International Journal of Academic Research and Development
www.academicjournal.in
ISSN: 2455-4197
Received: 07-06-2021, Accepted: 23-06-2021, Published: 07-07-2021
Volume 6, Issue 4, 2021, Page No. 05-10

Assess perceived stress of healthcare workers and their family members during the period of COVID-19 outbreak in Sri Lanka

SC Wickramasinghe[1], SV Rajasinghe[2], YGAC Senevirathne[3], E Wickramasinghe[4], VUE Perera[5]

[1] Deputy Director General, Department of Health, Ministry of Health, Sri Lanka
[2] Consultant Community Physician, Department of Health, Ministry of Health, Sri Lanka
[3] Registrar in Medical Administration, Department of Health, Ministry of Health, Sri Lanka
[4] Consultant Community Physician, Department of Health, Ministry of Health, Sri Lanka
[5] Medical Officer, Health Informatics, Department of Health, Ministry of Health, Sri Lanka

Abstract

Background: Since the first patient report in December 2019 in Wuhan, China, SARS- CoV 2 COVID 19 stormed over the world and became a pandemic within few months. With the highly contagious virus, countries and communities overwhelmed by fear, anxiety, and uncertainty: started to fight against the virus – strengthening the preventive measures, researching for vaccines and treatments. Health care professionals have been in the frontline of this battle.

Many authors have argued that rapidly increasing cases and mortality push them into extreme pressure due to multiple reasons, social isolation, stigma, and discrimination.

This study aims to assess perceived stress and stigma among frontline healthcare workers and their family members in Sri Lanka.

Methods: Sample of frontline healthcare workers and their family members (N= 1464) were recruited, data collected on perceived stress and stigma with a self-administered questionnaire. Perceived stress Scale (PSS) was used to collect data on stress level.

Results: Average stress level among staff members was 19.02 (SD = 4.48) for spouses 19.05 (SD =4.53) for children 18.60 (SD =4.66) according to the PSS. Altogether health care staff, spouses and children has experienced moderate level of stress. Female HCWs were more stressed than males.

It was found that stigmatized individuals were more stressed than others and home environment was more vulnerable for stigmatization for HCWs; media played major role in stigmatization.

Conclusion: The frontline health staff and their families had moderate stress level and those who perceived stigmatized were significantly more stressed than others. Psychosocial support must be arranged for health staff and their families to face with perceived stigma and stress.

Keywords: health staff, family members od health staff, perceived stress, perceived stigma

Introduction

Since first patient infected with SARS- CoV 2 (COVID 19) virus reported in December 2019, fear, anxiety, and uncertainty of life stormed over the countries and spread globally; over 170 million people infected, over 3.5 million killed up to now ("COVID Live Update," 2021).

Health consequences and manifestations with the COVID 19 pandemic, need attention from governments and policymakers. Hurley and Agrest (2021) [4] has mentioned in a recent publication of the International Journal of Mental Health, learning from the Argentinian experience, it is important to recognize stigma and discrimination as an important component affecting the mental health and wellbeing of the population.

The ongoing COVID-19 pandemic highlights the importance of addressing the issues related to stress and stigmatization. Uncertainties and the uncontrolled spread of the virus have led to anxiety, fear, stigma, stress and discrimination (Kumar and Nayar, 2020) [6].

It is speculated that COVID-19 may lead to heightened fear and anxiety leading to prejudice, social isolation, and stigma (World Health Organization (WHO), 2020).

Some of the messages to the public have also aggravated the stress and stigmatizing process; "treat every individual you meet as an asymptomatic COVID carrier, Treat every surface you touch as potentially contaminated, COVID is not going to magically disappear, About 70% of us will have to get infected for the community to acquire herd immunity" are some of them (Satwik, 2020) [9].

Kumar & Nayar (2021) [5] argue that people are scared and not coming forward for testing due to social stigma, social isolation, and fear that they will be blamed, isolated, and taken away from their family members.

Health workers are at the front line of COVID -19 response and as such are exposed to hazards that put them at risk of infection with an outbreak pathogen; Hazards include exposure to pathogen, long working hours, psychological distress, fatigue, occupational burnout, stigma, and physical and psychological violence("who-rights-roles-respon-hw-covid-19.pdf," n.d.).In a literature review Wim H Van Brakel (2006) [11] has concluded that consequences of stigma affect quality of life of individuals as well as effectiveness of public health programs and found similarities in the consequences of stigma in many different

cultural settings and public health fields.

In a factor analysis study, researchers have found that Health Care Workers(HCWs) stigmatization is linked to the Covid stress syndrome (Taylor *et al*, 2020) [10].

Another study conducted to assess perceived stress and coping strategies among healthcare workers, has found that positive attitudes towards the stressful situation was the main protective factor, while female gender, seeking social support, avoiding strategies and working with Covid 19 patients were risk factors (Babore *et al*, 2020) [1].

A study conducted in Sri Lanka regarding psychological experiences during Covid 19 pandemic of healthcare professionals, have identified many influencing factors on their psychological health; fear of being infected and distress caused by fear of spread among family members, stigmatization, poor self-confidence, poor occupational safety and heavy work load (Perera *et al*, 2021) [7].

However, stigma and stress among HCWs during Covid 19 pandemic have not been investigated clearly in Sri Lanka. This cross-sectional descriptive study aimed to give an account on sociodemographic characteristics and assess the stress and stigma among selected group of HCWs and their family members. These healthcare workers who were at COVID treatment centers, isolation centers and field health institutions which carried out quarantine and sampling of suspects, had to work very hard from the date of first COVID-19 patient was reported in Sri Lanka. They have been dealing with significant stress due to concerns over the risk of contracting or passing the infection on to others and working extended hours daily. Further, their routine duties as parents or spouses were disturbed during this period as some of them had to stay in the healthcare institutions for longer duration. Some of these healthcare workers did not get a chance even to see their family members and this detachment further aggravated their stress.

Justification

The frontline healthcare workers who worked in managing and controlling COVID-19 and their family members underwent enormous stress during COVID-19 outbreak of Sri Lanka. In future outbreaks, they may have to face similar or higher stresses by being healthcare workers or members of such families.

To plan an intervention to improve the psychological wellbeing of healthcare workers and their family members, it is necessary to assess the level of stress and stigma they perceived. Frontline healthcare workers who have involved in management of COVID-19 and their family members were offered one day all-inclusive stay in a five-star hotel. This has provided an opportunity to study the level of stress and perceived stigma of frontline healthcare workers and their families.

General Objective

To assess the perceived stress and discrimination of frontline healthcare workers and their family members due to COVID-19

Specific Objectives

1. To assess the perceived stress of frontline healthcare workers and their family members due to COVID-19
2. To assess the perceived discrimination of frontline healthcare workers and their family members due to COVID-19
3. To assess the effect of selected socio demographic characteristics on perceived stress and stigma.

Methodology

The study was a descriptive cross-sectional study, conducted in hotels which offered one day stay for front line health care workers and their families from 25th October to 31st December 2020.

Frontline healthcare workers who were involved in management of COVID-19 and their family members were included in the study. Family members of frontline healthcare workers who are less than 18 years of age were excluded.

No sample size calculation was carried out and all staff and family members consenting to take part in the study were included in the study.

Study Instruments

A self-administered questionnaire has been used; It was pretested among 10 health staff members (including all the categories i.e., medical and nursing officers, paramedical staff members and minor staff members) who are currently working in National Hospital of Sri Lanka considering the logistic feasibility. These participants have been asked regarding the understandability, appropriateness of length of the questionnaire and other information they received.

Questionnaire consisted of three main components.

Part 1: Sociodemographic characteristics.

Part 2: Questionnaire to assess discrimination by others.

Part 3: Perceived Stress Scale (PSS).

The PSS (Ramírez and Hernández, 2007) has been used by many researchers globally to assess the perceived stress in terms of occupational psychology. The original version of PSS included 14 items and later developed short form consisting of 10 items (six negatively stated and four positively stated); the short version was used for this study. Each item developed with the scoring of 5-point Likert scale ranging from 0 (never) 4 (very often). Total PSS score ranges from 0 to 40 and categorized into Low, Moderate, and High as shown in Table 01(Cohen *et al*, 1983)

Table 1: Categorization of Stress level

Stress level	Low	Moderate	High
Stress Score	0 - 13	14 - 26	27 - 40

Data Collection

The receptionists of hotels which were included in the one day package were trained and were provided with the participant information leaflet and consent forms. Once a family registers at the front desk, they were informed of the study and if consent to take part, information sheet, consent form and the questionnaire was given to each consenting individual. They were advised to return the filled questionnaire and consent form in a sealed envelope to the front desk on their departure. The front desk officers were trained for one day so they could answer any questions. The participants were advised to contact the front desk in case they have any queries. In addition, the Principle Investigators' (PI) phone number was given in the questionnaire to ask any questions

Data Analysis

Data was analyzed by using Statistical Package of Social Sciences (SPSS) 23rd version. Descriptive statistics, means

and standard deviations have been used to describe numerical data and proportions used for categorical data. Each questionnaire got total score to assess perceived stress, and details regarding modes and places of stigmatization were cross tabulated and analyzed against the perceived strass /PSS.

Ethical clearance and administrative requirements

Ethical approval has been obtained from ethics review committee of the National Institute of Health Sciences (NIHS) Kalutara. Written informed consent was obtained from each selected participant and Voluntary participation has been assured and participants informed that they could withdraw from this study at any time. Confidentiality of data has been strictly maintained and storage of data done with password protection. Only Principal Investigator had the access to data and hard copies of data kept under lock and key. Data will be discarded completely two years following the completion of study. Sensitive information has not been gathered to minimize the discomfort for the participants.

Conflict of Interest

There was not any conflict of interest related to this study.

Results

Sociodemographic Characteristics

There were 935 staff recruited for the study (Table 02). Majority (53.6%) were females and between 26 to 55 years of age. There were 327 spouses of health worker studied. They also showed the same age distribution. From the respondents, there were 202 children above 18 years and majority of them belonged to the less than 25 age group. The sample consisted of 1125(76.8%) Married participants.

Table 2: Gender and Age distribution among participants

Sample Characteristic	N (%)			Total N (%)
	Health care worker	Spouse	Children	
Gender				
Male	434(46.4%)	159(48.6%)	93(46%)	686(46.9%)
Female	501(53.6%)	168(51.4%)	109(54.0%)	778(53.1%)
Total	935(100.0%)	327(100.0%)	202(100.0%)	1464(100.0%)
Age category (years)				
< 25	29(3.3%)	7(2.3%)	89(55.2%)	125(9.1%)
26 – 35	286(32.1%)	87(28.2%)	75(44.7%)	448(32.9%)
36 – 45	313(35.1%)	117(37.9%)		430(31.6%)
46 – 55	214(24.0%)	81(26.2%)		295(21.7%)
> 56	49(5.5%)	17(5.5%)		66(4.84%)
Total	891(100%)	309(100%)	161(100%)	1361(100%)
Marital status				
Married	1125(76.9%)			
Unmarried	318(21.9%)			
Other (divorced/separated)	15(1.2%)			
Total	1458(100.0%)			

The sample represented all the categories from the preventive and curative sectors. There were 124 preventive health care staff and 646 curative health care staff in the sample (Table 03). Among curative staff major proportion represented by nursing offices whereas in preventive sector PHIs were the majority.

Table 3: Distribution of participants by staff category

Staff Category	N (%)		
Preventive Health Staff		Curative Health Staff	
Consultants	2(1.6%)	Consultants	25(3.9%)
Medical Officers	23(18.5%)	Medical Officers	103(15.9%)
Nursing Officers	10(8.1%)	Nursing Officers	275(42.6%)
Public Health Inspector	79(63.7%)	Paramedical services	43(6.7%)
Public Health Midwife	1(0.8%)	Technical services	5(0.8%)
Drivers	2(1.6%)	Drivers	17(2.6%)
Health assistants	3(2.4%)	Health assistants	24(3.7%)
Others	4(3.2%)	Others	134(20.7%)
Total	124(100.0%)		646(100.0%)

Perceived Stress

Majority in each group (more than 80%) showed moderate level of stress (Table 04). The pattern of distribution of participants among different stress category is nearly similar. Less than ten percent in each group showed high level of stress.

Table 4: Distribution of Participants according to the stress levels

Participant group	Perceived stress		
	Low	Moderate	High
Staff (n=935)	83 (8.9%)	810 (86.6%)	42 (4.5%)
Spouse(n=327)	36 (11.0%)	270 (82.6%)	21 (6.4%)
Children (n=202)	25 (12.4%)	167 (82.7%)	10 (5.0%)

The mean PSS for staff members was 19.06 (SD= 4.47); the mean PSS for spouse was 19.05 (SD =4.53) and for children the mean PSS was 18.60 (SD = 4.66). Altogether mean values of all the participant groups fallen into moderate stress category. No significant difference of stress levels found according to the marital status [$F_{(1458)} = 1.928$, $p = 0.146$].

Table 05 shows, the females in staff group were significantly stressed than males whereas gender differences in other groups did not reach statistical significance.

Table 5: distribution of PSS mean values according to the participant groups

Participant group	Sex	Mean (SD)	Significance
Staff member (n =935)	Male	18.19(4.52)	Z= 5.62 (p =.001)
	Female	19.82(4.30)	
Spouse (n =327)	Male	19.11(4.25)	Z=0.597(p =.277)
	Female	19.00(4.80)	
Children (n=202)	Male	18.55(4.76)	Z=0.166(p =.436)
	Female	18.66(4.61)	

The staff members working in curative sector were significantly stressed than, those working in preventive sector (Table 06). Only around 5% of both categories showed high stress level.

Table 6: Distribution of mean and category of PSS scores according to the staff category

Staff Category	Total	PSS Category			Mean PSS(SD)	Significance
Curative sector	646(100.0%)	55(8.5%)	557(86.2%)	34(5.3%)	19.27(4.61)	Z = 2.03 (p =.02)
Preventive sector	124(100.0%)	13(10.5%)	107(86.3%)	04(3.2%)	18.44(4.07)	

According to the data in table 07 staff members who worked in the treatment centers has experienced more stress when comparing to others, but no statistical significance was found. [$F_{(877)} = 2.028$, $p = .108$]

Table 7: Distribution of mean PSS levels according to the units working

Unit Working	Total	PSS category			Mean (SD)
		Low	Moderate	High	
Covid treatment center	512(100.0%)	42(8.2%)	442(86.3%)	28(5.5%)	19.37(4.48)
Laboratory	77(100.0%)	9(11.7%)	64(83.1%)	4(5.2%)	18.84(5.23)
Field work	256(100.0%)	22(8.6%)	227(88.7%)	7(2.7%)	18.57(4.22)
Administration	31(100.0%)	2(6.5%)	29(93.5%)	-	18.87(3.53)

Stigmatization

Only 449 (30.7%) of all the participants (N = 1464) reported that they perceived as stigmatized during Covid 19 pandemic because of being a healthcare worker or family member of a healthcare worker.

In all groups participants who felt stigmatized showed significant higher stress level than others (Table 08)

Table 8: Distribution of PSS category among participants who perceived stigmatized

group	Stigma	Total	PSS			Mean PSS (SD)	significance
			low	medium	high		
Staff	Yes	320	20(6.3%)	275(85.9%)	25(7.8%)	20.09(4.59)	Z=1.88 (p=.001)
	No	615	63(10.2%)	535(87.0%)	17(2.8%)	18.53(4.33)	
Spouse	Yes	85	5(5.9%)	74(87.1%)	6(7.1%)	19.99(4.48)	Z=2.24 (p=.027)
	No	242	31(12.8%)	196(81.0%)	15(6.2%)	18.72(4.52)	
Children	Yes	44	2(4.5%)	39(88.6%)	3(6.8%)	20.00(4.31)	Z=2.37 (p=.025)
	no	158	23(14.6%)	128(81.0%)	7(4.4%)	18.22(4.70)	

Many forms of sigma reported by the participants (table 09). Over seventy five percent spouses and sixty four percent of staff reported that they have stigmatized physically. When comparing with other form of stigmatization," verbal Stigma" was reported minimally in all three groups.

Table 9: Distribution of participants (N=449) according to the stigma category

Category	Total Number	Felt stigmatized only	Verbal stigma	Social stigma	Violent form of stigma (verbal)	Violent form of stigma (physical)
		No (%)	No (%)	No (%)	No (%)	No (%)
Staff	320	163(51.1%)	62(19.4%)	117(36.8%)	169(53.1%)	204(64.2%)
Spouse	85	42(50.0%)	32(38.1%)	47(56.0%)	55(65.5%)	63(75.0%)
children	44	18(40.9%)	14(31.8%)	21(47.7%)	22(50.0%)	27(61.4%)

*multiple responses were possible

Table 10 shows that respondents were stigmatized in many places including own home environment; nearly half told that they were stigmatized at home. Only sixteen percent of staff stigmatized by society and more than fifty percent by

media (Social and mass media). Stigmatization by neighbors was less in healthcare workers and family members when compared with other places. More than 45% of children felt stigmatized by home environment and media.

Table 10: Distribution of participants according to the place of stigma.

Places of stigmatized		Staff	Spouse	Children
Workplace		121 (38.4%)	30 (35.7%)	17 (38.6%)
Home		173 (54.9%)	40 (48.2%)	21 (47.7%)
Transport Facilities	Public transport	113 (35.8%)	37 (44.6%)	15 (34.4%)
	Taxi service	124 (39.1%)	37 (44.6%)	13 (29.5%)
Social places	Market places	111 (35.1%)	27 (32.5%)	10 (22.7%)
	Neighbors	72 (22.7%)	13 (15.7%)	13 (29.5%)
	Public places	114 (36.0%)	33 (39.8%)	12 (27.3%)
	Society	51 (16.1%)	14 (16.9%)	11 (25.0%)
Media	Social media	160 (50.5%)	36 (43.4%)	20 (45.5%)
	Mass media	166 (52.5%)	38 (45.8%)	20 (45.5%)

*Multiple responses were possible.

Discussion and Conclusions

In this study the perceived stress level and stigma among health care workers and their family members, who engaged in Covid 19 management activities was studied. From the sample of 1464 participants representing staff members, spouses, and children, majority (more than 80%) showed moderate stress level. Among the sociodemographic characteristics only gender differences found in staff members regarding stress; we found female employees were more stressed than males. Age and marital status were not associated with stress. Covid 19 management activities operate in both preventive and curative health sectors and those who work in curative sector were more stressed than others. Further members in Covid 19 treatment centers showed slightly high stress level but did not find statistical significance.

Interestingly we found that those who felt stigmatized had high stress level when compared to others. There were many forms of stigmatization and spouses were more stigmatized than others. 64.2% staff members, 75% of spouses and 61.4% of children claimed that they were stigmatized physically. The study also found that stigma was related to many places they visited. More than half of the staff members reported that they were stigmatized at home and media (social and mass media) has played a major role in increasing the stigma.

Similar results were reported in some other studies; Taylor *et al* (2020) [10] found that healthcare worker stigmatization linked to the Covid stress syndrome. In another study Babore *et al* (2020) [1] have found relationship between perceived stress and female gender & working with Covid 19 patients. A Sri Lankan study found the existence of stress and stigmatization among HCWs and many related factors and females were more vulnerable(Perera *et al*, 2021) [7].

It is evident that Covid 19 out-break has impact on psychological wellbeing of healthcare professionals in all settings and need furthermore qualitative research to find out the causative factors. As confirmed in many other studies Females gender is always vulnerable more than males which would be due to cultural and psychosocial reasons, but need further assessment. Generally, stigma was found as an aggravating factor for stress; it was pronounced that information circulating in media regarding pandemic had greater impact on stigmatization. There might be multiple reasons; due to lockdown, travel restriction, and limitations for gatherings had kept them at home and media would have played a role in communicating the worse outcomes of the disease globally and locally.

Quantitative nature of the study, data collecting by self-administered questionnaire were major limitations.

This study highlighted the necessity of further study of work-related psychology including anxiety, stress, stigma, and depression among HCWs during catastrophic disease outbreaks. The study clearly shows the need for intensive psycho social support for health care workers and their families to coop with stigma and stress associated with COVID 19 work carried out by them or their family members.

Reference

1. Babore A, Lombardi L, Viceconti ML, Pignataro S, Marino V, Crudele M *et al*. Psychological effects of the COVID-2019 pandemic: Perceived stress and coping strategies among healthcare professionals. Psychiatry Research,2020:293:113-366. https://doi.org/10.1016/j.psychres.2020.113366
2. Cohen S, Kamarck T, Mermelstain R. Percieved Stress Scale. Journal of Health and Socilal Behavior,1983:24:386-396.
3. COVID Live Update: 170,439,355 Cases and 3,543,985 Deaths from the Coronavirus - Worldometer [WWW Document], 2021. URL https://www.worldometers.info/coronavirus/ (accessed 5.30.21).
4. Hurley DJ, Agrest M. Argentina: A mental health system caught in transition. International Journal of Mental Health,2021:50:168-191. https://doi.org/10.1080/00207411.2020.1777375
5. Kumar A, Nayar KR. COVID 19 and its mental health consequences. Journal of Mental Health,2021:30:1-2. https://doi.org/10.1080/09638237.2020.1757052
6. Kumar A, Nayar KR. COVID-19: Stigma, discrimination, and the blame game. International Journal of Mental Health,2020:49:382-384. https://doi.org/10.1080/00207411.2020.1809935
7. Perera B, Wickramarachchi B, Samanmalie C, Hettiarachchi M. Psychological experiences of healthcare professionals in Sri Lanka during COVID-19. BMC Psychol,2021:9:49. https://doi.org/10.1186/s40359-021-00526-5
8. Ramírez MTG, Hernández RL. Factor Structure of the Perceived Stress Scale (PSS) in a Sample from Mexico, 2007, 10.
9. Satwik A. A doctor's note to his neighbours on

everyday Covid-19 precautions: 'Please do not be complacent' [WWW Document], 2020. URL https://scroll.in/article/962989/a-doctors-note-to-his-neighbours-on-everyday-covid-19-precautions-please-do-not-be-complacent (accessed 5.29.21).
10. Taylor S, Landry CA, Rachor GS, Paluszek MM, Asmundson GJG. Fear and avoidance of healthcare workers: An important, under-recognized form of stigmatization during the COVID-19 pandemic. Journal of Anxiety Disorders,2020:75:102-289. https://doi.org/10.1016/j.janxdis.2020.102289
11. Van Brakel WH. Measuring health-related stigma-A literature review. Psychology, Health & Medicine,2006:11:307-334. https://doi.org/10.1080/13548500600595160 who-rights-roles-respon-hw-covid-19.pdf, n.d.
12. World Health Organization (WHO). A guide to preventing and addressing social stigma associated with COVID-19 [WWW Document], 2020. URL https://www.who.int/publications/m/item/a-guide-to-preventing-and-addressing-social-stigma-associated-with-covid-19 (accessed 5.29.21).
13. Satish Kumar BP, Prolay Paul, Sayantan Ghosh, Ravindra BN, Arpan Dutta Roy. General awareness and safety measures to combat covid-19. International Journal of Research in Pharmacy and Pharmaceutical Sciences,2020:5(6):15-17.