ORIGINAL ARTICLE

Level of Stress Among Health Care Workers in COVID-19 Dedicated Setup

Asif Azeem[1], Sikandar Ali[2], Ayesha Shabbir[3], Tashfeen Bin Nazeer[4]

ABSTRACT

Objective: To determine the co-relation between perceived social support and stress among nursing staff working in a COVID-19 dedicated hospital setup.

Study Design: Cross-sectional study.

Place and Duration of Study: Armed Forces Institute of Mental Health (AFIMH), Rawalpindi from 30 Aug 2020 to 02 March 2021.

Materials and Methods: We consecutively sampled 128 subjects. All participants were requested to complete a brief demographic sheet, Urdu version of the Depression, Anxiety and Stress Scale 21 (DASS-21) to assess the level of severity of stress among nursing staff and the Urdu version of the Multidimensional Scale of Perceived Social Support (MSPSS). Data analysis was done using SPSS version 23.0.

Results: The mean duration of stay of nursing staff in ward was 4.86 ± 2.28 weeks. Sixty-two (48.44%) nurses had duration of 2 to 4 weeks while 66 (51.56%) nurses had duration of more than 4 weeks of stay in the ward. The mean total stress score was 6.86 ± 5.80. The mean multidimensional scale of perceived social support (MSPSS) score was 47.29 ± 22.53. There was significant negative correlation between MSPSS score and stress score ($r = -0.396$, p-value < 0.05).

Conclusion: Results of this study highlighted that a significant negative co-relation is present between perceived social support and stress among nursing staff working in a COVID-19 dedicated hospital setup.

Key Words: *Anxiety, COVID-19, Depression, Nursing Staff, Stress.*

Introduction

Infectious disease caused by coronavirus (SARS-Cov-2) reached the scale of a pandemic on March 11, 2020.[1] COVID-19 brought unprecedented challenges and catastrophic burden on healthcare services particularly health care workers were affected. Nursing staff was at increased risk of getting infected with this virus, were continuously in danger of being infected while on duty and they also carried the same risk for their families.[2] Long working hours at hospitals kept them away from their families, which further added to their stress, they also had the duty of caring for their colleagues who were COVID-19 affected and they needed to work with Personal Protective Equipment (PPE), which made their routine tasks more arduous.[3] In addition Health care professionals had to make decision to selectively put certain patients on life support, while knowingly depriving other patients of these facilities due to lack of available resources[4]. To add to these issues, some staff required going themselves into quarantine while those who were pregnant or immune-compromised were not able to contribute as frontline workers and as a result feelings of guilt surfaced in some individuals.[5] In these difficult circumstances, having social support from colleagues, hospital administration (formal social support) and family (informal social support) may play a major role in deterring mental health challenges for the nursing staff. Nurses who have increased perceived social support have been documented to have decreased stress levels.[6,7] Social support can have four different characteristics in the form of emotional, instrumental, informational and evaluative support.[8] Every individual in his own way perceives his social network adequately supportive or not, is in simple terms "Perceived social support". Evidence has shown that Social support is correlated with mental health as it protects against mental

[1,3]*Department of Psychiatry*
AFIMH, Rawalpindi
[2]*Department of Psychiatry*
CMH, Mangla
[4]*Department of Psychiatry*
AFPGMI Rawalpindi

Correspondence:
Dr. Asif Azeem
Department of Psychiatry
AFIMH, Rawalpindi
E-mail: drasifbajwa@yahoo.com

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health problems, thereby alleviating stress and anxiety issues.[9] In these circumstances, social support may be a highly effective factor in off-setting the effects of stressors for nursing staff, thereby protecting their mental health and ultimately contributing to their ability to provide an improved quality of patient care. Currently, there is a paucity of literature investigating relationship between perceived support and level of stress among nursing staff of Pakistan. Therefore, this study aimed at finding evidence that social support protects the nursing staff from development of stress while serving COVID-19 patients.

Materials and Methods

After approval of ethical committee vide ERC ref (019/20), this cross-sectional study was done at Armed Forces Institute of Mental Health (AFIMH), Rawalpindi from 30 Aug 2020 to 02 March 2021. A total sample size of 128 was estimated using statistical formula N= [(Zα+Zβ)/C]2+3 by Hulley[10] keeping results of study by Xiao et al as reference.[11] We consecutively sampled 128 subjects using convenience non probability sampling technique. Both genders, age range 20-60 years, Nurses working in COVID-19 dedicated wards, HDUs and ICUs at PEMH, Rawalpindi, Nurses who had worked at least for a duration of 2 weeks in above settings were included in this study after consent. Doctors and ancillary support staff, COVID-19 infected nurses, Nurses with pre-existing mental health problems were not included. Participants completed a brief demographic sheet, Depression, Anxiety and Stress Scale 21 (DASS-21) Urdu version[12] and Multidimensional Scale of Perceived Social Support (MSPSS) Urdu version.[13] MSPSS a 12-item scale has subscales for family, friends and significant other (each subscale having 4 items on the MSPSS).[14] The respondents answered each item on a 7-point Likert scale with the following responses, 1 for very strongly disagree, 2 for strongly disagree, 3 denoting I disagree, 4 representing neutral response, 5 meant I agree, 6 denoting I strongly agree while 7 meant I very strongly agree. Total sum of all twelve items were calculated for all respondents for obtaining the mean score for Perceived social support (range = 1 to 84). Mean and standard deviation for PSSS score was described. The DASS 21 has three sub scales for stress, anxiety, and depression with each subscale having seven items on the scale.[15] Each item on the scale is required to be responded from 0 to 3 on Likert scale where 0 denotes that it did not apply to me at all, 1 means it applied to me to some degree, or some of the time, 2 means it applied to me to a considerable degree or a good part of the time and 3 represents that it applied to me very much or most of the time. Seven items of stress subscale were added and then multiplied by 2 to obtain a Stress score representing 0 to 7 as normal, 8 to 9 as mild, 10 to 12 as moderate, 13 to 16 as severe while more than 17 as extremely severe.

SPSS version 23.0 was used to analyze data. For age, duration inward, PSSS and Stress score mean and standard deviation while frequency and percentages for categorical variables such as gender, and proportion of nurses in the various categories of perceived social support and stress were calculated. The Outcome variable for the study was the Perceived social support score (**PSSS**). The Dependent variables for the study was the Stress Score (**SS**). Pearson's correlation coefficient was calculated for the PSSS and SS. Effect modifiers such as age, gender duration of work/stay in ward were controlled by stratification and post-stratification correlation was applied. Post stratification chi squared test was used. Statistical significance level was set to maximum of 5% ($p<0.05$).

Results

The mean age of participants in this study was 30.81 ± 6.56 years (21 - 45 years), 80 (62.50%) were male and 48 (37.50%) female nurses with higher male to female ratio. The mean duration of stay of nursing staff in ward was 4.86 ± 2.28 with minimum and maximum duration in ward was from 2 to 8 weeks, 62 (48.44%) nurses had duration of 2 to 4 weeks while 66 (51.56%) nurses had duration of more than 4 weeks of stay in the ward. The mean total stress score was 6.86 ± 5.80, 72 (56.25%) nurses had normal scores, 19 (14.84%) had mild stress, 10 (7.81%) had moderate, 18 (14.06%) had severe while 9 (7.03%) had extremely severe stress. The mean MSPSS score was 47.29 ± 22.53 with significant negative correlation between MSPSS and stress scores r-0.396, ($p < 0.05$).

Discussion

Current study findings show a significant negative correlation between MSPSS score and stress scores

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Table I: Demographic Variables

S.no	Category	
1.	**Age** (Mean ± SD)	30.81 ± 6.65
2.	**Gender**	N (%)
	Male	80 (62.50)
	Female	48 (37.50)
3.	**Marital Status**	
	Married	100 (78.12)
	Unmarried	28 (21.87)
4.	**Education**	
	Matric or more	123 (79.35)
	Below matric	32 (20.62)
5.	**Stress**	
	Normal Level	72 (56.25)
	Mild Level	19 (14.84)
	Moderate Level	10 (7.8)
	Severe Level	18 (14.06)
	Extremely Severe	9 (7.03)
	Level	6.86 ± 5.80
	Mean ± SD	
6.	**Duration of time spent in wards**	62 (48.44)
	2-4 weeks	66 (51.56)
	> 4 weeks	4.86 ± 2.28
	Mean ± SD	
7.	**Perceived Social support**	47.29 ± 22.53
	Mean ± SD	

Table II: Comparison of Stress Score with Demographic Variables

S.no	Category	Variables		Stress Score	P value
1.	Age (years)	20-40	Pearson Correlation	-349	0.004
		> 40	Pearson Correlation	-437	<0.001
2.	Gender	Male	Pearson Correlation	-419	<0.001
		Female	Pearson Correlation	-375	0.009
3.	Duration	2-4 weeks	Pearson Correlation	-387	0.002
		> 4 weeks	Pearson Correlation	-409	<0.001

of nursing staff working in wards/ICUs of PEMH Rawalpindi, indicating psychological distress among nursing staff while dealing with COVID-19 patients. These findings are like those of various other studies which have described psychological adverse effects among medical staff working during COVID- 19 health crisis.[16,17,18]

This study has focused on co-relation of stress with

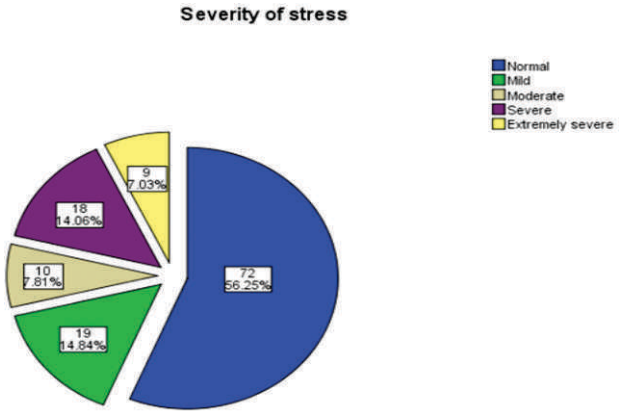

Fig. 1: Severity of Stress in Nurses

perceived from informal social support of friends, family and significant others, related to psychological health and quality of life which in turns improves the mental health and quality of life.[19] Our findings are almost in agreement to another published study, i.e., Xiao et al. which assessed the correlation between social support and stress of 180 health care workers involved in taking care of patients with COVID-19 in a hospital in Wuhan, China. Their investigation found that social support had a negative weak correlation with stress (Standardized coefficient = - 0.245).[11] In another study done during COVID pandemic by Turkish investigators it was observed that the level of social support perceived by the nurses was very good while perceived psychological resilience level was moderately good which increased as the perception of social support was increased.[20] Informal sources of social support have received less attention in research as compared to formal sources of support.[21] However, for most individuals, family and friends are the basic and foremost form of support and connection which they will turn to first in times of stress. They tend to utilize this resource before they turn to more formal sources of support i.e., superiors and organizations[22]. Williams et al state that structure of informal social support network is an indicator of good social support therefore larger support network is preferable.[23]

These results substantiate findings of other studies by uncovering the underlying mechanisms between social support and mental health. They have impact on mental health services for nurses working during the peak period of COVID-19. During pandemic there is need to focus on availability of informal sources of

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social support particularly for nursing staffs who serve in closer proximity to patients as compared to doctors. Health care administrators need to be sensitive to these issues to address them in a better way.

Conclusion

It is concluded that stress was seen in several staff nurses with significant negative co-relation between perceived social support and stress, whether formal or informal, has the capacity to impact the efficiency of nursing staff. Hence, social support must be enhanced to reduce the stress levels among the nurses who have important role as spearheads in the fight against COVID-19.

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CONFLICT OF INTEREST

Authors declared no conflicts of Interest.

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DATA SHARING STATMENT

The data that support the findings of this study are available from the corresponding author upon request.

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