Psychological Distress & Coping among Nurses working with COVID-19 patients in a tertiary care hospital in India: A cross-sectional study

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Abstract

Objective:

This study aimed to understand the psychological impact of COVID-19 pandemic on Indian nursing professionals working with COVID-19 patients and coping strategies employed for the same.

Method:

This was a cross-sectional observational study conducted on nursing professionals (staff and students) of a tertiary care hospital, medical college and research centre in North India.

Results:

Among 103 participants, most responded to COVID-19 duty with anxiety, fear and stress. Physical discomfort and inadequate PPE supply were main challenges perceived while working. Depressive symptoms were seen in 41% participants, 55% reported anxiety and 35% reported clinically significant stress. Participants working in COVID-19 duty reported significantly higher anxiety compared to those who were not. Those with positive personal and family reactions towards COVID-19 duties reported lower anxiety and stress scores. Those who perceived work-related discrimination had higher depression, anxiety and stress scores. Majority of participants employed approach-based coping styles with acceptance as the most commonly used coping strategy.

Conclusion:

This study highlighted the symptoms of psychological distress among a large portion of nursing professionals working with COVID-19 positive patients and underscored the need to plan psychoeducational programs, workplace support systems and psychological first-aid techniques for frontline healthcare providers.

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INTRODUCTION

The COVID-19 outbreak, starting from Wuhan in December 2019, resulted in extreme distress in public and created panic amongst all. During this difficult time, the healthcare providers including doctors and nurses emerged as frontline warriors, providing treatment and care to those in need, while risking contracting the infection themselves and passing it on to near and dear ones[1].

Research too focussed on the psychological impact of the pandemic among frontline medical professionals but a majority of studies were directed towards the mental health of doctors[2]. A limited body of research focussed exclusively on the psychological impact on nursing professionals working with COVID-19 patients, despite the fact that nurses have a different level of interaction with the patients, different requirements of duty and different risks of exposure to COVID-19 as compared to doctors working with COVID-19 patients[3]. Research studies from different parts of the world have reported burnout, anxiety, depression and fear among frontline nurses engaged in COVID-19 duties[4–8]. A limited number of studies have assessed self-efficacy and coping in the face of such adversity, with some studies reporting predominantly avoidant coping strategies[9] and some reporting emotion-based coping[6].

India was one of the worst affected nations by the COVID-19 pandemic. Providing healthcare services in limited resource settings, Indian nurses regularly encountered challenging work situations including high workload, long shifts, under-staffing, workplace violence and exposure to psychologically traumatic events[10,11]. With added difficulties due to the pandemic, and lack of dedicated psychological support services for healthcare providers, there is a need to understand the psychological impact of the current pandemic situation on Indian nursing professionals who work with COVID-19 positive patients and how they cope with it.

Methodology

The cross-sectional, observational study was conducted in a 1700 bedded tertiary care autonomous medical institute which caters to clinical services for patients coming from all over India. Besides inpatient and outpatient services, it is a training institute and research centre for all specialties with a separate specialized college wing for training in Nursing (diploma, graduation and post-graduation). After the outbreak of COVID-19 pandemic, the hospital set up dedicated wards for treatment and quarantine for patients of COVID-19 infection among other specialty and super-specialty services continuing operations as per guidelines. Once approval from Institutional Ethics Committee was obtained (approval letter no.: IEC-397/08.05.2021), a total of 121 participants from Department of Nursing, including professionals and trainees, were recruited through snowball sampling technique. Nursing trainees were included, considering the fact that were sharing similar duties as senior nursing officials due to overstretching of the existing staff in order to cope with workload, and psychological impact on them needed attention due to their lack of experience and development of coping skills. A specialized questionnaire was designed, which consisted of a socio-demographic proforma; a brief semi-structured questionnaire which assessed the opinions, concerns and issues faced by nursing staff regarding different aspects of their work and personal situation; The Depression, Anxiety and Stress Scale (DASS-21) to assess psychological distress[15] and the Brief-COPE instrument to assess coping strategies utilized by the participants[16]. Semi-structured questions included socio-demographic information, details of work such as duration of posting in COVID-19 wards and non-COVID-19 wards, initial reaction of the participants and their families to announcement of COVID-19 duties, their perceived risk of contracting the infection, any discrimination faced due to working in a hospital during the pandemic, issues faced while working in COVID-19 duties and suggestions for improving their working conditions during the pandemic.

Participants were contacted via mail and a questionnaire created in English as a Google form was sent to them. Clicking on the questionnaire link flashed a brief summary of the survey on the screen, followed by the consent form. Questionnaire appeared only after the participant provided informed consent. Seeds among faculty of different departments of the College of Nursing were selected and were made responsible for sharing the questionnaire with 3 of their contacts, who were further instructed to share the questionnaire with 3 contacts each and so on. Repetitions in responding to the questionnaire were disabled in the google form. Participants aged 18 years and above, both males and females, consenting to participate in the study and able to understand English were included in the study. Participants on treatment of diagnosed psychiatric disorders were excluded from the study.

The responses obtained were analyzed using IBM SPSS version 24. Descriptive statistics (frequency, percentage, median, Interquartile ratio) were used and group differences were calculated using Chi-square and Kruskal-Wallis test. Correlations were drawn using Pearson correlation coefficient. A p-value of less than 0.05 was considered significant.

Results

Socio-demographic data

A total of 103 nursing professionals participated in the study out of 121 that received the questionnaire (Response rate: 85.2%). Their sociodemographic details are represented in table 1. The age of the participants ranged between 19 to 57 years. Majority of them were females (84.5%) and resided in urban areas (91.3%). Most of the participants were graduates (52.4%) or held higher educational qualifications and were working. More than half were married (66%). Only 7 (6.8%) lived alone, 63 (66%) belonged to nuclear families and 33 (32%) to joint families. However, during the period of the study, 16 (15.5%) were living alone, 12 (11.7%) were living with atleast one roommate and 75 (72.8%) with their families.

Exposure to COVID-19 cases

The participants were posted in COVID-19 and non-COVID-19 wards in the hospital on a rotation basis. The number of years of clinical experience varied from 0 to 32 years with a median of 7 (2.00-17.00) years. A total of 44 (42.5%)

participants had worked with COVID-19 infected patients whose general condition was critical, 50 had (48.5%) had worked with suspected COVID-19 or quarantined patients (Both referred to as COVID-19 duty) while 52 (50.5%) had not been posted in COVID-19 wards (referred to as non-COVID-19 duty). The duration of working with COVID-19 infected patients ranged from 0 to 7 months with a median of 2 (1.00-4.00) months and with COVID-19 suspected/quarantined patients ranged from 0 to 7 months with a median of 3 (1.00-4.00) months.

Table 1: Socio-demographic data of participants

Socio-demographic variables		Frequency (%)/ mean (±SD) (n=103)
Age (years)		33.6 (±9.07)
Gender	Female	87 (84.5)
	Male	15 (14.6)
	Did not disclose	1 (0.9)
Residence	Rural	9 (8.7)
	Urban	94 (91.3)
Education	Higher secondary	2 (1.9)
	Diploma	16 (15.5)
	Graduate	38 (36.9)
	Post-graduate	45 (43.7)
	Ph.D.	2 (1.9)
Designation	Nursing student	15 (14.6)
	Nursing officer	88 (85.4)
Marital status	Unmarried	35 (34.0)
	Married	68 (66.0)
Family structure	Lived alone	7 (6.8)
	Nuclear	63 (61.2)
	Joint	33 (32.0)
Current living status	Alone	16 (15.5)
	With room-mate	12 (11.7)
	With family	75 (72.8)

Psychological Profile

A majority of participants had negative reactions (anxiety, fear and stress) towards their COVID-19 duties, as seen in table 2. A small percentage of participants reported positive emotions of pride/confidence (20%) and a sense of responsibility (8%). A total of 72 participants reported facing problems at work during the pandemic, out of which discomfort in PPE was the most common (25%) followed by inadequate supply of PPE (22.2%). A few (38.8%) perceived stigma at work /home due to their involvement in patient care. Out of the 96 patients who lived with their families, one-third reported negative emotions among their family members [anxiety (30.2%) and fear (25%)]. Appreciation and support, were perceived by 28% of the respondents. Thirty-seven percent and forty percent participants perceived moderate and high risk of acquiring COVID-19 infection respectively. A small percentage of participants reported using substances to relieve their stress (2.9%) and a majority denied it (97.1%). Almost half of the participants reported an increase in their screen time during the pandemic (54.4%). Ninety-seven participants responded to questions pertaining to suggestions for change of policy in order to improve working environment. While some (31.1%) did not feel the need for any changes, a few suggested providing psychological support to the staff (26.2%) followed by shorter duration of shifts and time-off/isolation after duty was over (10.7%)

Psychological distress

Psychological disturbances were assessed among the participants using the DASS-21 (depression, anxiety and stress scale-21) as indicated in table 3. On Depression subscale, less than 50% participants had above threshold scores (mild 13.6%, moderate 14.6% and severe 6.8%). On anxiety subscale more than half reported anxiety symptoms (mild 18.4%, moderate 14.6% and severe 16.5%). Only 35% participants experienced clinically significant stress (mild 10.7%, moderate 11.7% and severe 8.7%).

Psychological disturbances were compared between those who had worked in COVID-19 duty (n=51) and those who had not (n=52) using the Chi-square test. Significantly higher anxiety levels were seen in the group that had worked in COVID-19 duty [$\chi 2(df)= 9.738 (4), p=0.04$)]. There were no significant differences in scores on depression subscale (p=0.79) and stress subscale [$\chi 2(df)= 1.778 (4), p=0.68$)] between the two groups.

Association between distress and socio-demographic Variables

There were no differences in the distribution of depression (p=0.97), anxiety (p=0.83) or stress (p=0.70) between males and females. There were no significant correlations between age and depression (p=0.37), anxiety (p=0.45) and stress (p=0.80). There were no differences in distribution of depression (p=0.27, 0.95), anxiety (p=0.45, 0.63) or stress (p=0.19, 0.85) across categories of family structure and current living conditions. There were no differences in distribution of depression (p=0.96, 0.69), anxiety (p=0.59, 0.83) or stress (p=0.39, 0.86) between married and unmar-

Table 2: Exposure to COVID-19 & Associated Concerns

Parameter		Frequency (%)/ median (IQR)
Work experience (years)		7 (2.00-17.00)
Number of Nursing staff Posted in COVID-19 duty		51 (49.5)
Number of nursing staff in non-COVID-19 duty		52 (50.5)
Duration of posting in COVID-19 duty (months)		3 (1.00-4.00)
Duration of posting in non-COVID-19 duty (months)		5 (2.00-5.00)
Reaction to COVID-19 posting (n=51)	Pride/confidence	10 (19.6)
	Sense of responsibility	4 (7.8)
	Fear	11 (21.6)
	Anxiety	15 (29.4)
	Stress	11 (21.6)
Problems faced while working during Pandemic (n=72)	No issues	2 (2.8)
	Fear of Contracting COVID-19 infection	14 (19.4)
	Fear of family getting infected	7 (9.7)
	Unable to meet family	3 (2.9)
	Discomfort in PPE	18 (25.0)
	Inadequate supply of PPE	16 (22.2)
	Improper supply of sanitary materials	6 (8.3)
	Infrastructure (accommodation, transport) related	5 (6.9)
	Hospital policy related	1 (1.4)
Family reaction to your working during Pandemic (n= 96)	Appreciation/support	27 (28.1)
	Fear	24 (25)
	Anxiety	29 (30.2)
	Stress	6 (6.3)
	Panic (asked to quit working)	8 (8.3)
	Neutral	2 (1.9)
Discrimination due to COVID-19 duty	Yes	40 (38.8)
	No	63 (61.2)
Risk of acquiring COVID-19 on duty	Low	11 (10.7)
	Moderate	38 (36.9)
	High	41 (39.8)
	Extremely high	13 (12.6)
Use of substances to relieve stress	Yes	3 (2.9)
	No	100 (97.1)
Change in screen-time	Same	28 (27.2)
	Decrease	19 (18.4)
	Increase	56 (54.4)
Suggested policy changes (n=97)	Psychological support for staff	27 (26.2)
	Improved nurse-patient ratio	7 (6.8)
	Shorter duration of shifts	11 (10.7)
	Improved facilities in wards	5 (4.9)
	Frequent training and SOP clarifications	8 (7.8)
	Time off for isolation after duty	11 (10.7)
	Nurses who are pregnant/ living with elderly be exempted from duty	2 (1.9)
	No changes	32 (31.1)

ried participants or rural or urban area residents. There was no significant correlation between depression (p=0.90), anxiety (p=0.53) or stress (p=0.37) and duration of COVID-19 duty.

Association between Distress and Personal, familial and social reactions

Nursing officers with a positive initial reaction towards their COVID-19 duties (pride/confidence and sense of responsibility, n=14) had significantly lower scores on anxiety [H (2) = 9.35, p=0.003] and stress [H (2) = 6.42, p=0.024] scales. There was no significant difference in scores on depression subscale (p=0.316). Participants whose families had positive reactions (appreciation/support, n=27) towards their COVID-19 duties, reported significantly lower scores on anxiety [H (2) = 8.41, p=0.022] and stress [H (2) = 7.81, p=0.004] subscales but no significant difference in depression scores (p=0.568). Participants perceiving social discrimination related to their profession i.e., working with COVID-19 patients (n=63), had significantly higher scores in all three subscales: depression [H (2) = 5.79, p<0.001], anxiety [H (2) =7.93, p=0.034] and stress [H (2) = 6.98, p=0.015].

Coping

Coping among participants was assessed using the brief-COPE instrument with results represented in table 4. Among the participants, a major percentage used approach-based (87.4%) coping styles. The coping strategy most commonly used was acceptance among approach-based and self-distraction among avoidant styles. Coping styles were compared between those who had worked in COVID-19 duty (n=51) and those who had not done clinical duties (n=52) using the Chi-square test. Coping strategies were compared between the two groups using Kruskal-Wallis test. A significantly higher number of participants who had worked in COVID-19 duty used approach-based coping as compared to those who had not [$\chi2(df)= 4.32(1)$, p=0.03)]. Use of acceptance and planning as coping strategies were significantly higher in those participants who had done COVID-19 duties as compared to those who had not (p=0.01, 0.04).

There were no significant differences in coping styles based on gender [$\chi2(df)= 3.23$ (2), p=0.19], marital status [$\chi2(df)= 0.68$ (1), p=0.53], educational status [$\chi2(df)= 5.26$ (4), p=0.28], designation [$\chi2(df)= 0.008$ (1), p=0.60] or residence [$\chi2(df)= 0.02$ (1), p=0.68]. There was no significant correlation of coping with age (ρ=0.052, p=0.603), years of experience (ρ=0.120, p=0.227) or duration of training (ρ=0.172, p=0.131). There was a significant negative correlation of approach-based coping with scores on depression (ρ=-0.310, p=0.001), anxiety (ρ=-0.468, p<0.001) and stress (ρ=-0.381, p<0.001). Avoidant coping had stronger positive correlations with higher scores on depression (ρ=0.544, p<0.001), anxiety (ρ=0.612, p<0.001) and stress (ρ=0.539, p<0.001).

Table 3: Psychological Distress among participants

Subscale	Category	Frequency (%)	COVID-19 duty n=51	Non-COVID-19 duty n=52	χ2(df), p-value
Depression	Normal	60 (58.3)	27	32	2.376 (4), 0.79
	Mild	14 (13.6)	7	7	
	Moderate	15 (14.6)	10	5	
	Severe	7 (6.8)	4	3	
	Extremely severe	7 (6.8)	3	4	
Anxiety	Normal	46 (44.7)	16	29	9.738 (4), 0.04*
	Mild	19 (18.4)	10	9	
	Moderate	15 (14.6)	12	3	
	Severe	17 (16.5)	10	7	
	Extremely severe	6 (5.8)	3	3	
Stress	Normal	67 (65)	31	36	1.778 (4), 0.68
	Mild	11 (10.7)	5	6	
	Moderate	12 (11.7)	8	4	
	Severe	9 (8.7)	5	4	
	Extremely severe	4 (3.9)	2	2	

Table 4: Coping strategies among participants

Parameter		Frequency (%)/median (IQR)			χ2(df)/Kruskal-Wallis test (df), p-value
		Total	COVID-19 duty n=51	Non-COVID-19 duty n=52	
Coping style	Approach	90 (87.4)	48	42	4.160 (1), 0.03*
	Avoidant	13 (12.6)	3	10	
	Self-distraction	3.00 (1.00-4.00)	3.00 (2.00-4.00)	3.00 (1.00-4.00)	0.848 (1), 0.35
	Active coping	3.00 (2.00-4.00)	3.00 (2.00-4.00)	3.00 (1.00-4.00)	3.778 (1), 0.05
Coping Strategies	Denial	1.00 (0-2.00)	1.00 (0-2.00)	1.00 (1.00-2.00)	0.264 (1), 0.60
	Substance use	0	0	0	0.064 (1), 0.80
	Emotional support	3.00 (1.00-4.00)	3.00 (2.00-4.00)	3.00 (1.00-4.00)	1.774 (1), 0.18
	Informational support	3.00 (1.00-4.00)	3.00 (1.00-4.00)	2.00 (1.00-4.00)	1.542 (1), 0.21
	Behavioral disengagement	1.00 (0-2.00)	1.00 (0-3.00)	1.00 (1.00-2.00)	0.732 (1), 0.39
	Venting	2.00 (1.00-3.00)	2.00 (1.00-3.00)	2.00 (1.00-2.75)	2.113 (1), 0.14
	Positive reframing	3.00 (2.00-4.00)	3.00 (2.00-4.00)	3.00 (1.25-4.00)	2.146 (1), 0.14
	Planning	3.00 (2.00-4.00)	3.00 (2.00-4.00)	2.50 (1.00-4.00)	4.152 (1), 0.04*
	Humour	1.00 (0-2.00)	1.00 (0-2.00)	0.50 (0-2.00)	0.243 (1), 0.62
	Acceptance	4.00 (3.00-5.00)	4.00 (3.00-5.00)	4.00 (2.00-4.00)	6.064 (1), 0.01*
	Religion	3.00 (2.00-5.00)	3.00 (2.00-5.00)	3.00 (2.00-4.00)	1.736 (1), 0.18
	Self-blame	0	0 (0-2.00)	0 (0-2.00)	2.191 (1), 0.13

Discussion

This study was conducted during first wave when public and even health professionals were uncertain about COVID-19 situation. Nurses form a core around which health care services rotate[3]. During COVID-19, literature was abundant about mental health among medical personnel with limited focus on nursing staff. The current study highlighted the reactions and concerns and how they impacted their level of distress and coping. The findings are important as they would help in planning for dealing with any difficult traumatizing situations in Indian context.

The analysis of an online survey among nursing professionals working in a tertiary care centre which was one of the main centres that catered to patients with COVID-19 infection showed that the sample was equally distributed in terms of exposure to COVID-19 duty. Further comparison between the two groups indicated that while most of the participants had below cut-off scores for clinically significant depression and stress, more than half of the participants had scores in the range of mild to severe anxiety. The participants who were doing or had done COVID-19 duties had significantly greater anxiety scores than those who had not. These findings substantiate the recent research from other parts of the world indicating increase in psychological disturbances among nurses caring for COVID-19 patients[5,6,8].

Only half of the participants had experience of working in COVID-19 wards, yet majority of the nursing professionals rated themselves at moderate to high risk of exposure to COVID-19 infection. Additionally, depression and stress scores were not clinically significant. This showed that exposure per se did not result in distress though anxiety was significantly high. Our analysis confirmed that distress among nursing personnel was significantly associated with personal reaction and reactions and concerns of the family. This is not surprising, given the fact that literature evidence substantiates that connectedness and family influence continues across life span in oriental families in contrast with the west where independence is encouraged since childhood[10].

A majority of the participants in our study were females, married and residing with families. However, rather than extending encouragement and support, an overall attitude of fear and anxiety were displayed by most families. This lack of support probably added to the psychological distress in participants since none of the demographic features emerged significant in relation to distress variables. Indian families irrespective of socio-economic status are usually more cohesive as compared to western culture and generally the emotional state of individual family members are influenced by others[11, 12].

Another disturbing finding was the perceived work-related social discrimination reported by the participants, who deserved appreciation and accolades for their selfless dedication to duty instead. This discrimination, that may have stemmed from a self-preservation instinct among the scared public, was associated with symptoms with depression, anxiety and stress among nursing professionals[13]. This may translate in future into multiple negative consequences for the healthcare field, including dissatisfaction and disillusionment among healthcare workers, decreased motivation and drive to provide optimum care to patients and lesser people choosing healthcare as a profession[12,13].

The participants, interestingly, displayed resilience as they were able to keep personal apprehensions aside, indicated by the observation that the commonest concerns of the nursing officers while on duty were related to PPEs, namely physical discomfort and inadequate supply. These concerns superseded the fears of contracting the infection themselves or passing it on to their families. Among those who perceived a need for policy level changes, a larger proportion suggested provision of psychological support for the staff.

In assessment of coping with these difficult times, majority of the participants used an approach-based coping style and the most commonly employed coping strategy was acceptance. The findings suggest that the nursing staff was dealing with the psychological burden of the pandemic in a healthy, mature manner. A significantly higher number of participants who were exposed to working with COVID-19 patients showed approach-based coping style as compared to those who had not done COVID-19 duties. Also, participants who had worked with COVID-19 patients employed significantly greater planning and acceptance as compared to those who had not done COVID-19 duties. This indicated that the nursing staff had effective coping and were able to deal with the adversities posed by the pandemic situation and its associated challenges in a healthy manner. These observations stand in contrast to previously conducted studies that suggested predominantly avoidant or immature coping strategies[6,9,13,14,16,17]. A possible reason could be the time elapsed between the breakout of the pandemic and the time this study was conducted, giving enough time and opportunities for introspection, acceptance and self-regulation [14,16,18].

The importance of healthy coping strategies can be seen from the significant negative correlation of approach-based coping styles with psychological disturbances. While it was heartening to note that only a small number of participants reported substance use in order to cope with the situation, a significant number of participants reported an increase in screen-time during the pandemic. This substantiates emerging evidence that Internet Addiction and Problematic Internet Use may become hidden by-products of the COVID-19 pandemic and warrant preventive and management strategies[19,20]. Further research exploring the incidence and psychological correlates of Internet addiction, Problematic Internet Use and Internet Gaming Disorder is required before such a consensus can be reached[21].

This study suffers from a few limitations such as a small sample size with a cross-sectional design, precluding long-term follow-up of distress and coping with varying severity of stress. Any change in coping strategies employed by the respondents was not addressed. Being an online study, response bias could not be eliminated.

Conclusion

This study highlighted the symptoms of psychological distress among a large portion of nursing professionals working with COVID-19 positive patients and underscored the need to plan psychoeducational programs, workplace support systems and psychological first-aid techniques for frontline healthcare providers. Creating awareness to reduce misconceptions and fear in the general public and initiatives to create a climate of understanding and appreciation for healthcare staff may contribute in developing a healthy psychological capital for healthcare providers.

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