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Original Article

Psychiatry/Mental Health Section

Resilience of Healthcare Providers during COVID-19 Pandemic: A Rapid Assessment using Digital Platform

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ABSTRACT

Introduction: Coronavirus Disease-2019 (COVID-19) pandemic exposed the health workforce to an unprecedented occupational hazard. While taking care of patients they always had to be conscious simultaneously for safeguarding themselves and their family members against the highly infectious virus. In West Bengal, cases were first reported in the last week of March-2020 and reached the peak around October-2020 in the first wave, once the lockdown was lifted. During the initial months, the staggering number of cases, prevailing uncertainty over case management, and untimely demise of colleagues and relatives, took their toll on the physical and mental health of doctors, paramedics, or support staff, both in the government and private sectors.

Aim: To measure perceived stress, resilience and psychological well-being of healthcare providers using standard psychometric tools.

Materials and Methods: This was a cross-sectional observational study carried out among healthcare workers in hospitals located in West Bengal, India. A self-administered questionnaire was circulated through a digital platform between June-November 2020. The questionnaire was designed using Perceived Stress Scale (PSS-10), Kessler-6 (K6), and Brief Resilient Coping Scale (BRCS) to assess perceived stress, psychiatric morbidity, and resilience of the person. It had three parts, one to capture socio-demographic details of the participants including age, sex, marital status, occupation, family history of psychiatric morbidity, place of stay etc. Second part consisted of psychometric scales and third was designed to capture the views of participants on the coping strategies. Calculated sample size was 189.

Results: Based on standard cut-off values, it was found that 65.6% subjects were under moderate or severe stress; 56.6% had compromised mental well-being and 64% were not coping well with the pandemic situation. PSS were significantly poor for females (p-value <0.001), single (p-value <0.001) and those without history of psychiatric morbidity (p-value <0.001) and low resilient copers (p<0.0001). Mental well-being was compromised more among married (p-value=0.01), doctors (p-value=0.008), aged <40 years (p-value=0.003), high resilient copers (p-value=0.02). Popular means of stress reliever were music and yoga/exercise. Correct and updated knowledge on disease transmission, availability of personal protective equipment, pursuing hobbies like music and gardening were few suggested measures to improve coping with stress associated with patient care.

Conclusion: The study revealed that majority of the health workers experienced moderate to heavy degree of stress and compromised psychological well-being during the first wave of pandemic. Relationship of stress and psychological well-being with resilience and socio-demographic variables was not always linear.

Keywords: Correlates, Health-worker, Pandemic, Psychological well-being, Stress

INTRODUCTION

Healthcare workers are at increased risk of contracting disease owing to frequent and persistent exposure to infected agents as part of their occupational commitment [1-3]. According to World Health Organisation (WHO) estimates from different countries healthcare workers constitute about 2-3% of the population while 14-35% of COVID-19 cases occurred amongst them [2]. Even family members of the workers are at higher risk of acquiring the disease [4]. Doctors and paramedics had trouble to cope with the stress and strain of long working hours in the pandemic situation [5-7]. A multi-country assessment reported in April-2020 that around 67% of workers felt a higher level of stress during the pandemic [8]. Stress can also give rise to psychiatric morbidity, provided the coping skills are inadequate. A review of 44 studies showed depression varied between 13.5-44.7%; anxiety 12.3-35.6%; acute stress reaction 5.2-32.9%; post-traumatic stress disorder 7.4-37.4%; insomnia 33.8-36.1%; and occupational burnout 3.1-43.0% amongst frontline workers engaged in COVID-19 care [5]. Stigma, inadequate safety measures, history of mental illness, female gender, lower educational level, lack of family and social support, being nursing personnel were reported as common risk factors for psychiatric morbidity among healthcare workers [7,9].

Stress is an uncomfortable feeling that develops in a human being when one faces unaccustomed challenges [10,11]. Resilience is the ability to cope in face of adversity. It is classically conceptualised as a trait character in a person [12,13]. Coping ability of an individual is crucial for her/his survival and development. A study exploring coping skills among workers indicated that workplace safety measures and interpersonal relationships were the key factors to reduce stress and anxiety related to COVID-19 care [14]. Like other regions, the health system was stretched to its limits facing the onslaught in this part of the country also. The doctors and paramedics were bearing an unprecedented workload, with potential adverse consequences on their physical, mental and social well-being.

The specific objectives were to measure perceived stress, resilience and psychological distress of healthcare providers using standard psychometric tools, to understand the preferred choices of coping strategies adopted by respondents and to find out relationship of perceived stress and psychological well-being with socio-demographic variables and resilience of the participants. This evidence can be of help psychologists and health managers; can be useful for designing an effective tool for mental well-being of health workers.

MATERIALS AND METHODS

This cross-sectional study was conducted from IPGMER & SSKM Hospital, Kolkata, West Bengal, India for a duration of six months

between June to November 2020. Ethical clearance was obtained from a review board of a Government Medical College, in West Bengal, India (Memo No.: IPGME and R/RAC/142Dated: 29th May 2020).

Inclusion criteria: Participants were from government and private hospitals in West Bengal. Doctor and paramedics attached to selected hospitals who were working for at least one-month prior to the date of survey were included in the study.

Exclusion criteria: Those who were hospitalised due to some serious medical condition, or were not comfortable with filling up form in digital platform or could not understand English were excluded from the survey.

Sample size calculation: Considering proportion of 67% of hospital workers having moderate or high degree of perceived stress during the first waves of COVID-19 pandemic, sample size was calculated with 95% confidence interval and 10% relative precision using the formula given below [8].

Formula used was $n=\frac{z^2pq}{l^2}$.

Where z=1.96 with 95% CI, p=anticipated prevalence of stress, 67% [9], q=(100%-67%)=33% and l=10% of p=6.7%. Calculated sample size was 189.

Study Procedure

Data collection tool had three components. One was for socio-demographic generating information about the participant, like age, sex, occupation, marital status, where she/he were staying after the day's work, personal and family history of mental illness, the experience of stigma owing to occupation during the pandemic etc. This part had 19 questions. Second part was close-ended and dealt with scales to measure extent of perceived stress, resilience, or psychological distress. Total questions were 20, for three psychometric scales. Third part was, for respondents to share their suggestions, thoughts and techniques used as coping skills to overcome the stress. This part had three questions. There are various scales to measure these psychological states. PSS-10 by Cohen S et al., [15] is a well-recognised and commonly used scale to assess stress; Kessler's scale (K6) [16] has been an accepted as a valid tool to measure psychological distress while resilience can be objectively measured by BRCS [17].

Perceived stress scale: PSS items look for general psychological challenges as per questionnaire face validity. Earlier research reports showed good internal consistency of PSS-10 (0.78). It was also recorded to have good criteria and convergent validity in relation to measures of physical and mental ailments [18]. PSS has been accepted as screening tool in a recent guideline on psychological care for healthcare workers during pandemic developed by NIMHANS, India and UNICEF [19]. It is a 10-item rating scale for measuring perceived stress over last one month period. Individual questions have five Likert type alternatives like never (score-0) to very often (score-4). Scoring for four items must be reversed before adding up to get the final score for an individual participant. PSS scores vary between 0-40 and those with score <13 is considered to have low stress level. The reliability of the scale for the present study (Cronbach's alpha) was 0.853.

Kessler-6: K6 morbidity questions look for syndromic anxiety and depression as per the question's face validity. Kessler-6 [16] or K6 is a six item Likert type scale. It is used for measuring psychological well-being in six aspects like nervousness, hopelessness, restlessness, depression, worthlessness and efforts needed to do routine works over a reference period of last one month. Items are rated using Likert type alternatives ranging from 'none of the time' (score-0) to; all the time' (score-4). K6 rating scale scores range from 0-24 and scores >12 can be considered as serious risk of psychological distress. The reliability in the present study (Cronbach's alpha) was 0.896.

Brief Resilient Coping Scale (BRCS) [17]: BRCS score looks for the ability to manage the day-to-day challenges. The scale is used to measure resilience trait among the participants. It was four item rating scale with statements like 'does not describe me at all' (score-1) to 'describe me very well' (score-5) as Likert scale alternatives. The questions relate to creative ways in dealing with adversity, control over one's reaction to an event, grow in positive ways facing adversity and proactiveness in replacing losses encountered. Total scores range from 4-20. Those with score >16 is considered as high resilient copers. Reliability (Cronbach's alpha) of the tool for the present study sample was 0.787.

Direct English validated questions were used as all the respondents in the hospitals could understand English language. However, to ensure the complete understanding of the participants, questions were also translated into local vernacular as per the direction of the ethics committee. Translation -retranslation method was followed for drafting the Bengali questions. Questions in both languages were included in the same digital form.

STATISTICAL ANALYSIS

Data collected were analysed using Microsoft Excel and Epi-Info 7 and Statistical Package for the Social Sciences (SPSS) version 20.0. Descriptive statistical methods were used to analyse various socio-demographic independent variables captured by the first part of the study tool. Scores from scales were used to identify a person with different grades of stress, well-being or coping ability. Variation in scores of K6 and PSS-10 were compared with different independent variables including resilience traits of the participants using univariate and bivariate analysis. Some of the relations may not be linear in nature [20,21]. Decision tree analysis was also used to fit data obtained from psychometric scales along with possible critical determinants where the relationship might have been non linear. It was postulated that resilience is the moderator that can be a determining factor for translating perceived stress into psychiatric morbidity. The open-ended responses were reviewed and summarised to understand subjective feelings and coping strategies adopted by the respondents.

RESULTS

Information was obtained from 189 respondents from different categories of health providers. Respondents were doctors, nurses, laboratory technicians and program managers from hospitals of West Bengal through relevant social groups in digital flatform. [Table/Fig-1] shows the descriptive statistics of the study sample, 91 (48.1%) of 189 participants were female and 98 (51.9%) were male, 84 (44.4%) of the participants were aged below 40. The majority 141 (74.6%) of the respondents were married. Among them six were widowed or separated, rest 42 (22%) persons were never married. Both of them included under one [48 (25.4%)] category. The study was carried out in the earlier months of pandemic. Out of 189 participants, 32 (16.9%) were tested for COVID-19 and none of the respondents was diagnosed with the disease at the time of survey. Still the panic was widespread and 43.38% of respondents preferred to stay away from home while working in hospital to keep the family members safe.

Psychiatric morbidity screening was done by K6 scale, 107 (56.6%) of workers had high scores indicating positive psychiatric morbidity. As shown in [Table/Fig-1], Persons younger than 40 years had higher scores in K6. Interestingly, married persons had a lower amount of mean stress (15.58±8.49) compared to participants who were single (20.35+9.65) score but significantly more psychiatric morbidity score (14.54±6.5) than those who were single (11.71+6.2). Nurses had the lowest chance of psychiatric morbidity (p<0.0001). A family history of psychiatric morbidity was associated with a higher chance of psychiatric morbidity, especially in married nurses. Non-nurse health workers including doctors were more vulnerable to psychiatric morbidity. Among them, those discriminated against

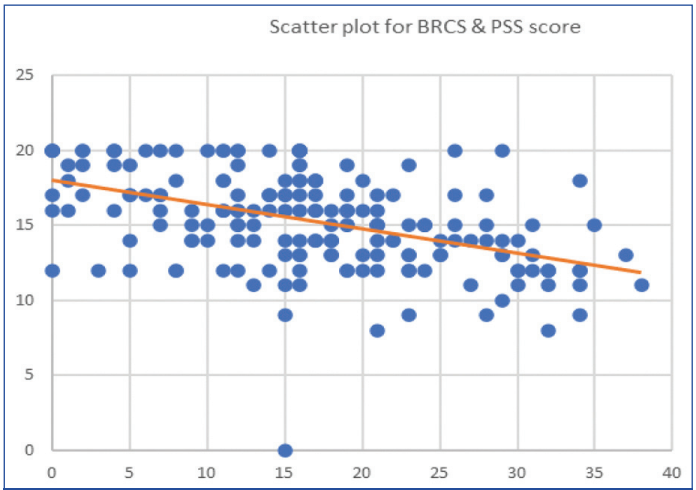
Items	Frequency (%)	PSS	K6	BRCS
Female	91 (48.1)	19.35±9.1	14.67±6.3	15.35±2.85
Male	98 (51.9)	14.42±8.3	13.03±6.7	15.21±3.5
p-value		<0.001*	0.086	0.769
Government	138 (73.0)	17.20±8.9	13.70±6.68	15.3±3.38
Private	51 (27.0)	15.69±9.3	14.14±6.29	14.23±2.7
p-value		0.306	0.688	0.906
Married	141 (74.6)	15.58±8.49	14.54±6.5	15.28±3.35
Single	48 (25.4)	20.35±9.65	11.71±6.2	15.27±2.73
p-value		<0.001*	0.01*	0.981
Stays with family	18 (9.5)	15.39± 8.6	11.17±7.1	15.0±2.6
Stays alone	171 (90.5)	16.94±9.06	14.1±6.4	15.31±3.2
p-value		0.489	0.071	0.696
Discriminated by neighbour	125 (66.1)	16.08±8.9	14.45±5.63	15.07±3.2
Not discriminated by neighbour	64 (33.9)	18.19±8.9	12.59±6.3	15.69±3.07
p-value		0.129	0.066	0.211
Discriminated by relatives	177 (93.7)	16.71±9.1	13.97±6.6	15.28±3.1
Not discriminated by relatives	12 (6.3)	18.0±8.2	11.58±5.1	15.25±3.7
p-value		0.633	0.224	0.973
Recent psychiatry consultation	9 (4.8)	22.22±8.2	10.22±4.3	13.78±3.2
Others	180 (95.2)	16.54±8.9	14.00±6.61	15.36±3.18
p-value		0.064	0.092	0.149
Past psychiatry consultation	26 (13.8)	19.92±8.3	12.31±4.6	14.58±3.31
Others	163 (86.2)	16.29±9.1	14.06±6.8	15.39±3.17
p-value		0.057	0.207	0.228
F/H of mental illness	39 (20.6)	17.18±8.9	14.74±5.5	15.41±2.9
Others	150 (79.4)	16.69±9.1	13.52±6.8	15.25±3.2
p-value		0.765	0.325	0.777
Doctors	57 (30.2)	17.09± 8.9	15.61±7.012	15.96±2.99
Nurse	88 (46.6)	17.32±9.0	12.31±5.922	15.20±2.91
Other paramedics	44 (23.3)	15.36±9.2	14.52±6.631	14.54±3.81
p-value		0.483	0.008*	0.0817
<40 years	84 (44.4)	16.34±9.1	15.14±6.84	15.35±3.4
>40 years	105 (55.6)	17.32±9.0	12.31±5.9	15.20±2.9
p-value		0.457	0.003*	0.761
Based on PSS-10				
Mild stress (<13)	65 (34.4)	7.14±4.333	15.63±8.087	16.73±2.71
Moderate stress (14-26)	93 (49.2)	18.77±3.420	13.88±5.387	15.10±3.14
Severe stress (>27)	31 (16.4)	31.10±2.844	9.84±4.251	12.74±2.57
p-value		<0.0001	<0.0001	<0.0001
Based on K6				
No psychiatric morbidity	82 (43.4)	19.56±10.040	7.61±3.780	14.45±3.52
Psychiatric morbidity present	107 (56.6)	14.67±7.532	18.58±3.579	15.92±2.77
p-value		<0.0001	<0.0001	0.0061*
Based on BRCS				
Low resilience copers (4-13)	55 (29.1)	22.35±9.060	11.76±5.337	NA
Moderate resilient coper (14-16)	66 (34.9)	17.03±7.296	14.48±5.611	NA
High Resilient coper (>17)	68 (36.0)	12.07±7.899	14.84±7.904	NA
p-value		<0.0001**	0.020**	

[Table/Fig-1]: Summary scores in according to different socio-demographic variables (n=189).

by their neighbours had higher scores in psychiatric morbidity scale. Those who did not face such discrimination and government hospital workers had marginally better score for psychological distress scale. However, the difference was not statistically significant.

Regarding perceived stress, 65 (34.4%) participants had mild stress whereas 124 (65.6%) had moderate to severe stress when measured by PSS-10 scale. BRCS scores indicated that 29.1% was low resilient coper, 34.9% were moderate resilient and while 36% was high resilient coper. The level of resilience significantly predicts perceived stress score (p-value=0<0.0001*) and vice versa (p-value=0<0.0001*). As shown in the scatter plot in [Table/Fig-2], scores of BRCS and PSS-10 were negatively correlated (Pearson's r=-0.461, p-value=<0.0001). That means if the resilience and coping are high the perceived stress is less, and vice versa. Screening for

psychiatric morbidity based on K6 scale also significantly predicted both stress score (p=<0.0001) and resilience levels (p=0.020) [Table/Fig-1].



[Table/Fig-2]: Scatter plot for BRCS (y-axis) and PSS (X-axis), n=189.

PSS and K6 scores were negatively correlated and correlation coefficient was (-)0.28008, t=3.9899, df=187, p-value 0.00009, 95% CI [(-)0.4065598 to (-)0.1430714]

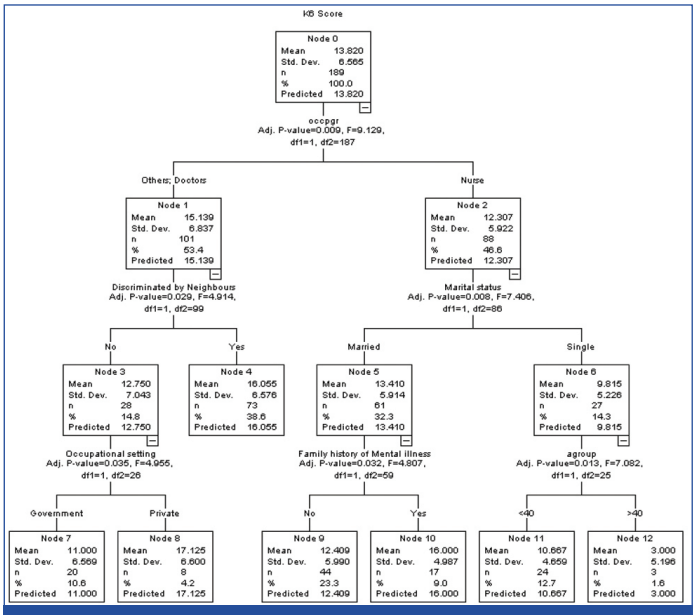
For BRCS and K6 scores correlation coefficient was 0.2444187, p-value=0.0007003, 95% CI (0.1053641 -0.3740982)

The figure showed inverse relationship between perceived stress and psychiatric morbidity scores. A person had low coping ability, had low psychiatric morbidity also. This finding was sharply in contrast with the initial hypothesis of the study. [Table/Fig-3] summarises the scores of three psychometric scales.

Variable	PSS	K6	BRCS
Mean	16.79365	13.82011	15.28042
SD	9.017404	6.564688	3.194192
25th percentile	11	9	13
Median	16	14	15
75th percentile	23	19	18

[Table/Fig-3]: Summary of scores of three psychometric scales (n=189).

The decision tree model was also used to fit the data on psychiatric morbidity [Table/Fig-4] and to look for non linear interaction. K6 score was treated as dependent variable in a SPSS-20 using Chi-square Automatic Interaction Detection (CHAID) model. Multiple

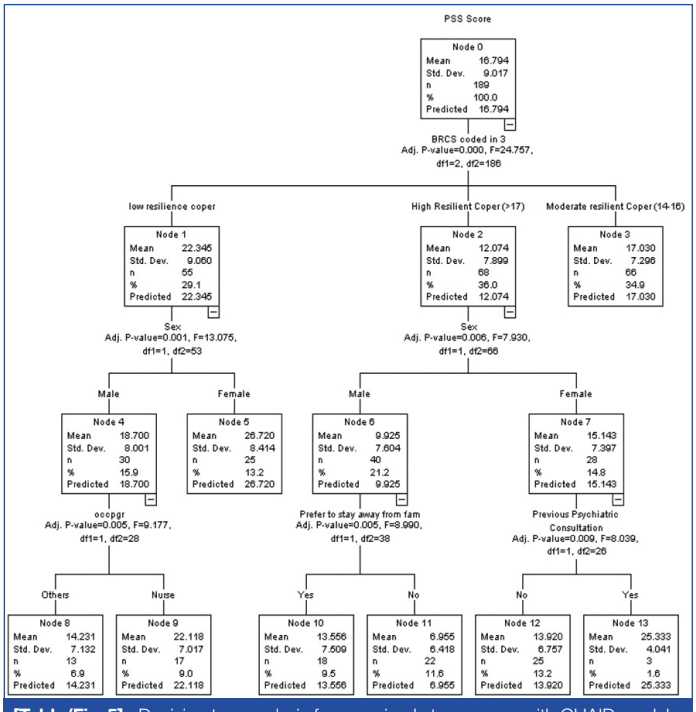


[Table/Fig-4]: Decision tree analysis for K6 score with CHAID model.

independent variables were fed in with maximum tree depth of three and eventually got six terminal nodes. Primarily nurses and others including doctors emerged as two distinct groups, and overall score of K6 was less among nurses. Marital status appeared to be a critical entity in determining the mental state of nurses. Those who were single, scored better than married colleagues and age over 40 years probably places them in even better state of mind. Among the married nurses, those without any family history of mental illness showed less psychiatric morbidity. Other factors like government or private occupational setting, resilience score or stress score, social stigma, place of residence etc. did not affect their score.

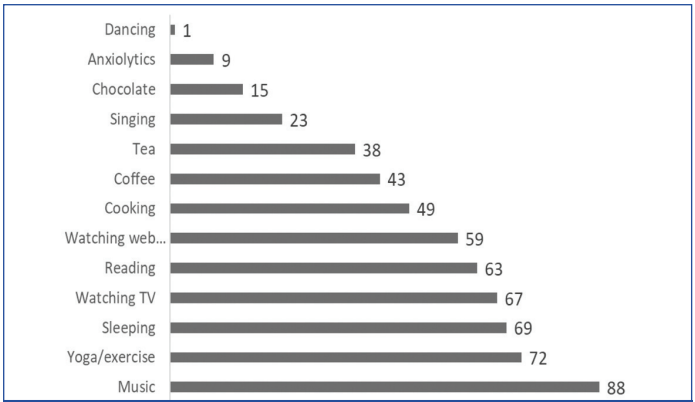
On the other group, those who were discriminated by neighbours had more chance of having a psychiatric morbidity. It was identified by K6 screener that looks for syndromal anxiety and depression (p-value=0.029). As shown in [Table/Fig-1], those from government sector had lesser score for psychiatric morbidity scale compared to private hospital workers (p-value=0.035).

[Table/Fig-1] also shows that perceived stress is significantly determined by resilience (p-value <0.0001), sex (p-value <0.001) and marital status (p-value <0.001). Employing the decision tree CHAID model with minimum parent node size 5 and child node size 3 explored non linear interaction in the model establishes resilience is significantly determines the perceived stress (p-value <0.0001) [Table/Fig-5]. Low resilience is associated with the most stress and high with the least. Though not in the moderate resilience group, among both high (p-value=0.006) and low resilient copers, females (p-value=0.001) are more stressed than males. Among low resilient males, nurses are significantly more stressed than other healthcare workers. But among high resilient males staying away from the family increases stress (p-value=0.005). Among high resilient females, a history of previous psychiatric consultation increases the stress perception.



[Table/Fig-5]: Decision tree analysis for perceived stress score with CHAID model.

The feedbacks on activities to relieve a person from occupational stress were summarised in [Table/Fig-6]. It was revealed that most preferred mode of stress relief was listening to music (46.56%), followed by regular exercise or Yoga (38.09%). Sleeping (36.51%), watching television (35.45%) or web-series (31.21%) were other commonly used means of getting out of stress. Coffee drinking was identified by 22.75% as a good stress buster, while 7.93% opted for chocolates at time acute stress, 9 (4.76%) persons used anxiolytics to reduce stress.



[Table/Fig-6]: Bar diagram showing number of participants with activities undertaken for stress relief (n=189) [multiple response].

When asked to compare the current situation with prepandemic state, 35 participants (18.51%) considered themselves in better state of mental well-being than before; 40.74% respondents did not feel any major change while 38.09% felt their mental well-being poorer during those days. They were also asked what was concern that comes foremost to their thoughts during the pandemic. Threat of sickness in the family was the commonest concern 78 (41.27%), followed by change in the daily life 54 (28.57%), uncertainty over education and future of children 43 (22.75%) and possible occupational instability 37 (19.58%) were the ones documented by the participants.

A review of responses received on suggestions to cope with stress, showed that the most prominent domains were commonly, life-affirming positive attitude, mention of activities to keep oneself occupied. Information was considered as a double-edged sword, with potential of both uplifting the mood or demotivating a person. Identification and acceptance of altered physical and mental health status by a person was also considered important by some. A large group of participants had an overall positive attitude-planning to ride out the pandemic reinstated with remarks like "this shall pass" "after night comes day" "pandemic goes away habit remains", "with proper information and protection one can protect oneself". However, a small % resorted to despondent feelings. A common factor was acceptance of feelings of depression and also rationalising it due to the present stressful situations. The danger of addiction owing to stress and lack of activity has been identified by participants. The necessity of seeking help in case of severe mental stress was also considered by few. Majority opined for action-focused coping strategies to keep themselves busy. Choice of activities ranged from recreation, household activity, and pursing a hobby. Interestingly a group also emphasised the necessity to maintain a routine of activity to keep occupied also with goals and targets of activities for each day. On the whole fruitful mental engagement along with physical engagement throughout the day was advocated by many. Information plays a great role today. With constant updates, rules and regulations some felt necessary to be connected to the media regularly. On the other hand, some believed overindulgence can adversely affect mental health. Same regarding social media, whereas some advocated moderate use of it some believed that it opens a route to misinformation and subsequent panic. Professionally the issue of equal dealing of all tiers of health workers was mentioned. Also, ergonomic principles are to be taken into consideration and not using human resources indiscriminately was mentioned. Preventive measures should be helpful, and a lot of emphases was observed on this point. Participants also stated the necessity of proper protective gear and regular hand washing should allay fear and promote better mental health. Stress was given to the necessity of adoption of healthy lifestyle, proper diet, and exercise of both body and mind by both traditional and modern methods. A common observation was the importance of family in maintaining mental health also the necessity to talk to anyone in case of feeling mentally unwell.

DISCUSSION

The present study showed majority of the subjects (65.66%) experiencing significant amount of perceived stress, suffering from psychiatric morbidity (56.66%) while (36%) could be considered as high resilient copers. The participants acknowledged the need to nurture coping skills and suggested various means to tide over the days of crisis. The prevailing uncertainty in the initial weeks over natural history of the disease and case management strategy affected the health workers. Similar studies from the literature are tabulated in [Table/Fig-7] [22-28].

Authors name and year of study	Place of study	Sample size	Findings
Teo I et al., 2021 [22]	Singapore	N=2744	Perceived stress 33%, anxiety 13%
Alhalaiqa FN et al., 2021 [23]	Jordon	N=225	Most perceiving high level of stress (distress) (46.2% with a low level and 53.8% with a high level of stress); approximately half of them (52.9%; n=119) reported a high level of anxiety, and more than half (66.2%; n=149) had a high level of depression. Additionally, an increased anxiety and depression level was significantly associated with decreased resilience and increased stress level.
Aly HM et al., [24]	Egypt	N=262	Only 1.3% showed low perceived stress while 98.5% showed moderate to severe stress. About 9.5% did not experience generalised anxiety, while the remaining 90.5% had different degrees of anxiety as mild anxiety showed the highest per cent affecting about 40% of participants followed by moderate anxiety about 32% then severe anxiety, 18.5%. Regarding depression, 94% of participants showed mild to severe depression.
Aisa T et al., 2022 [25]	59 countries: 1649 respondents 34%: Europe, 32.36%: Asia 17.44%: Africa, 11%: America 5.4%: Australia.	N=1649	The average stress level was 22 points on the PSS denoting moderate stress in 1327 (81.8%) respondents, while 239 (14.73%) respondents had a severe level of depression.
Chatterjee SS et al., 2021 [26]	India	N=612	Doctors had the highest level of anxiety among the healthcare workers. Both doctors and nurses perceived a greater level of irritability than the other healthcare workers.
Lee JY et al., 2021 [27]	Korea	N=646	The mean PSS-10 score was 19.0±4.4. Linear regression analyses revealed that the MBI-GS-Exhaustion, PHQ-9, and GAD-7 scores were positively associated with perceived stress.
Li Z et al., 2021 [28]	China	N=528	Medical staff and Medical students scored averages of 6.77±5.04, 15.48±8.66 on the K6, 37.22±11.39, 22.62±11.25 on the SSRS and 18.52±7.54, 28.49±11.17 on the PSS, respectively. Most medical staff (279, 91.77%) and 148 medical students (66.07%) showed a positive coping style.
Present study, 2022	India	N=189	Healthcare workers had mean PSS 16.79±9.01 and 64.6% had moderate to high perceived stress. Mean K6 score was 13.82±6.56, with 56.6% compromised psychological well-being. Mean BRCS was 15.28±3.19, with 29.1% low resilient copers.

[Table/Fig-7]: Similar studies from the literature [22-28].

Results from another study by Teshome A et al., from southern Ethiopia, 61.2% of participants were found with higher perceived stress during May-June, 2020 among healthcare workers [29]. It closely mimics with the moderate to severe perceived stress found in 65.6% of participants in the current study. Another study from Egypt recorded very high proportion, more than 98% of health workers had higher stress levels [24]. A study from north India among health workers found much higher perceived stress scores of 22.38±6.47 in females and 22.00±7.94 among males, while the current study, recorded 19.35±9.1 and 14.42±8.3 respectively [30].

The results of present study were comparable with a study done by Coco M et al., among 152 health workers in Italy [31]. In that study among physicians, the PSS score was 17.98±10.53 and 18.09±6.96 among others; the present study showed an average score of 17.09±8.9 in doctors and 15.36±9.2 in others. In both cases, doctors experienced more stress, but the difference was not statistically significant. A study from Italy showed that in early phase of the epidemic BRCS score positively correlated with PSS score [32], but during later phase when some restrictions were relaxed, it was negatively correlated. In the present study the scores were negatively correlated. It was seen among males and high resilient copers, staying with family can reduce stress. Previous psychiatric consultation history increases the chances of stress, especially in the case of high resilient females. An article published in 2021 noted that resilience during pandemic was associated with positive perceived social support [33] and in this study also family support was found important for resilience. Another study from China in 2021, showed that better resilience among those who had prior exposure to training in mental health [34].

One study from Israel explored dental surgeons' psychological morbidity through the K6 screener scale for psychological morbidity. 11.5% of the sample was diagnosed as having psychiatric morbidity. Background illness, fear of contracting COVID-19 and subjective stress is contributing and existence in a committed relationship and sense of self-efficacy are protective factors [35]. In a study among more than 528 medical staff, 38% were identified with a higher degree of psychological distress using the K6 scale. The problem was more common among young students compared to others. The results were quite different, as in the present study 56.61% participants had higher psychological distress, indicating possible psychological distress. However similar to that study, K6 score was higher among younger participants in the current study, too [28].

A study identified factors with significantly increased risk of compromised mental well-being namely, lower level of resilience, requiring support resources, the belief that workload had increased, or insecurity of adequate personal protective gear [7]. PSS and BRCS scores were significantly negatively correlated. PSS and K6 scores were also negatively correlated. This was in contrast with another published study which showed, stress and psychiatric morbidity were positively correlated [34]. The results might be examined based on the theoretical construct that psychiatric syndromes are the results of maladaptive coping strategies that a patient use to handle internal stress and conflicts [35]. Expression of diseased condition is a way to reduce internal stress though in a maladaptive way. Hence those who already had syndromic disorder might have less perceived stress. But this construct needs further elaboration and testing.

Limitation(s)

In this study only psychometrics scales were used to screen for various aspects of mental health were used to diagnose a psychiatric morbidity, some clinical examination with confirmatory diagnostic instrument might be used with or without required laboratory investigations; owing to situational and procedural constraint that part was not feasible in this study. This can be considered a zone of uncertainty in the result. Primary goal was to find the psychological stress in healthcare workers. Hence the sample size had been chosen on that basis. To look for the associations and correlation between stress and psychiatric morbidity more robust sampling strategy might be necessary. Further research on this perceived stress and psychiatric morbidity construct needs to be undertaken, both in quantitative and qualitative terms.

CONCLUSION(S)

It was evident from the study that majority of health workers of various categories were under stress. Based on K6 scale scores, substantial number of them also had psychiatric morbidity. Stress was inversely related with resilience coping. Nurses, especially single and older ones were most immune to psychiatric morbidity. Those with past psychiatric consultations, healthcare workers specially doctors when discriminated by neighbours were more vulnerable to psychiatric morbidity. The challenges faced owing to stigma should be recognised, accepted and understood by both the health workers and also by the health facility or hospital managers. A participatory approach should be undertaken for institutional capacity building to augment resilience of health workforce and improved coping strategies at individual and group level. Mental health support programmes in any health organisation must be inclusive; should never overlook the people known to be good copers with a positive attitude towards adversity. Further research is needed on this topic to ascertain the observation.

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