

Coping Strategies among Healthcare Workers Directly Involved in Coronavirus Disease-2019 Care in a Tertiary Care Hospital in India

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Received on: 29 April 2022; Accepted on: 16 August 2022; Published on: 10 February 2023

ABSTRACT

Background: The pandemic of coronavirus disease-2019 (COVID-19) has put healthcare workers (HCWs) under the immense pressure of providing care to a large number of patients with the risk of getting infected. This has resulted in the rise of severe mental health issues in them and coping with such deep stress needs certain strategies.

Aim: A study was used to evaluate the coping techniques adopted by the HCWs to deal with COVID-19-related stress.

Methods: A 28-item Brief-coping orientation to problems experienced (COPE) questionnaire-based cross-sectional survey was used with the HCWs directly involved in the care of COVID-19 patients in September 2020 during the peak of the first COVID-19 wave and coping strategies were analyzed as continuous variables.

Result: A total of 221 HCWs completed the questionnaire of which 166 (75%) were doctors. The mean scores for adaptive strategies and maladaptive strategies were 41.56 (9.04) and 21.41 (5.6), respectively. The most employed coping strategy was acceptance (6.35 ± 1.6) and the least was substance abuse (2.33 ± 0.9).

Conclusion: Of all the coping strategies, adaptive strategies were the most employed. However, females and young ones employed maladaptive strategies, indicating the need for necessary attention in them.

Keywords: Adaptive, Coronavirus disease-2019, Maladaptive, Mental health, Stress, Young doctors.

Indian Journal of Private Psychiatry (2023); 10.5005/jp-journals-10067-0126

INTRODUCTION

The outbreak of severe acute respiratory syndrome (SARS-CoV-2) caused an unexplained and rapid spread of severe respiratory diseases in Wuhan, China, which was formally classified as COVID-19. Within a short span, COVID-19 spread across countries and continents, cascading into a global pandemic, posing a major public health challenge. This sudden spread of COVID-19 with high infectivity and mortality puts immense pressure on HCWs physically, psychologically, and emotionally.

Primarily HCWs are emotionally and physically competent to handle stress at their workplace, but because of its highly contagious nature, COVID-19 arrived with a special set of consequences. Mehdi et al., in their study, on investigating the relationship between occupation and SARS-CoV-2 infection reported 6.33% of patients with coronavirus were medical staff.¹ With no specific treatment available and a high risk of viral infection with human spread, the burden of providing care to patients has increased to an unimaginable level.² Moreover, this pandemic has resulted in stress extending beyond the boundaries of healthcare facilities. Due to the fear of infecting their family and loved ones and contaminating their homes, HCWs choose to self-isolate.³ However, to their dismay, this social distancing and self-isolation brought subjective sentiments of anguish and anxiety, which are identified risk factors for suicide, presently reflecting a higher figure for suicide rate among doctors than in the common population.^{3,4}

Numerous studies revealed that frontline HCWs, who are primarily responsible for providing care to COVID-19 patients, have

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How to cite this article: Bhatia R, Ganesh R, Singh Y, et al. Coping Strategies among Healthcare Workers Directly Involved in Coronavirus Disease-2019 Care in a Tertiary Care Hospital in India. *Ind J Priv Psychiatry* 2023;17(1):4-9.

Source of support: Nil

Conflict of interest: None

reported a higher incidence of severe psychological and mental health problems than those involved in secondary care.⁵ A survey study from Canada was done on the psychosocial effects of SARS on hospital personnel) showed 29% of the respondents scored over the edge point, on a 12-item General Health Questionnaire demonstrating possible emotional distress.⁶ Likewise, a study conducted by Tella et al. reported higher levels of depressive symptoms and post-traumatic stress disorder in healthcare professionals working in COVID-19 wards as compared to those working in another unit.⁷

This extreme pressure during the pandemic sensed by HCWs at their workplace has affected their personal and social lives, resulting not only in an increased risk of burnout, but also casting an adverse impact on their individual wellbeing, patient care ability, and the healthcare system. The WHO also underlined the huge burden on HCWs and has emphasized the need for action to address the immediate measures required to save lives and prevent a serious impact on the physical and mental health of HCWs.⁸ Hence, it is imperative to evaluate the proficiency of HCWs to cope with stress.

Broadly, “coping” has been defined as an effort used to decrease the distress associated with negative life experiences. Several stress–coping strategies have been described in numerous studies. They include adaptive vs maladaptive,^{9–11} problem-focused vs emotion-focused,¹¹ task-oriented vs emotion-oriented;¹² healthy vs non-effective/maladaptive;¹³ good vs bad;¹⁴ and positive vs negative stress–coping strategies.¹⁵

Many psychological assistance services that include organizing workshops, seminars, and public lectures regarding mental health problems in response to the COVID-19 outbreak, have been extensively organized both at community hospitals as well as at the tertiary care center. The various assistance provided through mobile phones, online video platforms, or application-based counselling or intervention. For instance, Blake et al. created and evaluated a digital support package on “psychological wellbeing for HCWs” which includes advice from mental health experts as well as those with first-hand pandemic experience, and links to public mental health resources.¹⁶ However, overall evidence-based assessment of mental and psychological health interventions targeting Indian front-line HCWs are relatively less and ineffectual. Thus, to bridge this gap, survey-based research was designed to assess the coping techniques adopted by different sections of the front-line healthcare providers who are directly involved in the care of the COVID-19 patients. Furthermore, identifying coping methods among HCWs may provide useful information for the planning and implementation of effective mental health support interventions.

METHODS

After obtaining approval from the Institute Ethics Committee (No. IEC-758/07.08.2020), this cross-sectional, single-center study was conducted on HCWs posted for the management of COVID-19 patients from 1 September 2020 to 30 September 2020 at a tertiary hospital, New Delhi, designated as a COVID-19 center by the Government of India. Approximately 598 HCWs including doctors, nurses, operating theater staff, and sweepers were posted during the duration of the study.

The HCWs who were directly involved in the care of COVID-19 patients and aged between 18 and 60 years were included to participate in this questionnaire-based survey. Individuals with a prior history of psychiatric illness and who are not able to understand the English language were excluded from the study. The Google link to the questionnaire was created and sent to the 542 HCWs through an e-mail and mobile phone/WhatsApp number after retracting the details from the records. Up to two reminder messages explaining the objectives of the survey were sent. An informed consent form for participation was attached along with the Brief-COPE questionnaire. Those HCWs who were experiencing stress were asked to fill in the Brief-COPE questionnaire. Besides, the protocol also included demographic characteristics such as age, sex, area of work [intensive care unit (ICU)/non-ICU], designation

(doctor, nurses, operating theater assistant, and others), previous ICU experience, level of education, and history of psychiatric illness.

Coping strategies used by different HCWs were assessed using the Brief-COPE questionnaire. The Brief-COPE questionnaire is a 28-item self-report questionnaire devised to measure effective and ineffective ways to cope with stress in life (Appendix 1). This questionnaire has been used in different healthcare professionals' studies.^{17–20} The mentioned COPE method uses 28 questions to evaluate 14 stress–coping strategies, that is, each strategy has two questions. Each question is calculated on a 4-point Likert scale (that is, 1: not at all, 2: a little bit, 3: a medium amount or a lot) with scores ranging from 1 to 4. Thus, each strategy has a score ranging from 2 to 8. Stress–coping strategies are divided into either adaptive or maladaptive strategies.¹⁰ Strategies included in adaptive coping are active coping, religion, acceptance, planning, positive reframing, instrumental support, humor, and emotional support. Maladaptive stress–coping strategies include the following: Behavioral disengagement, self-distraction, self-blame, denial, substance use, and venting. The final Brief-COPE score is calculated by adding individual question scores. With each question having a maximum of 4 points, the maximum score for adaptive stress–coping is 64 points (16 questions covering 8 strategies) and for maladaptive stress–coping is 48 points (12 questions covering 6 strategies).²¹

The descriptive variables data were mentioned as the mean (standard deviation) and median [interquartile range (IQR)] and the categorical data were recorded in terms of frequencies and percentages. Coping strategy scores were analyzed as continuous variables. Additionally, the relative scores for coping strategies (both adaptive and maladaptive) were calculated by transforming absolute scores (adaptive score of 64 maximum and a maladaptive score of 48 maximum) to percentages for easy interpretation. The Chi-squared test was applied to evaluate differences in categorical variables. Mann–Whitney *U* test was applied to compare the coping strategies between gender, area of work, and previous work experience. The Pearson correlation was applied to assess the relationship between age and coping strategies. Spearman correlation analysis was done to check the association between coping strategies and educational qualifications. Furthermore, $p < 0.05$ was considered significant. Data analyzes were done using the Statistical Analysis System (version 9.0).

RESULTS

At the time of the study, there were 558 HCWs working at the COVID-19 facility. Because the contact information for 16 HCWs could not be found, 542 HCWs were approached to participate in the study (Flowchart 1). Furthermore, 243 (44.8%) HCWs consented and participated in the study. Of this, 18 HCWs partially filled the questionnaire due to difficulty in understanding the English language and thus, excluded from the study. Out of 225 HCWs who completed the questionnaire, four had a past history of psychiatric illness (three from depression and one from acute psychosis) and hence were excluded from the study. Finally, 221 HCWs were analyzed for the study.

The mean age of the study participants was 29.5 (SD 3.8) years (Table 1) and more than half of the participants were males (66.1%). Approximately three-fourths of the HCWs who participated in the survey were doctors, with more than half of them being post-graduates. Only 35.3% ($n = 78$) had prior experience working in ICUs, whereas approximately 69.2% ($n = 153$) worked in the ICU caring for critically ill patients.

Flowchart 1: Flowchart coping

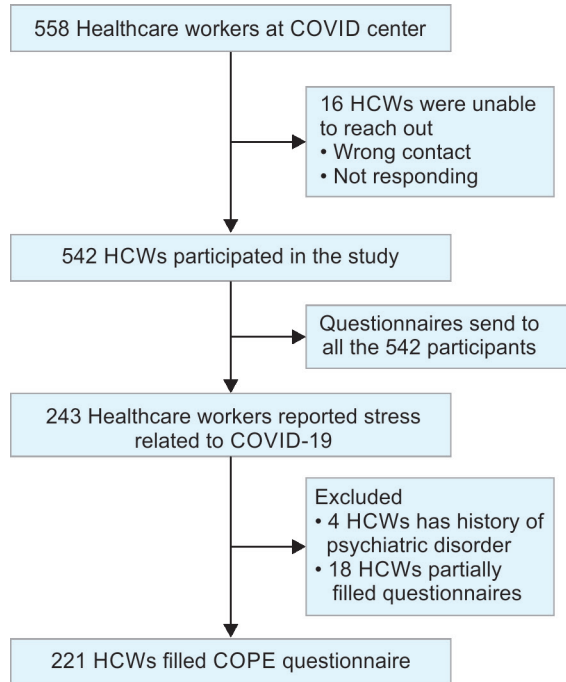


Table 1: Demographics parameters

Demographic characteristic	n (%)
Age (years)	
<30 years	142 (64.25)
>30 years	79 (35.74)
Sex	
Male	146 (66.1)
Female	75 (33.9)
HCWs	
Doctors	166 (75.11)
Nurses	43 (19.45)
Operation theater assistant	5 (2.26)
Supporting staff	7 (3.16)
Educational qualification	
<12th	4 (1.8)
Undergraduate	58 (26.24)
BSc/Graduate	23 (10.4)
Postgraduate	94 (42.53)
Superspeciality (DM/Mch)	42 (19)
Previous ICU experience	
Yes	78 (35.3)
No	143 (64.7)
Area of work	
Ward	68 (30.8)
ICU	153 (69.2)

Responses to the 28 questions of the Brief-COPE are depicted in Table 2. In addition, Table 3 highlights the scores of adaptive and maladaptive stress-coping strategies with a maximum possible score of 8 for each strategy being plotted. Besides, our study also

revealed that the mean score for adaptive strategies was 41.51 (9.04) and for maladaptive strategies was 21.41 (5.61). Among the adaptive strategies, the most employed ones were acceptance (mean = 6.35) followed by active coping (5.67) and positive reframing (5.65), and the least commonly used adaptive coping strategies were instrumental support and religion. Among the maladaptive coping strategies, self-distraction, including watching television, was the most frequently employed strategy and substance abuse was the least.

Both adaptive and maladaptive stress coping strategies were more common in females as compared to males ($p=0.004$ and <0.05 , respectively). Emotional support (Mann-Whitney $U = 3497.500$, $Z = -4.450$, $p < 0.001$) was the most the common adaptive coping strategies in females compared to the males, followed by instrumental support (Mann-Whitney U test = 4112.500, $Z = -3.065$, $p = 0.002$) whereas, venting (Mann-Whitney U test = 3338.000, $Z = -4.824$, $p < 0.001$) and self-distraction (Mann-Whitney U test = 3869.500, $Z = -3.633$, $p < 0.001$) were significantly used maladaptive coping strategies in females.

In relation to age, no significant difference in coping strategies was found between the two groups. However, the self-blame coping strategy had a significant negative correlation with age ($r = -0.169$, $p = 0.012$). Similarly, a significant difference was observed in denial as the maladaptive coping strategy in those without prior ICU work experience (Mann-Whitney U test = 4294.500, $Z = -3.159$, $p = 0.002$). However, no association was found between coping strategies and the area of work. Higher education groups used adaptive strategies more frequently ($p = 0.05$) ($r = -0.283$, $p = 0.001$).

DISCUSSION

Recent research suggests that medical students and HCWs know more about COVID-19 than the general public and practice COVID-19-appropriate behavior properly.²² However, simply knowing about the disease is insufficient to prevent the stress that comes with it. As a result, frontline HCWs caring for COVID-19 patients have a greater rate of severe mental health disorders and psychological issues than those in secondary roles.⁵ In a meta-analysis by Pappa et al., at least 1 in every 5 HCWs experiences symptoms of depression and anxiety, and 4 out of every 10 HCWs experience sleeping issues, with the frequency being higher among female workers.²³ Likewise, Lai et al. described nearly half of the participants had the symptoms of depression, anxiety, insomnia, and distress with the higher frequency of symptoms in nurses and women frontline workers.²⁴

Stress, if not addressed early and appropriately, can lead to mental diseases. The most effective therapy for symptom relief is the removal of the stress source. However, this is seldom possible. To deal with the situation, professionals must create effective coping techniques, and several tools are available to assess coping strategies.

REGARDING COPING STRATEGY ASSESSMENT TOOLS

International studies among health personnel have used stress-coping tools such as the older 20-item Carver COPE instrument,⁹ a 19-item German stress-coping inventory (SVI) (15), a 20-item Scottish coping questionnaire,²⁵ and a 48-item Parker and Endler Coping Inventory for Stressful Situations (CISS).^{12,26} However, our study used the Brief-COPE questionnaire as a stress-coping

Table 2: Responses to the 28 questions of the Brief-COPE

Questions	Not at all	Little bit	Medium amount	A lot
1 I've been turning to work or other activities to take my mind off things.	40 (18.1)	36 (16.3)	82 (37.1)	63 (28.5)
2 I've been concentrating my efforts on doing something about the situation I'm in.	31 (14)	40 (18.1)	101 (45.7)	49 (22.2)
3 I've been saying to myself "this isn't real."	152 (68.8)	36 (16.3)	22 (10)	11 (5.0)
4 I've been using alcohol or other drugs to make myself feel better.	195 (88.2)	18 (8.1)	6 (2.7)	2 (0.9)
5 I've been getting emotional support from others.	41 (18.6)	58 (26.2)	69 (31.2)	53 (24.0)
6 I've been giving up trying to deal with it.	126 (57.0)	49 (22.2)	31 (14.0)	15 (6.8)
7 I've been taking action to try to make the situation better.	23 (10.4)	40 (18.1)	92 (41.6)	66 (29.9)
8 I've been refusing to believe that it has happened.	161 (72.9)	37 (16.7)	14 (6.3)	9 (4.1)
9 I've been saying things to let my unpleasant feelings escape.	91 (41.2)	63 (28.5)	44 (19.9)	23 (10.4)
10 I've been getting help and advice from other people.	56 (25.3)	53 (24.0)	67 (30.3)	45 (20.4)
11 I've been using alcohol or other drugs to help me get through it.	195 (88.2)	16 (7.2)	9 (4.1)	1 (0.5)
12 I've been trying to see it in a different light, to make it seem more positive.	33 (14.9)	47 (21.3)	93 (42.1)	48 (21.7)
13 I've been criticizing myself.	140 (63.3)	42 (19)	22 (10)	17 (7.7)
14 I've been trying to come up with a strategy about what to do.	32 (14.5)	59 (26.7)	83 (37.6)	47 (21.3)
15 I've been getting comfort and understanding from someone.	38 (17.2)	58 (26.2)	68 (30.2)	57 (25.8)
16 I've been giving up the attempt to cope.	115 (52)	63 (28.5)	26 (11.8)	17 (7.7)
17 I've been looking for something good in what is happening.	22 (10)	42 (19)	82 (37.1)	75 (33.9)
18 I've been making jokes about it.	75 (33.9)	65 (29.4)	47 (21.3)	34 (15.4)
19 I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	39 (17.6)	49 (22.2)	70 (31.7)	63 (28.5)
20 I've been accepting the reality of the fact that it has happened.	25 (11.3)	18 (8.1)	69 (31.2)	109 (49.3)
21 I've been expressing my negative feelings.	67 (30.3)	75 (33.9)	49 (22.2)	30 (13.6)
22 I've been trying to find comfort in my religion or spiritual beliefs.	87 (39.4)	50 (22.6)	46 (20.8)	38 (17.2)
23 I've been trying to get advice or help from other people about what to do.	53 (24)	67 (30.3)	64 (29)	37 (16.7)
24 I've been learning to live with it.	13 (5.9)	27 (12.2)	92 (41.6)	89 (40.3)
25 I've been thinking hard about what steps to take.	38 (17.2)	66 (29.9)	71 (32.1)	46 (20.8)
26 I've been blaming myself for things that happened.	158 (71.5)	43 (19.5)	11 (5.0)	9 (4.1)
27 I've been praying or meditating.	67 (30.3)	59 (26.7)	60 (27.1)	35 (15.8)
28 I've been making fun of the situation.	105 (47.5)	60 (27.1)	31 (14)	25 (11.3)

tool as this questionnaire is relatively simpler and can efficiently measure various coping strategies. This questionnaire is based on Lazarus and Folkman's model of coping along with behavioral self-regulation.²¹ A similar scale has also been used by Alosaimi et al. to evaluate stress and coping among healthcare professionals in Saudi Arabia.²⁷ Similar to previous research,^{28,29} our study also stated more frequent use of adaptive strategies than maladaptive ones as a coping mechanism.

REGARDING COPING STRATEGIES

In this study, HCWs used a variety of coping strategies, including psychological and social approaches, to deal with the stress of the pandemic. Overall adaptive coping strategies were highly employed as compared to maladaptive coping strategies. Similar findings have previously been described among international health personnel,⁹⁻¹¹ which may reflect accumulated experience of adequate coping with work stressors, as these studies were conducted before the pandemic.

Acceptance is a coping strategy for an unchangeable negative event that helps an individual to maintain their psychological well-being. Furthermore, active acceptance assists an individual in confronting their own reality. In our study, acceptance was reported as the most commonly employed adaptive coping strategy. The likely reason for this finding could be that our study was specific to COVID-19 related stress and was conducted after 6 months of the pandemic.

In this study, the second most common adaptive strategy used by HCWs was active coping. This highlights the fact that the HCWs tried to cope by searching for a solution to the modifiable problem before them. Studies have shown a positive relationship between the coping strategies of acceptance and active coping with the mental wellbeing of the individuals.³⁰

Few studies done previously have reported religion as a common adaptive coping strategy.^{27,31,32} On the contrary, in our study, religion was the least commonly employed method of adaptive coping. It could be for the reason that the mentioned studies were done in Muslim-dominated countries. Also, education

Table 3: Scores of adaptive and maladaptive stress-coping strategies

	Mean	Standard deviation
Adaptive strategies		
Religion (22 and 27)	4.44	1.992
Active coping (2 and 7)	5.67	1.577
Planning (14 and 25)	5.22	1.668
Acceptance (20 and 24)	6.35	1.643
Positive reframing (12 and 17)	5.656	1.7054
Instrumental support (10 and 23)	4.842	1.9015
Emotional support (5 and 15)	5.258	1.8145
Humor (18 and 28)	4.07	1.894
Total adaptive score	41.51	9.046
Maladaptive strategies		
Self-distraction (1 and 19)	5.47	1.772
Self-blame (13 and 26)	3.04	1.480
Venting (9 and 21)	4.19	1.683
Behavioral (6 and 16) disengagement	3.457	1.6416
Denial (3 and 8)	2.93	1.363
Substance (4 and 11)	2.33	0.902
Total maladaptive score	21.41	5.614

could be negatively associated with praying and hoping.³³ As a result, the higher educational level of the majority of our study's participants can be linked to the difference in this finding.

Comparable to previous studies,²⁷ the most common maladaptive coping strategy was self-distraction, such as watching television or doing other activities, while substance abuse was the least common among HCWs. The apparent reasons for the least substance abuse could be the partial lockdown at the time of the survey or the inability of the HCWs to access it.

Customarily, the time spent by women physicians on childcare and other household chores is over and above compared to that spent by male physicians.³⁴ Disruption of routine activities such as the closing of schools, preparing meals daily with the limited option of ordering food, etc. has put an extra burden on female physicians.³⁵ Consequently, the incidence of anxiety and stress is higher in female HCWs as compared to males.³⁶ Probably, owing to the need for the additional sacrifices expected from female physicians and the higher level of stress, this study showed a gender difference in adaptive and maladaptive stress coping strategies, being more common in females as compared to males, which was highly significant ($p = 0.004$, $p < 0.05$, respectively). Also, this finding is consistent with various other studies done in pre-pandemic times.²⁰ Lastly, in comparison to the older age-group, self-blame was significantly higher in the younger population ($p = 0.003$) who usually blame themselves for choosing the occupation. Analogously, a study conducted in Switzerland by Buddeberg-Fischer et al. showed that one-third of young doctor's experience stress at work, negatively affecting their health and life satisfaction.³⁷

LIMITATIONS

The research was conducted on a virtual platform due to restrictions imposed by the existing partial lockdown owing to the COVID-19 pandemic. Moreover, collecting the contact numbers and email addresses was difficult as the HCWs were posted from various

specialties and super-specialties to cater to the designated COVID-19. Due to the language barrier and the difficulty in understanding the complexity of the questionnaire, the response rate was low, particularly among supporting staff. All the above factors contributed to a small sample size leading to one of the major limitations of this study. Further, due to the low response rate, the relationship between coping strategies and the level of education and income could not be evaluated. Despite the above-elucidated limitations, our study provides a sincere and wholesome insight into the coping methodologies adopted by the HCWs of India in such an extreme situation.

CONCLUSION

The study concludes that adaptive strategies were more frequently employed as compared to maladaptive strategies by the Indian HCWs for coping with the stressors of the pandemic. Furthermore, it shows that acceptance was the most commonly used coping strategy and drug abuse the least. Besides, maladaptive coping was more common in females, indicating more attention to them. Also, the focus should be on young doctors blaming themselves for choosing the occupation. We recommend a proper stress management policy addressing the core issue of the mental health of HCWs in a better way.

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