



STUDY OF DEPRESSION, ANXIETY & STRESS AMONG FAMILY MEMBERS OF HOSPITALIZED COVID-19 PATIENTS IN A TERTIARY CARE HOSPITAL OF CENTRAL GUJARAT.

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ABSTRACT

Background: COVID-19 pandemic has caused mental health issues along with physical, social, and economic issues in both patients and their relatives. COVID-19-positive patients were hospitalized in isolation with no or limited access to relatives. These conditions may have contributed to significant psychological distress in relatives and this study was designed to assess the same. **Objectives:** To find the prevalence of Depression, Anxiety, and Stress among Relatives of hospitalized COVID-19 patients. **Methods:** A cross-sectional quantitative tertiary care hospital-based study was conducted after approval from Institutional Human Ethics Committee. Relatives of hospitalized COVID-19 patients were assessed by purposive sampling method using Semi-Structured Performa including socio-demographic details, illness-related details, and DASS-21 (Depression, Anxiety, and Stress scale-21) via a telephonic mode of interview. **Results:** A total of 200 relatives of COVID-19 positive turned negative patients were interviewed on the first day of the COVID 19 negative report. Majority of participants were male, mean age 41 years, literate, married & having first degree relation with the patient. The prevalence of Depression, Anxiety and Stress was 12%. On individual parameters, Depression, Anxiety and Stress was found 25%, 21%, and 20% respectively. Female relatives were significantly associated with depression ($\chi^2= 8.689, P=.003$) & anxiety ($\chi^2= 5.790, P=.016$) where as longer hospitalization was significantly associated with anxiety ($\chi^2= 10.216, P=.006$) and stress ($\chi^2= 8.936, P=.011$). **Conclusions:** Relatives of COVID-19 patients had a significant amount of psychological stress. Female gender of relatives and longer duration of hospitalization of patients were important predictors.

KEYWORDS : DASS-21, Relatives, COVID-19, Stress, Depression, Anxiety

INTRODUCTION

Worldwide we have seen a surge in mental health issues due to the COVID-19 pandemic.⁽¹⁾ A Large number of studies show that the COVID-19 pandemic has adversely affected the mental health of everyone including COVID-19 patients⁽²⁾ & healthcare workers.⁽³⁾ However, there is a paucity of studies on the mental health of relatives of hospitalized COVID-19 patients. The restrictive COVID-19 guidelines due to the highly infectious nature of the disease prevented relatives from being engaged in the direct care of their near ones during the period of hospitalization or at home.^(4,5) A prospective observational cohort study at two Swiss tertiary care hospitals found psychological distress in 22% of relatives of COVID-19 patients even after 30 days of hospitalization.⁽⁶⁾ The COVID-19 pandemic had a longer duration and more severity as compared to previous pandemics. Each person was under tremendous stress about health of self and family. Additionally many rumors about the severity of the illness, the increasing death toll, more than one death in the family and multiple members of the same family being simultaneously infected increased the stress to different levels. So, it is extremely important to know the clinically significant amount of psychological distress and factors associated with it, as this might help to prevent adverse outcomes by providing treatment and focusing on some factors at the policy level too.

METHODOLOGY

This was a cross-sectional quantitative hospital-based study with an analytic approach. The study was approved by the Institutional Human Ethics committee.

Study Setting:

The study was carried out at one of the largest COVID-19-designated tertiary care hospitals in central Gujarat. The

hospital was equipped with maximum oxygen beds, ventilators at that time, ICUs, ICCUs, and ward facilities for patients who needed hospitalization even after their COVID-19 test result turned negative (i.e. 10-14 days post-infection). In these patients, their relatives were allowed to visit the patients with due precautions. The researcher contacted them telephonically to abide by all the existing COVID-19 guidelines.

Study Period:

Three months (Dec2020 -Feb2021: during first COVID-19 wave)

Study Population:

Adult relatives of COVID-19 patients in post-COVID-19 facilities and those who had no history of psychiatric illness & gave consent for participation.

Study Procedure:

All the relatives were contacted telephonically on the day of their patient turning COVID-negative and being shifted to post COVID-19 facility. Most of them were hospitalized for more than 7 days. Their contact details were collected from case records with due permission from the hospital authority. On the first call, they were informed about the study and asked for verbal consent. Those who gave verbal consent were approached again for a detailed interview at their most convenient time. During this call, the relatives were asked about details of the patient's illness and other details as per Semi-structured Performa. We approached relatives on Day one of the COVID-19 negative results of their hospitalized patients to assess their overall experience during the whole duration of COVID-19 positive status in the hospital, and DASS-21 (Depression, Anxiety and Stress-21) questionnaire was applied.

Study Tools

- 1) Semi-structured Performa: Socio-demographic details of relatives, their relation with patient and patients' clinical history, details of COVID-19 treatment.
- 2) Depression, Anxiety & Stress Scale-21 (DASS-21)^[7] in Gujarati, Hindi, and English language as per relative's linguistic status. DASS-21 is a set of three self-report scales designed to measure the emotional states of depression, anxiety, and stress. Each of the three DASS-21 scales contains seven items, divided into subscales with similar content. Scores for depression, anxiety, and stress are calculated by summing the scores for the relevant items. Then the score will need to be multiplied by two to calculate the final score. Severity labels (normal, moderate, severe) are followed as per recommended cut-off scores. Reliability scores of the scales in terms of Cronbach's alpha scores rate the Depression scale at 0.91, the Anxiety scale at 0.84, and the Stress scale at 0.90 in the normative sample.^[8] DASS-21 was translated into Gujarati and back-translated by a team of 2 researchers. It was applied to 30 relatives of non-COVID-19 patients and pilot tested. The validated DASS-21 Hindi version was utilized.^[9]

Statistical Analysis

Mean, Average, Percentage & Descriptive analysis was done in MS Excel 2013 version. Bivariate analysis was done for identifying the association of depression, anxiety, and stress with patient-related and relative socio-demography variables using chi-square.

RESULTS

This was a cross-sectional hospital-based study in which 244 Relatives of hospitalized COVID-19 patients from post-COVID-19 facilities were contacted telephonically, of which 31 were not reachable by phone and 13 did not consent to participate. So, a total of 200 relatives agreed to take part in the study.

The majority of the relatives were married, educated, males, aged less than 45 years (mean age=41.37 years) having a first-degree relationship with the patient (Table 1) while the majority of patients were more than 45 years old, having comorbidities (like diabetes, hypertension, etc.), required hospitalization for more than five days including ICU hospitalization (Table 1).

Table 1: Percentages of socio-demographic variables of relatives and patients

Information of Relatives	N (%)
Age	
< =45	126(63%)
>45	74(37%)
Gender	
Male	152(76%)
Female	48(24%)
Marital status	
Unmarried	32(16%)
Married	168(84%)
Educational status	
Primary school	19(10%)
High school	75(38%)
University	106(53%)
Relation with patient	
1st degree	157(79%)
2nd degree & others	8(4%)
Partner	35(18%)
Information of Patient	N(%)
Current place	
Ward	130(65%)
ICU	70(35%)

Days of ICU hospitalization	
No ICU hospitalization	59(30%)
<5	23(12%)
>=5	118(59%)
Days of total hospitalization	
0-5	21(11%)
6-10	113(57%)
>10	66(33%)
Age of patient	
< =45	20(10%)
>45	180(90%)
Comorbidities	
No	74(37%)
Yes	126(63%)

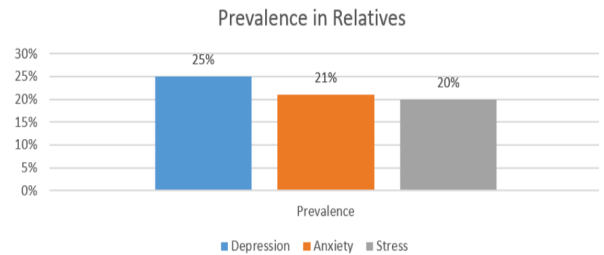


Fig 1a: Prevalence of depression, anxiety and stress in relatives

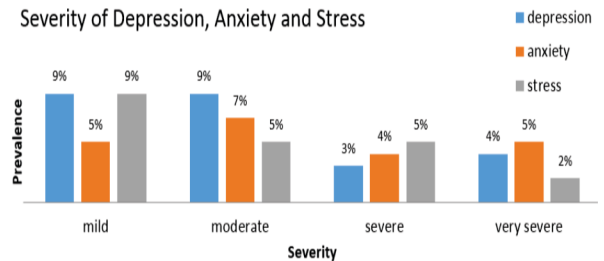


Fig 1b: Prevalence of depression, anxiety and stress according to severity

All three parameters depression, anxiety, and stress were present in 12% of relatives and 66% (majority) of relatives had none of these. We found depression in 25% of relatives, out of which 9% had mild depression, 9% had moderate depression, 3% had severe depression and 4% had very severe depression. While anxiety was found in 21% of the relatives, out of which 5% had mild anxiety, 7% had moderate anxiety, 4% had severe anxiety and 5% had very severe anxiety. Stress was found in 20% of relatives, out of which mild Stress was found in 9% of relatives, moderate stress in 7% of them, severe stress in 4% of them, and very severe stress in 2% of relatives. Thus, the majority of relatives suffering from Depression, Anxiety & Stress were having mild to moderate levels of severity, as compared to severe to very severe levels of severity. (As per Fig 1b)

Table 2: Association of depression, anxiety & stress with variables of relatives and patients.

Relatives' variables	Overall N(%)	Depression N(%)	Anxiety N(%)	Stress N(%)
Gender				
Male	152(76%)	31 (20%)	26 (17%)	27 (18%)
Female	48(24%)	20 (42%)*	16 (33%)*	13 (27%)
Age (years)				
< =45	126(63%)	34 (27%)	27 (21%)	24 (19%)
>45	74(37%)	17 (23%)	15 (20%)	16 (22%)
Marital status				
unmarried	32(16%)	9 (28%)	6 (19%)	7 (22%)
Married	168(84%)	42 (25%)	36 (21%)	33 (20%)
Educational status				

primary school	19(10%)	6 (32%)	6 (32%)	5 (26%)
high school	75(38%)	21 (28%)	18 (24%)	16 (21%)
university	106(53%)	24 (23%)	18 (17%)	19 (18%)
Relation with patient				
1st degree	157(79%)	38(24%)	31 (20%)	30 (19%)
2nd degree & others	8(4%)	2 (25%)	1 (13%)	2 (25%)
Partner	35(18%)	11 (31%)	10 (29%)	8 (23%)
Patient's information				
Age (years)				
<45	20 (10%)	7 (35%)	6 (30%)	6 (30%)
>=45	180 (90%)	44 (24%)	36 (20%)	34 (19%)
Days of hospitalization				
<=5days	21 (11%)	4 (19%)	5 (24%)	2 (10%)
6-10 days	113 (57%)	24 (21%)	15 (13%)	17 (15%)
10 days	66 (33%)	23 (35%)	22 (33%)*	21(32%)*
ICU Hospitalization				
only ward	59 (30%)	9 (15%)	8 (14%)	6 (10%)
<5 Days	23 (12%)	7 (30%)	6 (26%)	6 (26%)
>=5 Days	118 (59%)	35 (30%)	28 (24%)	28 (24%)
Medical Comorbidities				
Absent	74 (37%)	17 (23%)	15 (20%)	13 (18%)
Present	126 (67%)	34 (27%)	27 (21%)	27 (21%)
Current place				
Ward	130 (65%)	29 (22%)	22 (17%)	24 (18%)
ICU	70 (35%)	22 (31%)	20 (29%)	16 (23%)

*Chi-square test suggests significant association at p value <0.05

In our study, we found that all 3 parameters depression, anxiety, and stress were comparatively more in female and illiterate relatives. While according to patients' related factors, the prevalence of depression, anxiety, and stress was high in relatives of patients who were aged less than 45 years, had comorbidities or had a history of ICU hospitalization, or required longer hospitalization. Depression and stress were more in unmarried relatives, whereas anxiety was more common in married relatives. Depression and anxiety were more common in relatives aged less than 45 years whereas stress was more common in relatives aged more than 45 years and have a spousal relationship with the patient. Applying the chi-square analysis, we found a significant association with limited variables, like depression, which was significantly associated only with female relatives($\chi^2= 8.689, P=.003$), stress was significantly associated with longer days of hospitalization($\chi^2= 8.936, P=.011$) whereas anxiety was significantly associated with both the parameters, female relatives($\chi^2= 5.790, P=.016$) and longer days of hospitalization($\chi^2= 10.216, P=.006$) (as per Table 2).

DISCUSSION

This was a cross-sectional hospital-based quantitative study conducted during the first wave of the COVID-19 pandemic amongst relatives of hospitalized COVID-19 patients. The study aimed to assess psychological distress by utilizing DASS -21 tool. Through this study, we found considerable rates of Depression, Anxiety, and Stress - 25%, 21% & 20% respectively among relatives of hospitalized COVID-19 patients. In our study, we assessed relatives of patients who required hospitalization after the COVID-19 negative state in post COVID-19 facility. Beck's prospective observational cohort study at two Swiss tertiary-care hospitals in 126 relatives also found a 19.1% prevalence of psychological distress in relatives of hospitalized COVID-19 patients using the Hospital Anxiety and Depression Scale-HADS after 30

days of hospitalization.^[6] Shirel Dorman's cross-sectional study done during the first wave showed around 59% anxiety rate and 51% depression rate in adult relatives of isolated COVID-19 patients within the initial three days of hospitalization by using the Patients reported outcomes measurement information system (PROMIS).^[10] Kosovo's prospective comparative study also found that the anxiety and depression risk of relatives of COVID-19 patients in the ICU unit during the pandemic period was significantly higher than the relatives of non-COVID-19 patients in the ICU unit.^[11] Nader Salari's systemic review and meta-analysis done during starting of the first COVID-19 wave to see the prevalence of anxiety, stress, and depression among the general population shows a prevalence of stress in 5 studies with a total sample size of 9074 is obtained as 26.6%, the prevalence of anxiety in 17 studies with a sample size of 63,439 as 31.9% and prevalence of depression in 14 studies with a sample size of 44,531 people as 33.7%.^[12] While a cross-sectional study of Rahma Al-Zahrani done during the non-COVID-19 period in relatives of hospitalized ICU patients had shown high rates of depression, anxiety, and stress among caregivers 72.8%, 76.5%, and 61.5%, respectively.^[13] High rates may be explained due to interviewing the relatives of only ICU patients.

We also found more prevalence of mild to moderate levels of severity, as compared to severe levels in relatives, whereas Kosovo's comparative study using HADS-A and HADS-B scales, found contradictory findings, showing that moderate and high-risk anxiety and depression were significantly higher in relatives of COVID-19 patients as compared to relatives of non COVID-19 patients.^[11] The contradiction may be due to the fact that Kosovo's study was done only in relatives of ICU hospitalized patients, also our study did not compare these factors between relatives of COVID-19 and non-COVID-19 patients.

In our study female gender of the relative and longer duration of hospitalization were significant predictors of psychological distress among relatives. Shirel Dorman's cross-sectional study assessed Anxiety and Depression Symptoms in hospitalized COVID-19-isolated patients and in their relatives and found female relatives were at higher risk while the risk was lower in ultra-orthodox participants.^[10] Beck's prospective hospital-based study done during the first wave didn't find a significant association of psychological distress with the female gender but was significantly associated with a relationship with the patients and employment status of relatives where these findings were in contrast to our findings.^[9] However, Beck's study found no significant association with age and these replicate our findings. A Turkish study done during the second wave showed that the age of the patient was an independent risk factor that increased the development of anxiety and depression in their relatives while the education level of the patient's relatives was determined as a factor that decreased the development of anxiety and depression.^[11] The result of a recent meta-analytic study showed that women and a more educated population are at a higher risk of depression and anxiety.^[12] Previous literature on the non-COVID-19 period also found female relatives of critically ill patients at more risk of developing psychological stress.^[14,15] Rahma's^[13] study during non the COVID-19 period supported our results in terms of longer hospitalization stays directly proportional to psychological stress. Moreover, there were many qualitative studies done on relatives. One of them suggested that increased anxiety among relatives was associated with a feeling of not being protected by the hospital.^[10]

Strength:

The study targets relatives of hospitalized COVID-19 patients in post-COVID-19 facilities. This was one of the very few

studies done in India and the first one in Gujarat. The telephonic mode of interview incorporates all the relatives irrespective of educational status.

Limitations:

Telephonic mode of interview, no face-to-face contact limits the evaluation of non-verbal components. Only the relatives of post-COVID-19 facility are included in the study so we can't generalize findings to all relatives of hospitalized COVID-19 patients.

Future implication:

Being aware of Psychological distress amongst relatives of hospitalized COVID-19 patients helps to treat them properly and prevent adverse outcomes related to psychological distress. Also, we can focus on modifiable risk factors related to the relatives and incorporate some changes at the policy level in future waves of COVID-19. Providing psychological support on time and establishing structured, timely, and consistent communication regarding patient care during the pandemic can help them to deal with the stress and prevent long-term adverse mental health outcomes.

CONCLUSION

Relatives of COVID-19 patients also suffered from Depression, Anxiety, and Stress. Female relatives and longer hospitalization duration were found to be at more risk. These results might aid in the development of strategies to prevent psychological distress in relatives of hospitalized COVID-19 patients.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Acknowledgment

I acknowledge Mr. Ebbie Thomas, Assistant Prof. of the Dept. of Community Medicine, for his active involvement and contribution to statistical analysis of this paper.

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