RESEARCH COMMUNICATION

ER doctors' emotions, stressors, stress-reducing factors, coping strategies and motivational factors during the COVID-19 Pandemic

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ABSTRACT

Background: The presence of COVID-19 has increasingly overwhelmed the Philippine healthcare system, which is affecting the mental and emotional health of healthcare workers in the country.

Objective: The study aimed to assess the emotions, stressors, stress-reducing factors, coping mechanisms, and motivational factors of the emergency room (ER) doctors in selected high-risk private hospitals within the National Capital Region (Metro Manila) during the COVID-19 pandemic between March 14, 2020 to November 12, 2020.

Methodology: A quantitative, cross-sectional descriptive study was conducted using electronic and/or physical surveys, given to 127 ER doctors in Cardinal Santos Medical Center in San Juan, Makati Medical Center in Makati, and Chinese General Hospital in Manila.

Results: Results showed that ER doctors continuously work as it is their professional and ethical duty despite feeling nervous and scared to do so. However, the safety of their colleagues and family increases their stress levels, which were reduced when their family and friends were safe from COVID-19 and when the condition of their colleagues improved. Following strict protocols and chatting with friends and family helped them cope to alleviate stress, and the assurance of adequate personal protective equipment and family support motivated the ER doctors to continue working.

Conclusion: The COVID-19 pandemic has had an effect on ER doctors, and all involved parties can improve the experiences of ER doctors during any future outbreaks similar to COVID-19 by providing psychosocial interventions.

Keywords: *Emergency Room Doctors, COVID-19, Emotions, Stressors, Coping Strategies, Motivational Factors*

Introduction

COVID-19 caused a huge strain on the Philippines' healthcare system especially on the mental health of healthcare workers (HCWs) who were on psychological distress and burnout while working during a pandemic [1], which were neither recognized nor addressed enough [2]. Emergency room (ER) doctors within the National Capital Region (NCR), a COVID-19 hotspot, were selected as they are presumed to be experiencing high-stress levels. Hence, it is important to assess the effects of the COVID-19 pandemic on the mental health of ER doctors in the Philippines, which is beneficial for HCWs, hospital institutions, and researchers.

Tertiary private hospitals in high- and low-risk cities were selected based on virus spread (incidence, prevalence, land area per new case) and healthcare system overburdening (percentage of bed occupancy). Other healthcare professions were excluded to isolate the perspective of ER doctors.

The general objective of the study was to assess the emotions, stressors, stress-reducing factors, coping mechanisms, and motivational factors of ER doctors in selected private hospitals within NCR during the COVID-19 pandemic. Specifically, it aimed to describe and determine their characteristics and factors, correlate the findings between the selected private hospitals within NCR, and

correlate the overall findings between ER doctors. It is hypothesized that the COVID-19 pandemic does not have a significant effect on the aforementioned factors on ER doctors.

Methodology

Participants/Subjects

A quantitative, cross-sectional descriptive study was conducted on Emergency Room doctors (ER doctors) which included ER consultants, or individuals who have completed their training and are stationed at the Emergency Department (ED), and ER residents, who are post-medical graduates undergoing training at the ED, between March 14, 2020 to November 12, 2020. Three accredited COVID-19 private hospitals within NCR participated, namely, Cardinal Santos Medical Center (CSMC) in San Juan (N=68) and Makati Medical Center (MMC) in Makati (N=45) which are both high-risk cities, and Chinese General Hospital and Medical Center (CGHMC) in Manila (N=90), a low-risk city. A total of 203 ER doctors represented the study.

The 2020 COVID-19 data (incidence proportion, prevalence, percentage of bed occupancy per city in NCR) was collected from the Department of Health COVID-19 tracker database and the Philippine Statistics Authority database. The land area per new case (virus spread) was determined using incidence proportion and prevalence.

The data collected based on virus spread and the overburdening of healthcare facility served as the criteria in identifying the top riskiest cities in NCR. Data were normalized and analyzed through principal component analysis using R software. It was determined that the riskiest cities, on the first quadrant, showed the highest risk scores for both virus spread and overburdening (% bed occupancy) of healthcare facilities. Therefore, the selected riskiest cities for the study were San Juan and Makati.

A sample size of 120 was obtained using the Raosoft Sample Size Calculator at a confidence level of 0.95 (α = 0.05) and a 25% response distribution. The sample was distributed randomly to 46 participants from CSMC, 39 from CGHMC, and 35 from MMC.

Materials/Instrumentation

A comprehensive questionnaire called the "COVID-19 Staff Questionnaire" was adapted from the "MERS-CoV staff questionnaire" and was used after obtaining permission from the original author through email correspondence to ensure that there will be no patent issues, and is internally consistent based on its Cronbach's alpha value [3]. It consisted of six sections which determined the participant's demographic profile, emotions, possible stress-inducing events whilst working, stress-reducing factors and personal coping strategies that alleviated their stress, and motivational factors that encouraged them to continue working during the pandemic. The questionnaire, tested with Cronbach's Alpha after collecting pilot testing results (Table 1), was modified using comments from the pilot study population (10% of sample size) selected randomly among ER doctors who handled COVID-19 patients in the NCR.

Data Collection and Analysis

The questionnaire, written in English with Filipino translations, was administered to ER doctors through Google Forms or physical copy, and was randomly distributed by the ED head of each hospital between May to July 2021. There were 48 respondents from CSMC, 44 from CGHMC, and 35 from MMC, all of whom completely filled out the survey questionnaire.

The data were analyzed using IBM SPSS Statistics (Version 22) through descriptive statistics and other statistical methods with a confidence level of 0.95 (α = 0.05). The most significant factor of each section was determined by the highest "Yes" percentage and mean. The Kruskal-Wallis test compared the means of each demographic group and determined any statistical significance between the hospitals involved. Afterward, post-hoc analysis using pairwise Wilcoxon-signed-rank test was done whenever deemed necessary, designating CSMC as "A", CGHMC as "B", and MMC as "C". Spearman rank correlation correlated the

Table 1. *The Cronbach's Alpha Coefficient of Each Section of the Questionnaire from the Pilot Study*

	Section	Cronbach's Alpha Coefficient
2	Staff emotions during COVID-19 outbreak	0.94
3	Factors that caused stress among staff during the COVID-19 outbreak	0.95
4	Factors that helped in reducing stress during the COVID-19 outbreak	0.75
5	Personal coping strategies used by staff to alleviate stress	0.76
6	Motivational factors to encourage continuation of work in future outbreaks	0.78

different factors between the participants, with a result > 0.70 considered as significant.

Ethical Consideration

Ethical approval for the study was obtained from the institutional review boards of the Faculty of Pharmacy of the University of Santo Tomas, CSMC, and MMC. Participants accomplished an informed consent prior to their participation which was kept confidential.

The study did not aim to assess the participants' mental state and diagnose any psychological disorders. In the event that participants requested psychosocial support, they were referred to a psychologist.

Results

Demographic Profile of Respondents

The respondents (n = 127) were 47 ER consultants with a mean age of 44.3 +/- 11.1, and 80 ER residents with a mean age of 29.4 +/- 2.3.

The Kruskal-Wallis test showed no significant differences in the years of clinical experience between the ER doctors of the three hospitals. However, significant differences were found in terms of different age groups. Post-hoc analysis revealed that there was a significant difference between ER doctors from MMC and CSMC on the following age groups, respectively: ages 31-45 vs. ages 25-30 (p = 0.000), ages 46+ vs. ages 25-30 (p = 0.018), ages 25-30 vs. ages 31-45 (p = 0.027), and ages 46+ vs. 31-45 (p = 0.018).

Staff Emotions during COVID-19 Outbreak

The most important element for ER doctors was their professional and ethical duty which motivated them to work during the pandemic (97.64%, x= 2.61), as well as avoiding contact with COVID-19 patients (97.64%, x= 2.23). Most are willing to continue to work should the pandemic recur (61.42%).

The Kruskal-Wallis test showed significant differences between the answers of ER doctors in the three hospitals for questions 2 (p = 0.00251), 7 (p = 0.002888), and 11 (p = 2.29E-08). However, post-hoc analysis revealed significant differences between the answers of doctors in CSMC and MMC, and between CGHMC and MMC. MMC doctors were less nervous and scared (A vs C; p = 0.0035; B vs C; p = 0.0104), seldom tried to curtail their contact with COVID-19

patients (A vs C; p = 0.0268; B vs C; p = 0.0031), and chose to work in a unit not exposed to COVID-19 if given the option (A vs C; p = 2.90E-07; B vs C; p = 1.40E-06), as compared to doctors from the other two hospitals.

Factors that Caused Stress among Staff during the COVID-19 Pandemic

The main stressors for the respondents were related to the safety of colleagues and family (98.43%, x̄ = 2.77), physical fatigue (98.43%, x̄ = 2.56), and seeing their colleagues stressed or afraid (98.43%, x̄ = 2.57), regardless of the risk area.

The Kruskal-Wallis test showed significant differences among the three hospitals in accordance with the doctors' answers in questions 7 (p = 0.0024), 8 (p = 0.034191), 14 (p = 0.001693), 15 (p = 0.004164), and 16 (p = 0.041606).

Post-hoc analysis revealed significant differences between the answers of the doctors in CSMC and MMC, and between CGHMC and MMC. MMC doctors found less stress in mistakes or lapses in concentration (A vs C & B vs C; p = 0.005), lack of treatments (A vs C & B vs C; p = 0.048), getting screened after exposure (A vs C; p = 0.0026; B vs C; p = 0.0113), seeing news of new cases (A vs C; p = 0.0056; B vs C; p = 0.013), and being emotionally exhausted (A vs C & B vs C; p = 0.045), compared to doctors from CGHMC and CSMC.

Factors that Helped in Reducing Stress during the COVID-19 Pandemic

Key stress-reducing factors were knowing that their colleagues were overcoming the virus (99.21%, x= 2.55), ensurance of their families' safety (99.21%, x= 2.68), and the decrease of COVID-19 cases reported in the news (95.28%, x= 2.61), regardless of the risk area. The Kruskal-Wallis test showed no significant difference between the three hospitals.

Personal Coping Strategies Used by Staff to Alleviate Stress

The most common coping strategies were following strict personal protective measures (99.21%, x=2.69), avoiding public places (99.21%, x= 2.53), and social and family supportive measures (98.43%, x= 2.65), regardless of the risk area. The Kruskal-Wallis test showed a significant difference between the three hospitals' answers in item 3 (p = 0.003163). Post-hoc analysis revealed that by considering every patient being admitted as a COVID-19 patient and using full personal protective equipment (PPE) even when

Table 2. *Results on the Demographics, Staff Emotions, Stress-inducing Factors, Stress-reducing Factors, Coping Strategies, and Motivational Factors*

Demographics	n	Mean Age (in years)	SD
Unit Types			
ER Consultant ER Resident	47 80	44.3 29.4	11.1 2.3

Demographics	n	x	Kruskal Wallis per Hospital (p-value)	Wilcoxon Signed Rank Test		
				A vs B	A vs C	B vs C
Age		34.9	**0.001**	0.141	**0.001**	0.117
25 - 30 31 - 45 46+	59 48 20					
Clinical Experience Rookie (1-2) Novice (3-4) Experienced (5-6) Veteran (7-10) Expert/Pro (10+)	 26 46 19 10 26	7.8	0.254			

Wilcoxon Signed Rank Test (A vs C)								
A (25 - 30) vs C (25 - 30)	A (25 - 30) vs C (31 - 45)	A (25 - 30) vs C (46+)	A (31 - 45) vs C (31 - 45)	A (31 - 45) vs C (31 - 45)	A (31 - 45) vs C (46+)	A (46+) vs C (25 - 30)	A (46+) vs C (31 - 45)	A (46+) vs C (46+)
0.336	0.000039	0.018	0.027	0.972	0.018	0.068	0.068	0.713

	Staff Emotions During COVID-19 Outbreak	Answered Yes %	x	Kruskal Wallis per Hospital (p-value)	Wilcoxon Signed Rank Test		
					A vs B	A vs C	B vs C
1	You felt that you had to do your job as it was your professional and ethical duty	97.64	2.61	0.865			
2	You felt nervous and scared	97.64	2.23	0.00251	0.652	0.0035	0.0104
3	You appreciated financial compensation after the outbreak	86.61	1.83	0.714			
4	You were unhappy to do overtime	87.40	1.82	0.182			
5	You appreciated special recognition for your job by the hospital administration	91.34	1.93	0.271			
6	You expected financial compensation during the outbreak	88.19	1.91	0.700			
7	You tried curtailing your contact with the COVID-19 patient (e.g. shorten your trips to patient's room)	92.13	2.22	0.00289	0.266	0.0268	0.0031
8	You thought of quitting your job	50.39	1.02	0.382			
9	You felt that employees who are directly exposed to COVID-19 avoided you	65.35	1.23	0.336			
10	You noticed that employees outside your unit were avoiding COVID-19 patients	89.76	2.08	0.859			
11	If optional, you would have chosen to work in a unit where you would not be exposed to COVID-19	85.83	1.98	2.29E-08	1	2.90E-07	1.40E-06
12	You would quit your job if COVID-19 outbreak recurred	38.58	0.54	0.863			
13	You felt angry that your workload increased when compared to employees not exposed to COVID-19	70.87	1.26	0.209			
14	You thought of calling in sick	51.97	0.98	0.220			
15	You called in sick at least once	43.31	0.83	0.167			

Table 2. *Results on the Demographics, Staff Emotions, Stress-inducing Factors, Stress-reducing Factors, Coping Strategies, and Motivational Factors (continuation)*

	Staff Emotions During COVID-19 Outbreak	Answered Yes %	x	Kruskal Wallis per Hospital (p-value)	Wilcoxon Signed Rank Test		
					A vs B	A vs C	B vs C
Factors that Caused Stress among Staff during the COVID-19 Pandemic							
1	Seeing your colleagues getting intubated	96.06	2.54	0.255			
2	You could transmit COVID-19 to your family or friends	98.43	2.77	0.131			
3	You had physical stress/fatigue	98.43	2.56	0.177			
4	Shortage of staff at times	96.06	2.31	0.163			
5	Seeing patients with COVID-19 dying in front of you	98.43	2.47	0.136			
6	Not knowing when the COVID-19 outbreak will be under control	96.85	2.35	0.237			
7	Small mistake or lapse in concentration could infect you or others	96.06	2.04	0.0024	0.678	0.005	0.005
8	Lack of treatment for COVID-19	97.64	2.29	0.0342	0.761	0.048	0.048
9	Colleagues displaying COVID-19 like symptoms	95.28	2.00	0.0852			
10	You could get COVID-19 infection from a patient in the hospital	96.85	2.26	0.179			
11	You had to wear protective gear on a daily basis	97.64	2.42	0.262			
12	Taking care of your own colleagues sick from COVID-19	97.64	2.37	0.119			
13	Conflict between your duty and your own safety	94.49	2.29	0.321			
14	Getting screened for COVID-19 infection after exposure	96.85	2.40	0.00169	0.371	0.0026	0.0113
15	News of new cases of COVID-19 reported in TV/newspaper	96.85	2.17	0.00416	0.738	0.0056	0.013
16	You were emotionally exhausted	96.85	2.22	0.0416	0.921	0.045	0.045
17	You felt there were not adequate protective measures (including enough negative pressure rooms)	91.34	2.06	0.197			
18	Every time you were exposed to a new COVID-19 patient	92.13	1.97	0.457			
19	You developed respiratory symptoms and feared that you had COVID-19	96.06	2.12	0.372			
20	Seeing your colleagues stressed or afraid	98.43	2.57	0.843			

handling non-COVID-19 individuals to lessen stress have significant difference between the doctors in MMC and CGHMC (B vs C; p = 0.002).

Motivational Factors for the Encouragement of Staff

Assuring adequate supply of PPEs (99.21%, x=2.83), vaccine/cure availability (99.21%, x=2.76), and family support (99.21%, x=2.82) motivated the ER doctors the most to continue working amidst the pandemic, regardless of the risk area. The Kruskal-Wallis test showed no significant difference between the three hospitals.

Relationship between the Different Variables

No significant relationship was found between emotions, stressors, stress-reducing factors, coping mechanisms, and motivational factors.

Table 2. *Results on the Demographics, Staff Emotions, Stress-inducing Factors, Stress-reducing Factors, Coping Strategies, and Motivational Factors (continuation)*

	Staff Emotions During COVID-19 Outbreak	Answered Yes %	x	Kruskal Wallis per Hospital (p-value)	Wilcoxon Signed Rank Test		
					A vs B	A vs C	B vs C
Factors that Helped in Reducing Stress during the COVID-19 Pandemic							
1	Improvement in patient's condition	96.06	2.46	0.701			
2	Protective equipment provided to you by the hospital	96.85	2.19	0.248			
3	Your colleagues who were infected are getting better	99.21	2.55	0.403			
4	Your family members or friends outside hospital did not get COVID-19	99.21	2.68	0.973			
5	Positive attitude from colleagues in your department	97.64	2.54	0.145			
6	Clear guidelines from hospital for infection prevention	97.64	2.40	0.0609			
7	Decrease in COVID-19 cases reported in the news	95.28	2.61	0.707			
8	All healthcare professionals working together on the front line	96.85	2.39	0.958			
9	Confidence in the hospital staff in case you got sick from COVID-19	87.40	2.06	0.706			
10	Not to do overtime	96.85	2.46	0.651			
11	None of the staff got COVID-19 after starting strict protective measures	97.64	2.41	0.230			
12	Likelihood that you would get extra compensation for your exposure to COVID-19	93.70	2.27	0.204			
13	Sharing jokes or humor among colleagues	97.64	2.53	0.970			
14	Getting free meals from the hospital in your unit	97.64	2.46	0.510			
Personal Coping Strategies Used by ER Doctors to Alleviate Stress							
1	Followed strict personal protective measures (e.g., Wearing of proper PPE, hand washing etc.)	99.21	2.69	0.665			
2	Kept separate clothes for work/used disposable scrubs provided by the hospital to minimize transmission	97.64	2.48	0.237			
3	Considered every patient admitted to the hospital as having COVID-19 infection and using full protective gear even if the patient was COVID-19 negative	98.43	2.52	0.00316	0.092	0.092	0.002
4	Chatted with family and friends to relieve stress and obtain support	98.43	2.65	0.346			
5	Read about COVID-19, its prevention and mechanism of transmission	98.43	2.47	0.0614			
6	Did relaxation activities, e.g., involved in prayers, sports, exercise etc.	95.28	2.31	0.760			
7	Avoided going out in public places to minimize exposure from COVID-19	99.21	2.53	0.498			
8	Tried to be busy at home in activities that would keep your mind away from COVID-19	95.28	2.27	0.648			
9	Avoided doing overtime to reduce exposure to COVID-19 patients in hospital	86.61	1.91	0.0706			
10	Talking to yourself and motivating to face the COVID-19 outbreak with a positive attitude	95.28	2.29	0.989			
11	Got help from family physicians or other doctors to reduce your stress and get reassurance	89.76	1.95	0.0996			
12	Avoided media news about COVID-19 and related fatalities	87.40	1.74	0.835			
13	Vented emotions by crying, screaming etc.	70.08	1.38	0.326			

Table 2. *Results on the Demographics, Staff Emotions, Stress-inducing Factors, Stress-reducing Factors, Coping Strategies, and Motivational Factors (continuation)*

	Staff Emotions During COVID-19 Outbreak	Answered Yes %	x	Kruskal Wallis per Hospital (p-value)	Wilcoxon Signed Rank Test		
					A vs B	A vs C	B vs C
Motivational Factors for the Encouragement of ER Doctors							
1	Available cure or vaccine for the disease	99.21	2.76	0.840			
2	Similar adequate personal protective equipment supply by the Hospital	99.21	2.83	0.727			
3	Family support	99.21	2.82	0.864			
4	Disability benefits if disabled from the disease	99.21	2.71	0.910			
5	Compensation to family if disease related death at work	97.64	2.55	0.714			
6	Psychiatric help and therapy made available in workplace to help reduce stress and anxiety	99.21	2.71	0.903			
7	Not forced to do overtime	98.43	2.47	0.531			
8	Reduced working hours during outbreaks	97.64	2.41	0.390			
9	Financial recognition of efforts	98.43	2.59	0.288			
10	Recognition from management and supervisors for the extra efforts	98.43	2.64	0.556			

Discussion

During the pandemic, ER doctors experienced nervousness and fear which can be associated with decreased job satisfaction and increased psychological stress [4]. Physical fatigue and emotional exhaustion were the main stressors during the pandemic due to long working hours , especially in days with increased new cases [5]. Despite this, they refuse to quit once the COVID-19 outbreak reoccurs, as professional and ethical duties pushed them to continue working [6].

Empathizing and seeing colleagues stressed and COVID-19 patients dying significantly induced stress, as well as family exposure to COVID-19 [7,8]. Thus, they prioritized avoiding contact with COVID-19 patients to minimize the possibility of becoming a carrier and possibly infecting their family [9,10]. Therefore, family safety and improvement of their colleagues' condition had the most impact in reducing stress. Generally, stress reduction motivates them to work, improving healthcare quality [3,11].

In terms of personal coping strategies, following strict protective measures was the most applicable for ER doctors during the COVID-19 pandemic, decreasing the feeling of poor control, hence, reducing stress [12].

The assurance of PPE supplies by the hospital motivated them to work. Reusing PPEs left HCWs feeling uncertain of their safety, as it was never part of their practice, leading to decreased motivation [13]. Family support is an essential factor that encourages them to work during the pandemic since constant communication helps maintain a stable psychological condition [12]. Vaccine availability gives them hope that the pandemic is ending which motivates them to continue working.

In conclusion, the COVID-19 pandemic caused the ER doctors to feel fatigued and concerned for the safety of their colleagues and families. However, knowing that their families were not infected with COVID-19 eased their stress, and strict safety measures and PPEs motivated them to work. A larger sampling size and a more appropriate sampling method are recommended for future studies for a better representation of all medical professionals and to prevent possible bias in participant selection. Additionally, psychosocial interventions should be provided to ER doctors for mental health support, especially during the pandemic.

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