



# Psychological distress, coping behaviours, and Anxiety among healthcare workers involved in care of COVID-19 patients

## Running title: Stress, Coping & Anxiety among the Health care workers working in COVID-19 treatment setup in Tertiary care Hospital

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### ABSTRACT: Background& Objectives-

Coronavirus disease-2019 (COVID-19) is a rampant worldwide pandemic caused by Severe Acute Respiratory Syndrome Coronavirus. Healthcare workers are facing a huge amount of COVID19-related psychological stress in their professional and personal domains. **Method-** All Participants working in Covid-19 treatment facilities was taken then Participants were given or Introduced following Scales/Instruments- Stress Coping Resources Inventory: A Self-Assessment, Perceived stress scale, Hamilton Anxiety Scale (HAM-A), COVID-19-Impact on Quality of Life. Participants with any other psychiatric comorbidity were excluded. The data was analysed using SPSS version 25. **Result-** Compared to male, female health care workers had impaired quality of life. Perceived stress and coping were significantly affected by designation as Nurses had more stress and inadequate coping as Compared to the Doctors while anxiety and quality of life were unaffected. More is the work experiences less is the stress, Anxiety and impaired QOL but Coping of an individual was unaffected. More the duration of duty in Covid-19 less is the anxiety, stress and impaired QOL. **Conclusion-** Health authorities should consider setting up multidisciplinary mental health teams dealing with mental health issues and providing psychological support to both patients and HCW. Regular screening of medical personnel involved in treating, diagnosing patients with COVID-19 should be done for evaluating stress, depression, and anxiety

**KeyWords-** COVID19, Stress, quality of life, anxiety, coping

### I. INTRODUCTION

Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) causing an unchecked global pandemic Coronavirus disease-2019 (COVID-19) [1]. Many healthcare workers have been placed in areas outside their usual clinical specialties, often working overtime and longer hours to meet the large amount of patient's requirements. Medical professionals are at the edge of higher risk for getting infected and potentially transmitting COVID-19 infection to the patients, their co-workers, and their family/friends as SARS-CoV-2 is highly contagious and communicable disease. Healthcare workers are facing a huge amount of COVID19-related psychological stress in their professional and individualized domains [2].

There is an impetuous reversal of role from HCW to a patient that might expedite frustration, helplessness, adjustment issues, stigma, and fear of discrimination in the healthcare workers. It is indispensable to circumvent this stigma as it is allowing people to not to reveal their ailment and not go for health care right away [3] [4].

WHO is providing pundit enlightenment and answers to public curiosity, to aid people control fear, stigma, and discrimination during COVID-19 Pandemic

### Covid-19 and Stress

During the period of pandemic, people are scared and fearful of getting infected with the virus/disease which is causing anxiety, stress, and



depression, etc. Stress can be defined as a feeling of emotional and physical tension which arises from any event or in any circumstance that intimidates our homeostasis.

Contrarily, the feeling of fear or apprehension about what's to come or fear of the unknown is termed as anxiety that is the body's natural response to stress.

Depression is viewed as a state of disinterest in daily activities. It is assumed that people are facing a pandemic without vaccination that can result in fear of the unknown (in this case, the coronavirus) can make them anxious, stressed and depressed [5].

### Covid-19 And Coping

While the healthcare officialdom from everywhere the planet is specialized in controlling the pandemic endorsing several preventive strategies, there is not much attention provided to the psychological state of the isolated, panicked and house-arrested people.

Due to irregular social activities and isolation at home for a longer time hampering their emotional well-being. It also has been shown that sudden upsurge can aggravate the mental health conditions and especially of those with pre-existing mental health illness

To avoid the miserable condition, one should not get unveil to media coverage too often and for a healthy relationship, individual should get in contact with their friends and their family members periodically with the help of social media and also should start thinking in a positive manner. If anxiety due to coronavirus infection is showing up, one should try to share the fear with others, which will help to calm the fear, and also try to spread the mindfulness by getting sound and adequate sleep, exercising regularly and adopting different relaxation techniques [6]

**Aim-** Stress, Coping & Anxiety among the Health care workers working in COVID-19 treatment setup in Tertiary care Hospital

### Objectives-

- To study the level of Stress among Health Care Workers
- To study the Coping Style in Health Care Workers
- To study the Prevalence of Anxiety Disorder among Health Care Worker

### Research Methodology-

**Participants-** Health care Workers working in Covid-19 Treatment Facilities Including Isolation ward, COVID ICU, COVID Ward, COVID HDU

**Study Design-** Cross-sectional Survey

### Sampling Technique-

Random Sampling

Calculated using the following formula: [7]

$$n' = \frac{N Z^2 P (1 - P)}{d^2 (N - 1) + Z^2 P (1 - P)}$$

Where,

n'= sample size with finite population correction

N=population size (1000)

Z= static for level of confidence

P=expected proportion (0.1)

d = precision (0.05)

Using the above data sample size comes out to be 122. It was decided to achieve n=130 for improving the statistical significance of the study and ease of calculation.

**Inclusion criteria /Exclusion criteria:**Participants who will give written informed consent, between ages 18 to 60 years and Participants who are working and who had work with Covid-19 patients and Participants with any other psychiatric comorbidity were excluded.

### Data Collection-

Prior permission of Institutional Ethics Committee (SVIEC) was taken to start the study. Also, prior written informed consent from participants was taken. All Health care Workers working in Covid-19 Treatment Facilities Including Isolation ward, COVID ICU, COVID Ward, COVID HDU were taken then Participants will be given or Introduced following Scales/Instruments:

- Stress Coping Resources Inventory: A Self-Assessment
- Perceived stress scale
- Hamilton Anxiety Scale (HAM-A)
- COVID-19–Impact on Quality of Life

Participants were assured about confidentiality of their data & were explained to answer appropriately to the questions.

Health care Workers working in Covid-19 Treatment Facilities were enrolled after confirming Inclusion and exclusion criteria in Dhiraj Hospital, SBKS MI &RC, Piparia.

### Tools-

#### The Coping Resources Inventory (CRI)

The Coping Resources Inventory (CRI) estimates how people manages stress, envisaged in five elemental methods which correspond to the measure's scales. The five CRI scales are Cognitive (COG), Social (SOC), Emotional (EMO), Spiritual/Philosophical (S/P), and Physical (PHY).

One of the objective in developing the Coping Resources Inventory was to provide an



instrument for recognising assets presently obtainable to individuals for controlling stress. Clinical concepts and practices majorly concentrate on what is wrong with an individual rather than concentrating on what is right with them. The CRI was introduced to provide an illumination on assets instead of deficits with Validity of 0.70 where  $p < 0.001$  and Reliability of (.84 to .97) [8]

### Perceived Stress Scale

A more accurate estimation of personal stress of an individual can be determined by employing various tools that have been introduced to help in estimating individual degree of stress. The first of all is Perceived Stress Scale. The Perceived Stress Scale (PSS) is a classic stress assessment tool. This instrument helps people in understanding how various situations can affect our feelings and causes stress. The questions in this instrument assess about your feelings and thoughts occurred in the last month. In each case, you will be asked to tell how often you felt or thought in a particular way. The Cronbach's alpha coefficients were 0.83 (Factor 1), 0.77 (Factor 2) and 0.87 (Total Score). The test-retest reliability scores were 0.83 (Factor 1), 0.68 (Factor 2) and 0.86 (Total Score) [9].

### Hamilton Anxiety Rating Scale (HAM-A)

Developed in 1959 by Dr. M. Hamilton, the scale has proven useful not only in following individual patients but also in research involving many patients. The HAM-A is a conventional and authenticated instrument for estimating the severity of a patient's anxiety. It should be conducted by an experienced clinician.

The major objective of HAM-A is to evaluate the patient's response to a course of treatment, instead of using as a diagnostic or screening tool. By admitting the scale regularly, one can report the results of drug treatment or psychotherapy. Has good reliability and validity with  $\alpha = 0.77$  to 0.92 [10].

### COVID-19-Impact on Quality of Life (COVID-19-QoL) scale v1.5

COVID-19-QoL scale was introduced in order to serve as an instrument for handling the impact of the situation with the COVID-19 pandemic in general on findings of various research on mental health with Reliability of  $\alpha = 0.885$

The scale could be administered in the two following ways:

1. The participant themselves could fill the scale directly.

2. The clinician/researcher could read the items and ask participants to rate each of the statements [11].

### Statistical Analysis

Data analysis was done using one-way ANOVA (Analysis of Variance). Differences were tested by two-tailed t-test. F ratio, degrees of freedom (df) were calculated. Pearson's correlation was used to associate all studied parameters. The values  $P < 0.05$  were considered statistically symbolic. Statistical analysis was done using the SPSS trial version 25.

## II. RESULTS

Study was conducted among the Health Care Workers working in Covid-19 Treatment facilities (ICU, HDU, Isolation ward, suspected ward) in the Dhiraj Hospital. Total 122 Participants who gave written informed consent, between ages 18 to 60 years and who had work with Covid-19 patients were included and 8 Participants with any other psychiatric co-morbidity or incomplete forms were excluded. Participants were from different Designation such as 1st Year Resident, 2nd Year Resident, 3rd Year Resident, SR, In-charge Nurse, Staff Nurse, 4th Class Worker, AP, Ward Boy, and GNM.

### Table-1. Demographic Variables

As per Table-1 Mean age of study sample was 26.84. Total 79 male and 45 female health care workers were taken in study. 96 post graduate residents formed the maximum sample of the study. 98 health care personnel were with less than 24 months experience with mean experience of 26.63 months. Average duration of covid-19 duty was 14 days.

### Table-2. Impact of Gender of Health care workers on Stress, Coping, Anxiety and Quality of life

According to Table-2 - Impact of gender of health care workers on stress, coping, anxiety and quality of life was assessed using independent t-test. Compared to male, female health care workers/personnel had significant ( $p = 0.002$ ) effect on their quality of life due to Covid-19.

### Table-3. Impact of Designation of Health care workers on Stress, Coping, Anxiety and Quality of life

Impact of Designation of Health care workers/personnel on Stress, Coping, Anxiety and Quality of life was analysed using ANOVA test. With p-value 0.000, both perceived stress and coping were significantly affected by designation of health care workers. Anxiety and quality of life



had no relation with designation with respective p-values of 0.245 and 0.873.

**Table-4. Impact of Work-experience of Health care workers on Stress, Coping, Anxiety and Quality of life**

Impact of Work-experience of Health care workers/personnel on Stress, Coping, Anxiety and Quality of life was studied by using Regression analysis and we found that work experiences is inversely related to the Stress, Anxiety (with p-value 0.000) and Quality of life (p-value- 0.001) but Work-experience doesn't affect the Coping of an individual as the p-value is 0.006 which is not significant.

**Table-5. Impact of Duration of Covid-19 duty of Health care workers on Stress, Coping, Anxiety and Quality of life**

The above table shows the impact of duration of Covid-19 duty of health care workers/personnel on stress, coping, anxiety and quality of life. Regression analysis was performed and an inverse relationship was found between the duration of COVID-19 duty performed by the health care workers and their corresponding development of anxiety, stress, lack of coping and impairment of quality of life ( p-Value = 0.001, 0.000, 0.000, 0.001 respectively).

**Table-6. Impact of Area of duty of Health care workers on Stress, Coping, Anxiety and Quality of life**

This table shows statistically significant result, of only stress varying in accordance with the area of duty (p= 0.050) by performing ANOVA test, while coping, anxiety and quality of life were unaffected by the area of duty in which health care workers were working.

### III. DISCUSSION

COVID-19 characteristics which are in charge for the mental health problems include its mode of transmission, quickness of spread and lack of conclusive treatment protocols or vaccine. Compared to the SARS upsurge, widespread global connectivity and vast media coverage causing catastrophic reactions secondary to the upsurge [12]

The finding of the current study showed that in Comparison to male, female health care workers/personnel had significant effect on their quality of life due to Covid-19. According to a study by William Wilson et al, An analysis of the risk factors for stress, depression, and anxiety symptoms revealed that female sex was a

significant predictor. Women were at approximately two times higher odds to develop these conditions. This finding is similar with the findings reported by Lai et al., where women are at increased odds of developing distress, depression, and anxiety [13].

Perceived stress and coping were significantly affected by designation of health care workers/personnel while Anxiety and quality of life had no relation with designation.

Designations such as residents, senior residents, associate professor, staff nurse, GNM they have varied degree of stress and coping as they are handling different level of work. Study done by Lai et al. (2020) showed that nurses in comparison to doctors had more anxiety, depression, and anxiety [14]

Also more the work experiences of health care worker, less the stress, anxiety and quality of life affected but Work-experience didn't affect the Coping of an individual, similarly more the duration of COVID-19 duty performed by the health care workers less was the development of anxiety, stress, lack of coping and impairment of quality of life. It can be explained by sensitisation. Gradually everyone sensitised with the situation and able to overcome the stress, anxiety and as a result less quality of life affected. According to Cai Et Al 2020 age-group studied can variedly influence the subject matter of worry. Health care workers/personnel from age 31–40 years were more bothered about infecting their families whereas in health care workers > 50 years of age patient's death caused more stress. In health care workers aged 41–50 years, factors like worry regarding their safety were also important. Older staff reported increased stress due to exhaustion due to longer duration of work hours and lack of personal protective equipment [15]

Only stress varied in accordance with the area of duty (HDU, ICU, Isolation wards, Suspected ward) while coping, anxiety and quality of life were unaffected by the area of duty in which health care workers were working. As we know generally moderate to severe cases are admitted under ICU and HDU, and mild cases are admitted under Isolation ward and suspected ward so more of deaths occur in ICU and HDU.

### IV. CONCLUSIONS

Health authorities should contemplate in setting up multidisciplinary mental health teams at various levels such as regional and national levels to handle mental health issues and offering



psychological support to both patients and HCW. Regular screening of medical personnel involved in treating, diagnosing patients with COVID-19 should be done for evaluating stress, depression, and anxiety in them. The regular reporting of mental health issues in HCW preferably by psychotherapeutic means based on the stress adaptation model is significant [16]

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Table-1. Demographic Variables

Demographic variables		Frequency	Percent	Mean	SD
Age (Years)	10-20	4	3.2	26.84	5.203
	20-30	106	85.3		
	30-40	8	6.4		
	40-50	4	3.2		
Gender	Male	79	63.7	NA	
	Female	45	36.3		
Designation	1 <sup>st</sup> Year Resident	54	43.5	NA	
	2 <sup>nd</sup> Year Resident	36	29.0		
	3 <sup>rd</sup> Year Resident	6	4.8		
	SR	2	1.6		
	In-charge Nurse	1	0.8		
	Staff Nurse	13	10.5		
	4 <sup>th</sup> Class Worker	4	3.2		
	AP	2	1.6		
	Ward Boy	4	3.2		
	GNM	2	1.6		
Work- experience (Months)	0-24	98	79.1	26.63	32.93
	24-48	13	10.5		
	48-72	5	4		
	72-96	3	2.4		
	96-120	2	1.6		
	120-144	2	1.6		
	144-168	0	0		
	168-192	2	1.6		
Duration of COVID Duty (Days)	0-10	43	34.7	14.37	5.21
	10-20	68	55.6		
	20-30	13	9.7		
Area Of duty	Isolation ward	68	54.8	NA	
	Suspected Ward	13	10.5		
	ICU	37	29.8		
	HDU	6	4.8		

Table-2. Impact of Gender of Health care workers on Stress, Coping, Anxiety and Quality of life

Scales	Gender	Mean	SD	t- Value	F-value	P-Value
Stress Coping Inventory Scale	Male	2.949	0.404	1.498	0.243	0.623
	Female	2.829	0.473	1.435		
Perceived Stress Scale	Male	78.461	72.814	0.126	0.006	0.940
	Female	76.733	75.009	0.125		
Hamilton Anxiety Scale	Male	9.870	7.834	0.420	0.952	0.331
	Female	9.200	9.792	0.395		
COVID-19- Impact on Quality of	Male	2.531	0.833	1.365	9.990	<b>0.002*</b>
	Female	2.908	2.193	1.107		



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\*p value  $\leq 0.05$  is taken as significant

**Table-3. Impact of Designation of Health care workers on Stress, Coping, Anxiety and Quality of life**

Scale	ANOVA	Sum of Squares	Mean Square	F- value	P- Value
Stress Coping Inventory Scale	Between Groups	5.294	0.588	3.777	<b>0.000*</b>
	Within Groups	17.752	0.156		
Perceived Stress Scale	Between Groups	255085.860	28342.873	7.956	<b>0.000*</b>
	Within Groups	406117.198	3562.432		
Hamilton Anxiety Scale	Between Groups	838.757	93.195	1.299	0.245
	Within Groups	8180.178	71.756		
COVID-19- Impact on Quality of Life	Between Groups	10.222	1.136	0.499	0.873
	Within Groups	259.688	2.278		

\*p value  $\leq 0.05$  is taken as significant

**Table-4. Impact of Work-experience of Health care workers on Stress, Coping, Anxiety and Quality of life**

Scale		Sum of Squares	Mean Square	F- value	R <sup>2</sup> - value	P- Value
Stress Coping Inventory Scale	Regression	3673.337	3673.337	3.453	0.028	0.066
	Residual	129771.218	1063.699			
Perceived Stress Scale	Regression	19102.706	9551.353	10.108	0.143	<b>0.000*</b>
	Residual	114341.848	944.974			
Hamilton Anxiety Scale	Regression	19344.554	6448.185	6.782	0.145	<b>0.000*</b>
	Residual	114100.000	950.833			
COVID-19- Impact on Quality of Life	Regression	20121.198	5030.299	5.282	0.151	<b>0.001*</b>
	Residual	113323.357	952.297			

\*p value  $\leq 0.05$  is taken as significant

**Table-5. Impact of Duration of Covid-19 duty of Health care workers on Stress, Coping, Anxiety and Quality of life**

Scale		Sum of Squares	Mean Square	F- value	R <sup>2</sup> - value	P- Value
Stress Coping Inventory Scale	Regression	292.901	292.901	11.754	0.088	<b>0.001*</b>
	Residual	3040.034	24.918			
Perceived Stress Scale	Regression	428.955	214.477	8.937	0.129	<b>0.000*</b>
	Residual	2903.981	24.000			
Hamilton Anxiety Scale	Regression	430.882	143.627	5.939	0.129	<b>0.000*</b>
	Residual	2902.054	24.184			
COVID-19- Impact on Quality of Life	Regression	455.315	113.829	4.707	0.137	<b>0.001*</b>
	Residual	2877.620	24.182			

\*p value  $\leq 0.05$  is taken as significant



**Table-6. Impact of Area of duty of Health care workers on Stress, Coping, Anxiety and Quality of life**

Scale	ANOVA	Sum of Squares	Mean Square	F- value	P- Value
Stress Coping Inventory Scale	Between Groups	1.245	0.415	2.284	0.082
	Within Groups	21.801	0.182		
Perceived Stress Scale	Between Groups	41615.367	13871.789	2.687	<b>0.050*</b>
	Within Groups	619587.690	5163.231		
Hamilton Anxiety Scale	Between Groups	348.226	116.075	1.606	0.191
	Within Groups	8670.709	72.256		
COVID-19- Impact on Quality of Life	Between Groups	1.324	0.441	0.197	0.898
	Within Groups	268.586	2.238		

\*p value  $\leq 0.05$  is taken as significant