A Cross-sectional Study of Psychological Distress, Coping Strategies, Concerns, and Perceived Needs among Nurses Working in a Dedicated COVID-19 Center

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ABSTRACT

Context: Nurses presented with highest levels of occupational stress and resulting distress when compared to other healthcare workers, which could be due to nurses spending more time than doctors with patients with frequent rotations of duties and direct contact of the nurses with the patients. Most studies have focused on psychological distress among nurses in the coronavirus disease-2019 (COVID-19) pandemic. We in addition wanted to explore their concerns, factors which could possibly mitigate their distress in addition to studying coping strategies used by them and its association with psychological distress which was the aim of the present study.

Settings and design: It was a cross-sectional study using convenient sampling where snowballing technique was used to contact 100 frontline nurses working for a dedicated COVID-19 care center.

Materials and methods: The study tools included were socio-demographic questionnaire, Depression Anxiety Stress Scale 21 (DASS 21), Brief COPE scale, and a list of concerns and perceived needs which could mitigate distress which was sent using google forms to participants after obtaining informed consent from each participant.

Statistical analysis used: Descriptive data were tabulated using percentages. Statistical analysis was conducted using Chi-square test for categorical variables, *t*-test for continuous variables, and Spearman correlation for correlations.

Results: Our study had 100 participants, of which 43 (43%) were males and 57 (57%) were females. Majority of them were married (60%) and living with family (77%). The predominant concern was death due to COVID-19 infection. Nurses in the study reported that factors such as family support, working as a team and positive attitudes of colleagues, recognition of work by management could possibly help in mitigating distress. Those with high stress had significantly higher fear of death due to COVID-19 infection ($p = 0.001$). We found a significant association between high emotion focused and avoidant type of coping with higher stress ($p = 0.0001$) and high problem-focused coping with lower stress ($p = 0.0013$).

Conclusion: The results of the present study highlight the need to better understand psychological distress and coping strategies among nurses providing care to COVID-19 patients. Administration should establish a system to support nurses and monitor their psychological health.

Keywords: Anxiety, Depression, Nurses, Psychological.

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INTRODUCTION

The COVID-19 has been declared as a pandemic by WHO in March 2020. The new virus whose etiology is less known has affected the mental health of healthcare professionals to a great extent who are continuously involved in treating COVID patients.

This COVID-19, which is considered as a public health emergency, is creating a lot of distress among the healthcare professionals who are directly involved in treating and caring patients. Sources of distress may include emotions of vulnerability or loss of control, health of the family or others due to the spreading of the virus, changes at the working conditions, and environment or isolation anxieties.[1,2] Several studies have shown anxiety and depression being common mental disorders among healthcare professionals in pandemics.[3–6]

Healthcare professionals use various coping strategies to overcome emotions associated with COVID-19. Studies have shown that individuals having poor coping strategies are more prone to psychological symptoms.[7,8] Most studies tend to emphasize on the psychological impact on doctors and very few on nurses. However, evidence shows that in earlier outbreaks, nurses have

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already presented the highest levels of occupational stress and resulting distress when compared to other groups. This could be a result of nurses spending more time than doctors with patients which results in development of a bond with them which in turn can lead to higher levels of distress. Recent study by Pappa et al. and Sampaio et al. has shown that nurses are more prone to develop

mood symptoms.[9,10] The working pattern of the nurses, frequent rotations of the duties, and the direct contact of the nurses with the patients are quite different from the doctors.

The aim of the study was thus:

- To measure psychological symptoms, distress, and concerns among nursing staff posted for COVID duty.
- To assess coping skills used by the participants and its association with psychological distress.

MATERIALS AND METHODS

Institutional ethical committee clearance was obtained before initiating the study. Participant consent statement was taken from each participant.

Study Design

This study was a cross-sectional study conducted in a tertiary care center exclusively treating COVID-19 patients. The study sample was 100 nurses. Convenience sampling was used and snowballing technique was used to contact nurses posted for COVID-19 duty to recruit them for the study. Self-administered questionnaires were sent to the participants through google forms. This study was conducted for a duration of 3 months. All nursing staff posted for COVID duty were included in the study and people who were not willing to give informed consent were excluded from the study.

The tools used in our study were:

- Depression Anxiety Stress Scale 21: It is a self-report scale with 21 items that measures depressive symptoms, anxiety symptoms, and stress. Each domain has seven items. It has excellent Cronbach's alpha values of 0.81, 0.89, and 0.78 for subscales of depression, anxiety, and stress, respectively.[11]
- Brief COPE Scale: It is a self-report questionnaire with 28 items designed to measure effective and ineffective ways of coping. We followed Carver et al. method of categorization into emotion-focused, problem-focused, and dysfunctional coping strategies.[12]

  Both scales (DASS 21 and Brief COPE scale) have good reliability and validity.[11,13,14]
- In addition to the above tools, the study questionnaire also contained a list of the concerns among nurses regarding COVID-19 and the list of factors (perceived needs) that could possibly reduce stress (Annexures 1 and 2, respectively).

  - There were 12 questions regarding list of concerns regarding COVID-19. Questions 1, 2, 3, 6, 7, 9, 10 (ref Annexure 1) had responses which had to be rated on a 1–5 Likert scale as "Not at all, Little bit, Sometimes, Often, and Always." The instructions for scoring were as follows:

    - Not at all: If it never occurred during the past month.
    - Little bit: If it occurred on less than half of the occasions during the past month.
    - Sometimes: If it occurred around half of the occasions during the past month.
    - Often: If it occurred more than half of the occasions but not always during the past month.
    - Always: If it occurred on all the occasions during the past month.
    - The remaining questions 4, 5, 8, 11, 12 had responses as either "yes" or "no."

  - There were 11 perceived needs or factors that could reduce the stress among doctors which had to be scored as "Yes/No" (ref Annexure 2).

After obtaining approval and clearance from ethics committee, nursing staff who were posted for COVID duty were considered for the study. The participants were informed about the objectives and potential benefit of study, and verbal informed consent was taken via audio calls. The nurses fulfilling the inclusion criteria were enrolled into the study. A semistructured questionnaire containing socio-demographic data, past and family history of psychiatric illness and medical illness, DASS 21 and Brief cope scale was sent to the participants. Confidentiality of the participating nurses was ensured. An option to contact the investigator was provided in the form in case they wanted to access any help.

Statistical Analysis

The data collected will be analyzed statistically using descriptive statistics, namely, mean, median, standard deviation, percentage wherever applicable. We used Chi-square test for descriptive statistics, *t*-test for continuous variables, Pearson correlation co-efficient for correlations using Microsoft excel.

RESULTS

Our study had 100 participants, of which 43 (43%) were males and 57 (57%) were females, 60% ($n = 60$) were married and 40% ($n = 40$) were unmarried, 73% ($n = 73$) were living with family and 27% ($n = 27$) were living without the family. The nurses in our study had around 7.14 ± 4.26 years of experience.

For questions 1–7 (Table 1), "often" and "always" were taken as "yes." We found that 44% felt that they are not getting adequate support from management, 43% had fear of death due to COVID-19 and 42% felt that they could not work properly because of PPE.

From Table 2, we could infer that working as a team (69%), family support (56%), recognition of work by the management (55%), positive attitude of the colleagues (51%), and provision of adequate nutrition (50%) were the major perceived needs of the nurses which could decrease stress.

It was found from Table 3, that the nurses who had concern for fear of death due to COVID-19 had strong association with higher stress ($p = 0.001$).

In Table 4 we found significant association between high emotion focused and avoidant type of coping with higher stress ($p = 0.0001$) and high problem focused coping with lower stress ($p = 0.0013$).

DISCUSSION

This study was done to assess the coping skills, concerns, and perceived needs and its association with psychological symptoms among nurses working in a dedicated COVID-19 tertiary care facility. Most of the population in our study were married ($N = 60$, 60%) and were staying with family ($N = 96$, 64%) with a mean age of 31.2 ± 5.07 years. Nurses in our study had 7.14 ± 4.26 years of experience of work in the hospital.

Predominant concerns reported by nurses in our study were fear of death due to acquiring COVID-19 infection and inability to carry out their job to satisfaction due to wearing PPE followed by fear of acquiring COVID-19 infection and infecting family members. Nurses with such concerns possibly can have poor psychological

Table 1: Concerns of nurses regarding COVID-19

Concerns	Not at all, n (%)	Little bit, n (%)	Sometimes, n (%)	Often, n (%)	Always, n (%)
1. To what extent are you scared of being infected?	21 (21)	21 (21)	33 (33)	14 (14)	11 (11)
2. To what extent are you scared of infecting your colleagues and family members?	19 (19)	22 (22)	30 (30)	8 (8)	21 (21)
3. Are you concerned about increased risk of death because of COVID-19?	18 (18)	17 (17)	22 (22)	12 (12)	31 (31)
4. Do you feel helpless while treating COVID patients?	30 (30)	14 (14)	38 (38)	7 (7)	11 (11)
5. Do you experience loneliness during your duty?	47 (47)	13 (13)	25 (25)	6 (6)	9 (9)
6. Do you feel being treated differently or being avoided by people?	41 (41)	15 (15)	26 (26)	6 (6)	12 (12)
7. Do you feel that you are not able to do your job satisfactorily because of wearing PPE?	16 (16)	10 (10)	32 (32)	10 (10)	(32)
8. Do you have enough personal protective equipment?		**(Yes)** 93 (93%)	**(No)** 7 (7%)		
9. Do you feel that you are not getting adequate support from the management/administration?		44 (44%)	56 (56%)		
10. Do you feel you are working overtime?		29 (29%)	71 (71%)		
11. Do you regret your decision of joining medical profession?		16 (16%)	84 (84%)		
12. Do you feel proud being part of COVID-19 team?		99 (99%)	1 (1%)		

Table 2: Factors that were likely to help in reducing stress of nurses

Factors likely to help in reducing stress	Number of respondents, n (%)
1. Working under supervision	30 (30%)
2. Provision of adequate protective equipment	48 (48%)
3. Provision of adequate training	31 (31%)
4. Provision of adequate nutrition	50 (50%)
5. Positive attitude of colleagues	51 (51%)
6. Working as a team	69 (69%)
7. Opportunities to ventilate	26 (26%)
8. Psychiatry help and therapy made available in work place	25 (25%)
9. Financial compensation to family in case of disease related death at work	41 (41%)
10. Any recognition of your work by management and supervisors	55 (55%)
11. Family support	56 (56%)

Table 3: Correlations between psychological symptoms with concerns

Concerns	High stress (n = 20)	Mild/no stress (n = 80)	Chi-square	p-value
Fear of getting infected	8	75	0.01	0.91
Fear of infecting others	8	71	3.34	0.06
Concern about increased risk of death because of COVID-19	15	57	9.70	**0.001***
Helpless while treating COVID patients	4	82	0.31	0.57
Loneliness during COVID duty	6	85	1.04	0.30
Being treated differently or avoided by people	10	82	0.24	0.62
Not able to do your job satisfactorily because of PPE?	9	58	0.53	0.46

*Bold values represents significant association

outcomes. A study by Da Rosa on factors associated with emotional distress among nurses working in COVID-19 wards has described moderate-to-severe emotional distress, depression, anxiety, and stress being associated with concerns regarding job dissatisfaction, encountering higher number of COVID-19 cases at one's work facility, feeling unprepared for the pandemic, and concern for contracting the illness.[15] We also found a significant association between high stress and increased concern about death occurring due to COVID-19 in our study population. COVID-19 is associated with high morbidity and the uncertainties regarding long-term morbidity and mortality could possibly have contributed to high stress among the study population[16,17] (Tables 1 and 3).

Table 4: Association between stress and coping styles

Coping styles	High stress (n = 20)	Mild/no stress (n = 80)	t-value	p-value
Problem focused	19.55 ± 4.26	24.85 ± 5.99	3.30	**0.0013***
Emotion focused	32.1 ± 4.82	25.36 ± 5.85	4.75	**0.0001***
Avoidant	17.95 ± 3.91	13.38 ± 3.34	5.28	**0.0001***

*Bold values represents significant association

Nurses in the study reported that factors such as family support, working as a team and positive attitude of colleagues, recognition of work by management could possibly help in mitigating distress. Social support is exceptionally important for maintaining mental health. Positive social support of high quality can enhance resilience to stress and help protect against developing trauma-related psychopathology in conditions of adversity.[18] Another study by Rose et al. also reported that psychological symptoms in frontline nurses were negatively correlated with social support and concluded that availability of psychological interventions, including the establishment of response, social support, medical, and assistance hotline teams, was beneficial and helpful for frontline nurses' mental health[19] (Table 2).

Coping strategies are thoughts and actions that individuals use to address stressful events. Coping strategies have been used as an effective means of protecting people from developing psychological distress.[20] Researchers have identified two general types of coping strategies, which include emotional focus and problem focus. Emotional focus aims at reducing the severity of emotions fostered by a stressful event. Problem focus involves attempting to solve or reduce the stress-causing problem.[21] We found a significant association between high emotional focused and avoidant type of coping with higher stress ($p = 0.0001$) and high problem focused coping with lower stress ($p = 0.0013$). A study by Phua and his team found that nurses who chose adaptive coping such as humor and religion in response to the initial SARS outbreak reported low psychiatric morbidity[22] and maladaptive coping styles have been associated with poor psychological outcomes like anxiety, depression, etc. This could be explained by the negative attribution of individuals leading to a negative way of adapting to the environment which affects mental wellbeing[5,23,24] (Table 4).

This study was conducted in the initial phase of the pandemic. It has been almost 2 years into the pandemic with psychological distress varying due to multiple factors with the most significant being introduction of vaccines. However, new variants are developing all the time and the pandemic has lasted much longer than anticipated. It is possible that the fear, anxiety, and depression among nurses have declined due to receiving the vaccine, and the feeling that the imminent danger posed by COVID-19 has been reduced. It is also possible that psychological distress continues to be high due to high workload on nurses.

Limitations and Strength of the Study

We have used convenient sampling and snow ball technique which can lead to sampling bias. We used self-report instruments in a survey format using google link. Thus the responses may have been influenced by recall bias. It is also possible that many psychological problems were pre-existing and may have gotten worse from the pandemic. A cross-sectional approach does not allow the determination of causal relationships and features a small sample size, meaning the generalizability of the results is limited. As described previously, the study was conducted around

6 months into the pandemic; thus, nurses who had more experience of working with patients who had tested positive for COVID-19 may have developed resilience or become traumatized. However, this study tried to explore concerns of nurses and its association with distress and factors which they felt could likely help mitigate distress in addition to association between coping and distress all of which were not studied together in previous studies which have looked into psychological distress among nurses in COVID-19.

Implications of the Study

The results of the present study highlight the need to better understand psychological distress and coping strategies among nurses providing care to COVID-19 patients. Administration should establish a system to support nurses and monitor their psychological health. Future research should focus on developing interventions that educate nurses regarding how to use specific coping strategies which could mitigate psychological distress.

Conclusion

The predominant concerns reported by nurses in our study were fear of death due to acquiring COVID-19 infection. They also reported that factors such as family support, working as a team and positive attitude of colleagues, recognition of work by management could possibly help in mitigating distress. We found a significant association between high emotional focused and avoidant type of coping with higher stress and high problem focused coping with lower stress.

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References

1. Bahar A, Koçak HS, Bağlama SS, et al. Can psychological resilience protect the mental health of healthcare professionals during the COVID-19 pandemic period? Dubai Med J 2020;3(4):133–139. DOI: 10.1159/000510264.
2. Saini RK, Chaudhary S, Raju MS, et al. Caring for the COVID warriors: a healthcare's perspective in the challenging times. Ind Psychiatry J 2020;29(2):355–356. DOI: 10.4103/ipj.ipj_167_20.
3. Bozdag F, Ergun N. Psychological resilience of healthcare professionals during COVID-19 pandemic. Psychol Rep 2021; 124(6):2567–2586. DOI: 10.1177/0033294120965477.
4. Dong L, Bouey J. Public mental health crisis during COVID-19 pandemic, China. Emerg Infect Dis 2020;26(7):1616–1618. DOI: 10.3201/eid2607.200407.
5. Gupta N, Luthra A, Shailaja B, et al. Impact of COVID-19 pandemic on mental health of health-care workers in a tertiary care teaching and dedicated COVID-19 hospital. Ind Psychiatry J 2021;30(Suppl.1): S56–S62. DOI: 10.4103/0972-6748.328790.
6. Javadekar A, Javadekar S, Chaudhury S, et al. Depression, anxiety, stress, and sleep disturbances in doctors and general population

during COVID-19 pandemic. Ind Psychiatry J 2021;30(Suppl. 1): S20–S24. DOI: 10.4103/0972-6748.328783.

7. Pooja V, Khan A, Patil J, et al. Burnout and resilience in doctors in clinical and preclinical departments in a tertiary care teaching and dedicated COVID-19 hospital. Ind Psychiatry J 2021;30(Suppl. 1): S69–S74. DOI: 10.4103/0972-6748.328792.

8. Vagni M, Maiorano T, Giostra V, et al. Coping with COVID-19: emergency stress, secondary trauma and self-efficacy in healthcare and emergency workers in Italy. Front Psychol 2020;11:566912. DOI: 10.3389/fpsyg.2020.566912.

9. Sampaio F, Sequeira C, Teixeira L. Impact of COVID-19 outbreak on nurses' mental health: a prospective cohort study. Environ Res 2021;194:110620. DOI: 10.1016/j.envres.2020.110620.

10. Pappa S, Ntella V, Giannakas T, et al. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: a systematic review and meta-analysis. Brain Behav Immun 2020;88:901–907. DOI: 10.1016/j.bbi.2020.05.026.

11. Gloster AT, Rhoades HM, Novy D, et al. Psychometric properties of the depression anxiety and stress scale-21 in older primary care patients. J Affect Disord 2008;110(3):248–259. DOI: 10.1016/j.jad.2008.01.023.

12. Carver CS. You want to measure coping but your protocol's too long: consider the brief. Int J Behav Med 1997;4(1):92–100. DOI: 10.1207/s15327558ijbm0401_6.

13. García FE, Barraza-Peña CG, Wlodarczyk A, et al. Psychometric properties of the Brief-COPE for the evaluation of coping strategies in the Chilean population. Psicol Refl Crít 2018;31:22. DOI: 10.1186/s41155-018-0102-3.

14. Velickovic K, Rahm Hallberg I, Axelsson U, et al. Psychometric properties of the Connor-Davidson Resilience Scale (CD-RISC) in a non-clinical population in Sweden. Health Qual Life Outcomes 2020;18(1):132. DOI: 10.1186/s12955-020-01383-3.

15. Da Rosa P, Brown R, Pravecek B, et al. Factors associated with nurses emotional distress during the COVID-19 pandemic. Appl Nurs Res 2021;62:151502. DOI: 10.1016/j.apnr.2021.151502.

16. Kang L, Ma S, Chen M, et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: a cross-sectional study. Brain Behav Immun 2020;87:11–17. DOI: 10.1016/j.bbi.2020.03.028.

17. Hu D, Kong Y, Han Q, et al. Frontline nurses' burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: a large-scale cross-sectional study. Lancet 2020;24:100424. DOI: 10.1016/j.eclinm.2020.100424.

18. Southwick SM, Vythilingam M, Charney DS. The psychobiology of depression and resilience to stress: implications for prevention and treatment. Annu Rev Clin Psychol 2005;1:255–291. DOI: 10.1146/annurev.clinpsy.1.102803.143948.

19. Rose S, Hartnett J, Pillai S. Healthcare worker's emotions, perceived stressors and coping mechanisms during the COVID-19 pandemic. PLoS One 2021;16(7):e0254252. DOI: 10.1371/journal.pone.0254252.

20. Xu J, He Y. Psychological health and coping strategy among survivors in the year following the 2008 Wenchuan earthquake. Psychiatry Clin Neurosci 2012;66(3):210–219. DOI: 10.1111/j.1440-1819.2012.02331.x.

21. Lazarus RS, Folkman S. Stress, appraisal and coping. 1984. Available from: http://www.dawsonera.com/depp/reader/protected/external/AbstractView/S9780826141927.

22. Phua DH, Tang HK, Tham KY. Coping responses of emergency physicians and nurses to the 2003 severe acute respiratory syndrome outbreak. Acad Emerg Med 2005;12(4):322–328. DOI: 10.1197/j.aem.2004.11.015.

23. Ho CS, Chee CY, Ho RC. Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. Ann Acad Med Singap 2020;49(3):155–160. PMID: 32200399.

24. Sim K, Chan YH, Chong PN, et al. Psychosocial and coping responses within the community health care setting towards a national outbreak of an infectious disease. J Psychosom Res 2010;68(2): 195–202. DOI: 10.1016/j.jpsychores.2009.04.004.

ANNEXURE 1: CONCERNS REGARDING COVID-19

1. To what extent are you scared of being infected?
2. To what extent are you scared of infecting your colleagues and family members?
3. Are you concerned about increased risk of death because of COVID-19?
4. Do you have enough personal protective equipment?
5. Do you feel that you are not getting adequate support from the management/administration?
6. Do you feel helpless while treating COVID patients?
7. Do you experience loneliness during duty?
8. Do you feel you are working overtime?
9. Do you feel being treated differently or being avoided by people?
10. Do you feel that you are not able to do your job satisfactorily because of PPE?
11. Do you regret your decision of joining medical profession?
12. Do you feel proud being part of COVID-19 team?

ANNEXURE 2: FACTORS LIKELY TO HELP IN REDUCING STRESS

1. Working under supervision
2. Provision of adequate protective equipment
3. Provision of adequate training
4. Provision of adequate nutrition
5. Positive attitude of colleagues
6. Working as a team
7. Opportunities to ventilate
8. Psychiatry help and therapy made available in work place
9. Financial compensation to family in case of disease related death at work
10. Recognition of your work by management and supervisors
11. Family support