, Y., Hanjrah, S., ... Upshur, R. E. (2004). Psychosocial effects of SARS on hospital staff: Survey of a large tertiary care institution. *Cmaj, 170*(5), 793–798.
- Nisa, A., & Siddiqui, S. (2020). Urdu translation and adaptation of Brief COPE Scale (<https://doi.org/10.33824/PJPR.2020.35.1.1>). *Pakistan Journal of Psychological Research, 35*(1).
- Organization, W. H. (2020). *Coronavirus disease 2019 (COVID-19): Situation report* (p. 72).
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity, 88*, 901–907. <https://doi.org/10.1016/j.bbi.2020.05.026>
- Riaz, H., & Reza, H. (1998). The evaluation of an Urdu version of the GHQ-28. *Acta Psychiatrica Scandinavica, 97*(6), 427–432.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology, 4*(3), 219.
- Stuijzand, S., Deforges, C., Sandoz, V., Sajin, C.-T., Jaques, C., Elmers, J., & Horsch, A. (2020). Psychological impact of an epidemic/pandemic on the mental health of healthcare professionals: A rapid review. *BMC Public Health, 20*(1), 1–18.
- Wu, Y., Ho, W., Huang, Y., Jin, D.-Y., Li, S., Liu, S.-L., Liu, X., Qiu, J., Sang, Y., & Wang, Q. (2020). SARS-CoV-2 is an appropriate name for the new coronavirus. *The Lancet, 395*(10228), 949–950.
- Zürcher, S. J., Kerksieck, P., Adamus, C., Burr, C. M., Lehmann, A. I., Huber, F. K., & Richter, D. (2020). Prevalence of mental health problems during virus epidemics in the general public, health care workers and survivors: A rapid review of the evidence. *Frontiers in Public Health, 8*, 1–15.