

EFFECT OF PSYCHOLOGICAL FIRST AID ON MENTAL HEALTH IN HOSPITALIZED STABLE COVID-19 PATIENTS: A PRE-POST RESEARCH DESIGN

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Summary:

Background: The COVID-19 pandemic is known to affect mental health of sufferers. Psychological First Aid (PFA) is a mental health service for individuals in crisis, which can be provided to anyone regardless of age and it does not require mental health expertise. Its effect on mental health issues of COVID-19 patients has not been studied effectively. The present study aimed to assess the psychological impact and effect of PFA on mental health in stable COVID-19 hospitalized patients.

Subjects and methods: This was an interventional study with a pre-post research design in a tertiary government teaching hospital in eastern India. 93 stable patients who were admitted in a period of a month with COVID-19 were included in the study after obtaining appropriate consent. They were provided PFA (both structured individual and group sessions) by trained nurses. The Depression, Anxiety, and Stress scale (DASS-21) was used to assess depression, anxiety, and stress in the patients before and after intervention.

Results: The mean age of study population which comprised of 68.8% males was 56.2 ± 13.7 years. Median scores for depression, anxiety and stress were 4, 6 and 6 on admission and 0, 2 and 2 respectively before discharge after intervention ($P < 0.001$). 13%, 25.9% and 8.6% were the combined percentages scores of patients with varying levels of depression, anxiety and stress at the time of admission which were reduced to 4.3% ($P = 0.046$), 5.4% ($P = 0.001$), 2.2% ($P = 0.03$) respectively before discharge after intervention within one week.

Conclusion: PFA may be a cost-effective intervention in stable COVID-19 admitted patients who had depression, anxiety, and stress.

Keywords: Psychological First Aid, Mental health, COVID-19, Depression, Anxiety, Stress

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INTRODUCTION

Individuals and society at large both experienced extreme anxiety and stress in response to the actual and perceived threat of the COVID-19 pandemic. The psychological impact seemed to be devastating and long lasting due to existing gap between known and unknown facts about the virus (Jakovljevic et al. 2020; Minihan et al. 2020). Long-term stress can result in a range of emotions and psychological reactions, including feelings of stigmatization and fear. Individuals who are affected psychologically can display an array of negative emotions which can inhibit positive thinking and well-being and also an individual's coping abilities (Taylor & Stanton 2007). People with pre-existing mental illness are more vulnerable to the threat of COVID-19 and should be prioritized for a systematic mental health service delivery (Brooks et al. 2020).

Psychological first aid (PFA) is defined as a 'humane, supportive response to a fellow human being who is suffering and who may need support' (Bruce et al. 2016). The PFA model was conceptualized in the mid-twentieth century following community disaster situations on the principle of providing immediate psychosocial help and support to overcome the crisis (Drayer et al. 1954, Ruzek et al. 2007). After the Human Immunodeficiency Virus (HIV) pandemic it has also now been well proven and frequently used in aftermath of biological disasters and pandemic situation. PFA can be effectively provided by anyone and is not only restricted to mental health professionals to deliver it. The model identifies key signs that might indicate a need for more professional involvement, such as possible harm to self or others, long-lasting or severe distress or an inability to effectively function in daily life (Sijbrandij et al. 2020).

Limited studies are available on the effectiveness of PFA which may be due to the unstructured nature of the services provided in PFA. Psychosocial benefits which have been demonstrated in various studies includes instillation of positive mood and calmness, the feeling of being connected and hopeful despite an ongoing crisis and also a significant reduction in anxiety. A study conducted by Everly et al. (2016) on 42 participants who have undergone stressful events found that recipients of PFA had significantly less anxiety after a 30-minute session compared to the comparator social acknowledgment group (Everly et al. 2016). In a qualitative study by Schafer et al. (2016) on conflict affected people in Gaza during 2014, it was revealed that PFA was helpful in calming, providing support and fostering a greater sense of control and hopefulness (Schafer et al. 2016). Fox et al. (2012), in their review that included studies over a period of 20 years (1990-2010), concluded that PFA enables survivors to feel safe, connected, and hopeful after crisis situations, and it is also helpful in long term recovery, but there was inadequate scientific evidence for PFA (Fox et al. 2012). Cheng et al. (2020) attempted to develop an online PFA model for COVID-19 patients and found that it was effective in providing psychological support to patients who were admitted (Cheng et al. 2020).

Studies suggest that there is uncertainty and high mortality in hospitalized patients with COVID-19 infection, as well as a high prevalence of psychological stress and anxiety in them (Wang et al. 2021, De Sousa et al. 2021). If these issues are not addressed at the beginning, they can have long-term consequences. PFA is one such service that can be offered to patients affected during their hospital stay. In times of crisis, PFA has been observed to have a number of psychosocial benefits and have helped people stay calm. As a basic psychological intervention, PFA may assist patients in recovering from COVID-19. In addition to helping them cope with the psychological effects, it would make their stay at the hospital more pleasant. Studies on the efficacy of PFA on psychological parameters in patients suffering from COVID-19 is scant. The present study was conducted to assess depression, anxiety, and stress in COVID-19 hospitalized patients and aimed to evaluate the effects of PFA intervention on mental health in them.

SUBJECTS AND METHODS

Participants and setting

It was an interventional study with a pre-post research design. Sample selection was done through purposive sampling. Institute ethics committee approval was taken (AIIMS/Pat/IEC/2021/789) before inclusion of the subjects in the study. Since there are no previous study on the use of PFA in a pre-post design trial in COVID-19 population, patients were recruited as much as possible within the specified time period. Among 285 patients admitted with a diagnosis of COVID-19 in a month, ninety-three subjects who were stable completed the intervention (PFA). Participants were recruited from several COVID-19 wards from dedicated COVID-19 tertiary care government teaching hospital in eastern part of India. Verbal and written informed consent were taken from all participants and confidentiality of patients was ensured at all stages of data collection. All stable hospitalized COVID-19 patients between the age of 18-65 years willing to give informed consent were included in the intervention (PFA). Patients who were falling in the severe category (defined as having a oxygen saturation of less than 94%), or who were on Non-Invasive Ventilation (NIV), High Flow Nasal Oxygen (HFNO) or on invasive ventilator support were excluded. Co-morbid psychiatric disorders, neurological disorder or significant medical condition impeding communication, and uncooperative patients were also excluded from the study. The patient's socio-demographic details along with clinical variables such as diagnosis, duration of illness, age of onset, their relevant history of COVID-19, medical and psychiatric illness, and family history was recorded with semi-structured proforma.

Instruments

Depression, anxiety and stress scale (DASS-21): It has been developed by Lovibond et al. (1995) (Lovibond & Lovibond 1995) and is the short version of DASS-42 scale. It measures mainly three negative emotional states namely depression, anxiety and stress. It consists of 21 items and is measured on a 4-point rating scale (0-3) where 0 indicates non-applicability of the item to participants, 1 indicates applicability to participants to some degree, 2 indicates applicability to participants to a considerable degree or a good part of time and 3 indicates applicability to participants very much or most of the time. For final score calculation, the DASS-21 cumulative score needs to be multiplied by two.

Intervention (Psychological First Aid)

PFA tool was simplified for being used by everyone to help reduce distress in times of fear, anxiety and uncertainty, which has been significantly high causing adverse psychological impact on individuals more so on the people who were suffering from COVID-19 infection. Salient features of PFA include being supportive but non-intrusive and recognising that people have the right to accept or decline assistance. Active listening is an important aspect of PFA but without forcing the individual to speak if they are uncomfortable. PFA acts as a symbol of support and comfort while an individual is facing sudden unexpected crisis which is very much required to protect individual from further harm either in the form of psychological distress or any physical co-morbidities (Shah et al. 2020). Individual sessions and group sessions included psychoeducation regarding the illness, breathing exercises, acknowledgment and validation of emotion, ventilation and facilitating, normalization of experience and reducing stress, individual specific concerns related to safety of other family members at home, issue of grief and bereavement related to loss in the family, facilitating adaptive coping strategies and building resilience. Group sessions were more focussed on normalization, allowing ventilation, promoting sharing of experiences and individual sessions were more focused on building resilience.

Procedure

A team of nursing officers were identified and first level of PFA training was provided with the help of MSF (medecins sans frontieres), an NGO working in the area of mental health. MSF was already providing psychosocial support at COVID-19 treatment centres opened by them (Ref). A module was also developed to provide psychological support services which was based on the “World Health Organization (WHO) Psychological First Aid: Guide for field workers (2011)” to hospitalized COVID-19 patients (WHO 2011). The participants selected for intervention

(PFA) were hospitalized COVID-19 patients who were stable and able to communicate. Baseline assessment data were collected on DASS-21 on the first day of admission in COVID-19 wards. All the patients were provided PFA by our team that comprised both individual and group sessions. While Individual sessions (30 mins/ session) were provided daily, group session including 5-6 patients (1.5 hours/ session) was conducted twice in a week. The sessions were conducted in Hindi language. Post assessment was done after one week of first assessment on DASS-21. While the identified nursing officers delivered PFA, the assessment was done by the researcher team.

Statistical analysis

Statistical analysis was done using Statistical Package for the Social Sciences software version 26. Shapiro-Wilk test was applied for testing the normality of continuous data. The baseline data for DASS-21 was found to be skewed in nature and had wide variation, so the baseline severity score of DASS-21 has been calculated as median. Further, Wilcoxon Rank sign test and test of Marginal homogeneity (McNemar test) were used to compare scores of depression, anxiety and stress before and after intervention. A $p < 0.05$ was considered statistically significant.

RESULTS

A total of 285 patients were offered participation who were admitted for COVID 19 during data collection during the period of one month, out of which 139 patients were included as per eligibility criteria. Twenty-four patients declined to participate while twenty-two left the study, therefore the final assessments could be completed in 93 patients. The demographic characteristics of the included patients are shown in Table 1. In our study out of 93 Covid 19 admissions, 64 (68.82%) were males, 51 (54.84%) were in age group 31-60 years with mean age 56.2 ± 13.7 years.

Table 1. Demographic characteristics of the patients (n=93)

Parameters	Categories	n=93	%
Age (Years)	<30	3	3.2
	31-60	51	54.84
	>60	39	41.94
Mean (SD): 56.2 ± (13.7) years	Male	64	68.82
	Female	29	31.18

Baseline DASS scores Ninety-three COVID 19 admissions were compared with before discharge DASS Scores (depicted in table 2). Median Depression score was 4 (IQR:2-8) on admission and 0 (IQR:0-4) before discharge. Similarly, there was a reduction in median Anxiety and Stress scores from 6 to 2 and all these reduction in scores is statistically significant(P<0.001).

13%, 25.9% and 8.6% patients had mild to severe level of depression, anxiety and stress level respectively at the time of admission. Comparison (baseline and before discharge) of DASS severity scores of the samples are

shown in table 3. It was found that 13% of patients who had mild to severe level of depression on admission, reduced to 4.3% before discharge and this reduction in proportion of severity of depression is statistically significant (P=0.046).

Similarly, 25.9% patients who had stress was reduced to 5.4% before discharge and this reduction in severity is statistically significant (P<0.001). Also,8.6% patient who had anxiety on admission had a statistically significant reduction to 2.2% before discharge (P=0.03).

Table 2. DASS Scores on admission and before discharge (n=93)

DASS Categories	DASS Score on Admission(n=93)	DASS Score before discharge(n=93)	Z Value	P Value**
	Median (IQR)	Median (IQR)		
Depression score	4 (2-8)	0 (0-4)	-4.7	<0.001*
Anxiety Score	6 (2-8)	2 (0-4)	-6.2	<0.001*
Stress Score	6 (2-10)	2 (0-4)	-5.8	<0.001*

**Wilcoxon Rank sign test; *P <0.05 is significant

Table 3. DASS severity scores on admission and before discharge (n=93)

Score	DASS Category	Depression(N=93)		Anxiety(N=93)		Stress(N=93)	
		Score Range	n(%)	Score Range	n(%)	Score Range	n(%)
DASS 21 Scores (On Admission)	Normal	0-9	81(87.1)	0-7	69(74.2)	0-14	85 (91.4)
	Mild	10-13	6(6.5)	8-9	6 (6.5)	15-18	3 (3.2)
	Moderate	14-20	4 (4.3)	10-14	11 (11.8)	19-25	3 (3.2)
	Severe	21-27	2(2.2)	15-19	6 (6.5)	26-33	1 (1.1)
	Extremely severe	28+	0	20+	1 (1.1)	34+	1 (1.1)
DASS 21 Score before discharge	Normal	0-9	89 (95.7)	0-7	88 (94.6)	0-14	91 (97.8)
	Mild	10-13	1 (1.1)	8-9	4 (4.3)	15-18	1 (1.1)
	Moderate	14-20	2 (2.2)	10-14	0	19-25	0
	Severe	21-27	1 (1.1)	15-19	1 (1.1)	26-33	1 (1.1)
	Extremely severe	28+	0	20+	0	34+	0
P Value (test of Marginal homogeneity- McNemar test)		0.046*		<0.001*		0.034*	

*P value <0.05 is significant

DISCUSSION

The present study aimed to evaluate the effects of PFA intervention on the mental health of COVID-19 hospitalized patients and assessed depression, anxiety, and stress in them. This is the first study of its kind conducted in India on hospitalized COVID-19 patients in dedicated care centre for COVID-19. These findings demonstrate that PFA based interventions aid in reducing psychological effects among COVID-19 patients, which is high, resulting in significant implications both for recovery during hospitalization and for long-term mental health and well-being after discharge.

In the present study we found that on admission 13%, 25.9% and 8.6% patients had mild to severe levels of depression, anxiety and stress respectively. Previous studies have also found significant mental health impact on COVID-19 patients (Kumar et al. 2021, Kong et al. 2020, Zhang et al. 2020, Dai et al. 2020). The study by Kumar et al. (2020) found that 48% of the patients had comorbid depression and 47% of the patients had anxiety (Kumar et al. 2021). Our study found lower levels of anxiety, depression and stress as compared to other studies which could be because most of the previous studies were carried out in the beginning of the pandemic while the index study was conducted in the month of October- November, 2020 by when people became more aware about the symptoms and prognosis of the illness and there was reduction in anxiety related to coronavirus by that time. An additional reason was that in our study patients who were stable were included and most of the patients were not on any form of oxygen support. Lack of social support was another reason for increase in anxiety, depression in previous studies as they were living alone in the hospital when infected with COVID-19. At our hospital, efforts were made to increase the support by keeping patients connected with their family members through telephone and they were able to get food and other items from home which might have been the reason in reduction of psychological morbidity in our study. In another study by Dai et al. (2020) they found the prevalence of anxiety and depressive symptoms was 18.6% and 13.4%, respectively which is similar to the results of our study (Dai et al. 2020). They have also mentioned that open communication and transparency might have resulted in lower levels of anxiety, depression and stress (Lin & Cheng 2020).

The baseline DASS scores of 93 patients could be compared with before discharge DASS Scores. Median Depression score was 4 (IQR: 2-8) on admission and 0 (IQR: 0-4) before discharge (100 % reduction). Similarly, there was a reduction in median anxiety and stress scores from 6 to 2 (66.6 % reduction) and all these reduction

in scores is statistically significant ($p < 0.001$). There was significant reduction in number of patients presented with depression, anxiety and stress post-psychological first aid across all severity ranges.

Psychological First Aid is a broader term in which during an extreme event, information, comfort, emotional care and instrumental support is provided in a step wise manner depending on the person's needs (Forbes et al. 2011). Very few studies had assessed the effect of psychological first aid on patients infected with COVID-19. We could find only one study of psychological and behavioural intervention on COVID-19 hospitalized patients. Most studies have used the terms psychosocial support measures or psychological behavioural interventions when providing psychological support to the patients. One interventional study by Weissbecker et al. (2018) done on patients infected with Ebola virus found that psychosocial support measures have mixed effects with a decline of low mood compared to no effects on other measures (eg. anxiety) (Weissbecker et al. 2018). Another study done on patients infected with COVID-19 found that after 10 days of psychological behavioural interventions there was significant improvement in depression and anxiety scores in the intervention group while there were no changes in the control group (Kong et al. 2020). In their study, Cheng et al, (2020) found that PFA was also effective for in-patients with COVID-19 (Cheng et al, 2020). These are similar to the finding of our study.

Most of the studies done on psychological factors leading to psychological distress in COVID-19 patients have highlighted lack of social support and loneliness as the most important factor. The patients admitted in COVID wards were staying alone without their family members (though connected with them over telephone) which was the reason behind feelings of loneliness and perceived lack of social support among them. The PFA provided at individual and group level helped in giving support to the patients, staying connected and to reduce the stress which they were experiencing due to their stay in the hospital. The group sessions acted as an ice breaker and helped the patients in getting to know other patients staying in their ward and improved communication amongst the patients. Group sessions were helpful in allowing ventilation and facilitating normalization of experiences which has significant value in reduction of psychological distress. Individual sessions helped to address individual specific concerns related to issues regarding safety of other family members at home, issue of grief and bereavement related to loss in the family and other psychosocial issues. The most important benefit of the intervention was facilitating adaptive coping strategies and building resilience. The therapeutic value of such interventions in pandemic situations

is reinforced by the fact that it has shown significant improvement in all domains of psychological distress at all levels of severity. This shows the future utility and generalizability of such intervention to hospitalized patients in pandemic situations. We also took the semi-structured feedback at the time of discharge to assess the acceptability and utility. The common feedback received was that patients felt it was useful and helped them significantly in their recovery process. They also felt that it was beneficial in providing support and decreasing their anxiety and stress in such difficult times.

There were significant limitations which is worth highlighting in this study. Firstly, there was no control group to compare the results and sampling done was not random which limits the generalizability of the findings in our study. The resolution of psychological constructs (depression, anxiety, stress) can thus also be because of natural resolution of symptoms and not due to PFA. Thus, the effect of PFA in mitigating the psychological issues cannot be clearly ascertained. Secondly, there was no blinding of the researcher and subjects in this study due to the emergent COVID related inpatient services restrictions which might have implications for introducing bias in measurement. Thirdly, the PFA intervention in this study was delivered in a non-structured manner with a short intervention period of 1 week. This was an inherent limitation in the therapy process itself. Fourthly, Only stable hospitalized patients were included in the study and that's why the level of depression, anxiety and stress was low in our group which might not be the case with moderate to severe cases of COVID-19, thus we cannot say whether this kind of psychological intervention will be effective for them or not.

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CONCLUSION

To conclude, fair proportions of our study subjects (stabilised COVID 19 admitted patients) had depression, anxiety and stress level. PFA may be a cost-effective timely intervention for reduction of depressive, anxiety and stress level in them. The evidence needs to be further generated in a large sample of subjects with randomized control design. It will not be premature to propose that such kind of low cost, less human resource intensive and acceptable intervention of PFA maybe considered to be the routine management protocol/ SOP for hospital-based care of COVID-19 patients in dedicated COVID care centres. Through further research the potential utility of PFA interventions, for such biological disaster situations or routine hospitalized care for acute patients with life threatening or severe chronic medical illnesses, needs to be explored.

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Authors confirmed the compliance with all relevant ethical regulations.

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