

Level of Depression, Anxiety, Stress, and Coping Strategies among Filipino Healthcare Workers (HCW) with Confirmed Covid-19 Infection using the Filipino-translated Depression Anxiety Stress Scale (DASS) 21 and Filipino Coping Strategies Scale in Perpetual Succour Hospital from March 2020 to September 2020: A One-Center Descriptive Study

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ABSTRACT

Introduction: COVID 19 has become the most important public health issue today. It has the potential to significantly affect the mental health of frontline healthcare workers (HCW) putting them at a higher risk of developing psychological problems especially to those who acquired COVID19 infection.

Objectives: To determine the level of depression, stress, anxiety and coping strategies among Filipino HCWs with confirmed COVID-19 infection and its association with demographic and clinical profiles.

Study Design: Single center Descriptive study

Materials and Methods Consisted of 114 Filipino HCW with COVID 19 infection. Data were collected utilizing the Filipino translation of DASS 21 and Filipino Coping Strategy scale.

Results: There was a significant increase of HCWs with moderate depression, anxiety, and stress. A large proportion of the HCWs were also severely depressed, severely anxious and severely stress. Majority of the COVID19 positive HCWs were nurses accounting to 35%. More likely, the occupation was significantly associated with their degree of depression and stress. Hypertension associated significantly with elevated stress while having diabetes was instrumental for the depression, anxiety and stress. Moreover, appreciation was more felt at the workplace, then at home. While discrimination was prevalent in the community, workplace and social media. Religiosity ranked the most sought coping strategy.

Conclusion: The study has found that a large percentage of HCWs had moderate level and a notable portion of respondents had severe to extremely severe level in each of the psychological domains in which factors such as gender, occupation, comorbidities, area of assignment and disease severity have brought significant impact. Discrimination is prevalent in the community and surprisingly in the workplace. In contrast, appreciation was felt more at home and in the workplace. Religiosity was shown to be the top coping strategy among HCWs who tested positive.

Keywords: HCWs, COVID-19, DASS21, Filipino Coping Strategy Scale

INTRODUCTION

Early in the year 2020 the World Health Organization (WHO) declared Coronavirus Disease 2019 (COVID-19) as a pandemic. Since then, it has given a substantial burden to every country worldwide causing economic

and public health disarray.¹ It has the potential to significantly affect the physical and mental health of the general population, and among those are the Healthcare workers (HCW) whose mental health we fail to recognise. According to Khanal (2020), the impact on the mental health of a disease outbreak is usually neglected during a pandemic with costly consequences. Early evidence showed that frontline healthcare workers directly involved in the management of COVID-19 patients are at higher risk of developing mental health symptoms. The mental burden to HCWs was caused by the number of cases and deaths, workload, inadequate protective equipment, media coverage, lack of specific treatment,

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vulnerability to infection and having to stay in quarantine, as well as feelings of being inadequately supported in the workplace.³ This was supported in a study by Spoorthy et. Al (2020) which revealed medical frontliners experience frustration, helplessness, adjustment issues, stigma, fear of discrimination due to the sudden reversal of roles from HCWs to patient.⁴

Facing this life-threatening situation, HCWs are at a higher risk of developing psychological distress and other mental health symptoms especially those who acquired COVID19 infection.² However, evidence-based evaluation and mental health interventions targeting frontline healthcare workers with confirmed COVID19 infection are relatively scarce.

Infectious disease outbreaks such as the current COVID-19 pandemic are provoking situations that may directly or indirectly cause anxiety and depression to vulnerable individuals.

A meta-analysis on the prevalence of depression, anxiety and insomnia among healthcare workers during the COVID-19 pandemic involving thirteen studies with a total of 33,062 participants showed that anxiety and depression were prevalent among HCWs comprising 23.2% and 22.8%, respectively.⁷ A subgroup analysis also showed that gender and occupational differences with female and nurses exhibiting higher rates of involvement compared to male and medical staff respectively. As majority of HCWs are more hands-on and exposed to dreadful events involving patient's suffering and death, it could further promote their fears and anxiety.^{7,8}

A study by Mo et al, showed that the main cause of stress and anxiety among HCWs is the fear of becoming infected and unknowingly infecting their family members.¹⁰ Other sources include the lack of proper personal protective equipment (PPE), fear of getting infected from work, lack of access to COVID-19 testing, fear of transmitting the virus to their co-workers, doubt of institutional support if they become infected, fear of being deployed in an unfamiliar ward or unit and the lack of knowledge regarding the disease.¹¹

In a cross-sectional descriptive study by Mascari et.al, the majority of infected healthcare workers were nurses (38%), followed by supportive and administrative staff (36%) which included housekeeping, engineering and laundry staff and doctors and paramedics constituted each 13% respectively.¹²

Among physicians, a cross-sectional study done in Turkey involving 442 physicians showed that 64.7% has depressive symptoms, 51.6% had anxiety and 41.2% had stress-related symptoms in the early period of the outbreak. Moreover, using the Depression Anxiety Stress Scale (DASS-21) score they found that physicians with strong family support were associated with lower DASS scores, whereas being younger and women, less experience and working in the frontline were associated with higher scores among the participants.¹³

The DASS 21 is a validated self-report tool containing 21 items that assess three constructs: Depression, Anxiety, and Stress designed by Syd Lovibond and Peter Lovibond in 1995.¹⁴ The Filipino version of DASS 21 translated by Dr. Anna Liza H. Sta. Ana is also available.¹⁵

Filipino Coping Strategies Scale by Rilveria et al was pilot-tested with 627 Filipino participants. The scale was written in Filipino (Tagalog) with an English translation under each item to better provide an understanding of the content of the scale and observe sensitivity to the local Filipino context. As a dispositional type of scale, the verbs were in the present tense format. It is divided into nine coping strategy domains namely of cognitive reappraisal, social support, problem solving, religiosity, tolerance, emotional release, overactivity, relaxation/recreation, and substance abuse. The composite scores for each of the domains are computed by averaging the sum of the scores across the items of each.⁹

Data is still lacking with regards to the level of anxiety, stress, depression and coping strategies among healthcare workers infected with COVID-19. Available data among the general public infected with COVID-19 showed that Post-Traumatic Stress Syndrome and depression are the common findings among stable and recovered patients with COVID-19.¹⁶ Hence, this study is proposing to assess the level of anxiety, stress, depression and coping strategies among healthcare workers infected with COVID-19 in our locality.

Significance of the Study. The outbreak of COVID-19 has caused a public health emergency worldwide affecting not just the physical health of our patients and healthcare workers as well as their mental health. In particular, the mental health of healthcare workers who are infected with COVID-19. It is crucial that the need for early detection and screening is emphasized in order to prevent mild psychological responses evolve to a more complex clinical issue. Thus, it is important to evaluate the mental health status of healthcare workers infected with COVID 19 in order to frame appropriate psychological interventions to avert occurrence of mental health problems in turn preventing psychological crisis.

OBJECTIVES

General Objective: To determine the level of depression, stress, anxiety and coping strategies among Filipino HCWs positive with COVID-19 using the validated Filipino translated DASS-21 and Filipino Coping Strategies Scale.

Specific Objectives:

1. To determine the demographic data and clinical profile of HCWs with confirmed COVID-19 using:
 - a. Age
 - b. Sex
 - c. Place of residence
 - d. Occupation
 - e. RT-PCR results
 - f. Comorbidities
 - g. Relationship status (married, live-in partners etc.)

- h. Family support (number of children, type of family etc.)
 - i. Monthly salary
 - j. Living conditions
 - k. Financial security (medical insurances, institutional support)
 - l. Educational Background
 - m. Years of experience
 - n. Area of assignment
 - o. Classifications of COVID-19
2. To determine the prevalent coping strategies of COVID 19 healthcare workers
 3. To determine the correlation between demographic and clinical variables with DASS-21 scores.

METHODOLOGY

Research Design. A single-center Descriptive study design.

Setting and Research Instrument. The study was conducted in Perpetual Succour Hospital. Data were from March 2020 to September 2020. The demographic and clinical information of selected participants was obtained. The study utilized both the validated Filipino translated Depression Anxiety Stress Scale – 21 (DASS-21) and the Filipino Coping Strategy Scale.

Validation of this tool by test-retest reproducibility was assessed in terms of intraclass correlation coefficient (ICC) with 95% confidence interval (95% CI); ICC values above 0.75 were interpreted as an indication of excellent reliability, values between 0.40 and 0.74 were taken as an indication of good reliability, and <0.40 as an indication of poor reliability.¹⁷ Each subscale includes seven statements. Ratings are made on a series of 4-point Likert type scales from 0 to 3. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items.¹⁸

The DASS-21 is based on a dimensional rather than a categorical conception of psychological disorder. The assumption on which the DASS-21 development was based upon and which was confirmed by the research data, is that the differences between the depression, anxiety and the stress experienced by normal subjects and clinical populations are essentially differences of degree.¹¹

The total depression subscale was classified into normal (0-9), mild depression (10-12), moderate depression (13-20), severe depression (21-27) and extremely severe depression symptoms (28-42). The total anxiety subscale score was subdivided into normal (0-6), mild anxiety (7-9), moderate anxiety (10-14), severe anxiety (15-19) and

extremely severe anxiety symptoms (20-42). The total stress subscale score was classed as normal (0-10), mild stress (11-18), moderate stress (19-26), severe stress (27-34) and extremely severe stress (35-42).^{13,15}

The Filipino Coping Strategies Scale is a 37-item validated tool. It is in a 4-point Likert format with 1 indicating Never or Hindi to 4 indicating Often or Madalas. Items 1, 8, 17, 23, and 30 comprise the cognitive reappraisal (pagsusuri) domain; items 9, 24, and 31 comprise the social support (paghingi ng tulong) domain; items 2, 10, 18, and 32 comprise the problem-solving (pagtugon) domain; items 3, 11, 19, and 33 comprise the religiosity (pagkarelihiyoso) domain; items 12 and 25 comprise the tolerance (pagtitiis) domain; items 4, 13, 26, and 34 comprise the emotional release (paglabas ng saloobin) domain; items 5, 14, 20, 27, and 35 comprise the overactivity (pagmamalabis) domain; items 6, 15, 21, 28, and 36 comprise the relaxation/recreation (paglilibang) domain; and items 7, 16, 22, 37, and 39 comprise the substance use (pagbibisyo) domain. The composite scores for each of the domains are computed by averaging the sum of the scores across the items of each domain (dividing the total raw score by the number of items in each domain). The minimum composite score for each domain is 1 and the maximum is 4.⁹

Statistical Analysis. For categorical data, frequency and simple percentage were recorded. Likewise, to test the relationship between variables, a Pearson-r correlation test was applied for continuous variables and a Chi-square (Fisher's test) was computed for the categorical ones. All test used 0.05 as the level of significant. All factors with $p < 0.05$ shall be deemed significant.

Study Population. A minimum recommended sample size of 109 respondents was needed in this study based on the computed quantitative equation using Cochran's formula with a 5% margin of error and a 95% confidence level.

Inclusion Criteria. This study included all HCWs working in Perpetual Succour Hospital with RT-PCR confirmed COVID-19, either hospitalized or under self-quarantine regardless of severity and exposure.

Exclusion Criteria. The study excluded the following:

1. Probable COVID-19 individuals
2. Negative RT-PCR results
3. HCWs not employed by Perpetual Succour Hospital
4. HCWs on leave or those who resigned

Data Collection. The study was approved by the Institutional Ethics and Review Board (IERB), hospital administrator and the department chair of Internal Medicine. After approval, the list of healthcare workers with confirmed COVID 19 swab results through PCR whether asymptomatic or symptomatic were then obtained from the administrative office.

There were 125 HCWs with confirmed COVID19 infection from March to Sept 2020. Eleven HCWs were on leave or

have resigned at the time of data collection thus excluded from the study. A total of 114 HCWs were eligible for the study. All respondents were provided an informed consent at the beginning of the survey and their signatures were obtained confirming their willingness to participate in the study. Questionnaires were distributed personally by the researchers and answered by the respondents after they were quarantined or discharged. The respondents were assured that confidentiality of information gathered were strictly maintained. Data were then extracted from the questionnaire; responses were coded using number codes to make the data suitable for analysis. Google Sheets was used for data entry. Only one database was created. Each participant had a unique identifier in the form of an identification number. Data was then collated and analysed.

Ethical Considerations. The identity of respondents will not be divulged, their names and other identification markers will remain anonymous in all written publications, medical forums and other forms of publishing. Respondents will not be included in the study unless consent is given. The principal investigators will not seek any financial gains from any third party and will not provide monetary compensation to the respondents of this study.

Statement of Confidentiality. A full consent shall be obtained from the respondents prior to the study. Utmost confidentiality of data shall be observed, all respondents will be labelled as numbers instead of names.

RESULTS

The current investigation evaluated the demographic, clinical, DASS score and the coping mechanisms of the healthcare workers and their association. A total of 114 patient records were included, reviewed and analyzed. The results are reflected as follows:

Table I showed the distribution of corresponding levels of depression, anxiety and stress the COVID19 positive healthcare workers based on the DASS scores. Most of the respondents were normal in terms of their depression level, anxiety and stress (54%, 46%, 68%). However, there was also a noted spike from those who recorded moderate depression at 22%, moderate anxiety at 18% and stress at 12%. There were 5%, 11% and 9% who were severely depressed, anxious and stress respectively. A seemingly large proportion of the HCWs were also extremely severely depressed (7%), severely anxious (12%) and severely stress (2%).

Table II shows the profile of the HCWs and how this profile is associated with the degree of depression, anxiety and stress. Most respondents were aged 19-30 at the onset of the review. Most of the patient who tested positive were females (66%). Age was not statistically associated with the DASS scores ($p > 0.05$) yet the gender associated significantly with depression ($p = 0.07$).

Meanwhile, most of the HCWs who tested positive came from Cebu City. The place of origin of the patients did not correlate with the DASS scores respectively. In terms of

Table I. Prevalence of Anxiety and Depression among Healthcare Workers (HCWs) With Confirmed COVID-19

Levels	Depression		Anxiety		Stress	
	f	%	f	%	f	%
Normal	61	54%	52	46%	77	68%
Mild	14	12%	16	14%	11	10%
Moderate	25	22%	20	18%	14	12%
Severe	6	5%	12	11%	10	9%
Extremely Severe	8	7%	14	12%	2	2%

occupation, majority of the COVID19 positive HCWs were nurses accounting to 35% of the total sampled patients. More likely, the occupation of the HCWs significantly associated with their degree of depression and stress ($p < 0.05$). In terms of comorbidities, having hypertension associated significantly with elevated stress ($p = 0.02$) while having diabetes was instrumental for the depression, anxiety and stress of the HCWs. Mostly singles belonging to a nuclear family, the relationship status, number of children, type of family, monthly income, years working in PSH and the educational attainment did not significantly associate with the level of depression, anxiety and stress ($p > 0.05$).

In terms of the area of assignment, being in a COVID ER promoted significantly a considerable stress of the HCWs. Being in the COVID ICU portends to significantly impact the level of the three DASS domains of depression, anxiety and stress. Being in a COVID ward significantly induces depression and stress. Likewise, even the HCWs assigned in non-covid areas felt depression significantly. The COVID classification of the patients also triggered significantly their depression and anxiety levels though most of the positive patients were classified as mild only ($p < 0.05$).

Moreover, the appreciation received from the different parts of the society was more felt at the workplace, than at home. Discrimination on the other hand was prevalent from the community (56%) and even in the workplace (39%) and social media (13%). The experience of discrimination also led to the significant levels of depression, anxiety and stress to the COVID19 positive HCWs.

Table III illustrates that religiosity (3.56/4.00) ranked the most sought coping strategy of the HCWs who tested positive with COVID19 infection. This is followed by problem solving and relaxation/recreational activities. There were not much of overactivity, emotional release and substance abuse recorded in the analysis.

DISCUSSION

The COVID-19 pandemic brought significant burden to the general population and most significantly to the healthcare workers who are now considered vulnerable.¹⁹ Healthcare workers have been blinded to the unforeseeable effects it poses on their mental health. Many literatures have been published to show the effects of the current crisis on the mental health of the general

Table II. Demographic Data and Clinical Profile of HCWs with Confirmed COVID-19 and Association with DASS-21 Scores.

Profile of Healthcare Workers	f	(%)	p-value (Depression)	p-value (Anxiety)	p-value (Stress)
Age			0.52 ^a	0.34 ^a	0.60 ^a
19-30	57	50%			
31-40	42	37%			
41-50	9	8%			
51-60	6	5%			
Sex			0.01 ^{b*}	0.72 ^b	0.69 ^b
Male	39	34%			
Female	75	66%			
Place of residence			0.21 ^b	0.34 ^b	0.42 ^b
Cebu City	86	75%			
Mandaue City	8	7%			
Talisay City	4	4%			
Lapulapu City	1	1%			
Cebu Province	15	13%			
Occupation			0.00 [*]	0.32 ^b	0.00 [*]
Doctor	24	21%			
Nurse	40	35%			
Nursing Aide	8	7%			
Medical Technologist	4	4%			
Radiologic Technologist	2	2%			
Receptionist	2	2%			
Housekeeping	13	11%			
Orderly	12	11%			
Secretary	2	2%			
Auxiliary	7	6%			
Comorbidities					
Hypertension	9	8%	0.13 ^b	0.02 [*]	0.28 ^b
Diabetes	8	7%	0.01 [*]	0.01 [*]	0.02 [*]
Bronchial Asthma	10	9%	0.33 ^b	0.28 ^b	0.14 ^b
Hypothyroidism	1	1%	0.45 ^b	0.32 ^b	0.12 ^b
Lung Fibrosis	1	1%	0.22 ^b	0.53 ^b	0.35 ^b
Relationship Status			0.43 ^b	0.19 ^b	0.21 ^b
Single	82	72%			
Married	30	26%			
Separated	0	0%			
Live in partner	2	2%			
No. of children			0.41 ^a	0.97 ^a	0.28 ^a
None	77	68%			
0-3	29	25%			
4 above	7	6%			

*Factor is significant at 0.05 level of significance, ^aPearson correlation, ^bChi-square Test

population and HCWs but limited focus was given to HCWs who contracted the disease themselves.

Thus, this study was conducted to determine the degree of depression, anxiety, stress and coping strategies among HCWs with confirmed COVID-19 utilizing the Filipino translated DASS-21 and Filipino Coping Strategy Scale. An instrument that is often used to assess subjective depressive and anxiety complaints is the Depression Anxiety Stress-Scale (DASS). In this study most of the respondents recorded a normal level in terms of the three categories; depression (54%), anxiety (46%) and stress (68%).

Table II (cont'd). Demographic Data and Clinical Profile of HCWs with Confirmed COVID-19 and Association with DASS-21 Scores.

Profile of Healthcare Workers	f	(%)	p-value (Depression)	p-value (Anxiety)	p-value (Stress)
Type of family			0.48 ^b	0.12 ^b	0.71 ^b
Single parent	11	10%			
Nuclear	70	61%			
Extended	26	23%			
Area of assignment					
COVID ER	32	28%	0.06 ^b	0.19 ^b	0.01 [*]
COVID ICU	23	20%	0.00 [*]	0.03 [*]	0.00 [*]
COVID Ward	29	25%	0.00 [*]	0.11 ^b	0.05 [*]
Non COVID	1	1%	0.00 [*]	0.15 ^b	0.12
Monthly Salary			0.23 ^b	0.12 ^b	0.32 ^b
≤ 10,999	5	4%			
11,000-20,999	78	68%			
21,000-30,999	27	24%			
31,000-40,999	0	0%			
≥ 41,000	4	4%			
Years working in PSH			0.12 ^b	0.23 ^b	0.73 ^b
1 to 3 years	67	59%			
4 to 6	18	16%			
7 above	27	24%			
Educational attainment			0.31 ^b	0.34 ^b	0.21 ^b
High School graduate	11	10%			
College Level	8	7%			
College graduate	63	55%			
Post Graduate	32	28%			
Classification (COVID 19)			0.00 [*]	0.00 [*]	0.14 ^b
Mild	95	83%			
Moderate	15	13%			
Severe	4	4%			
Critical	0	0%			
Appreciation (YES)			0.33 ^b	0.41 ^b	0.15 ^b
Workplace	76	67%			
Community	21	18%			
Home	48	42%			
Social Media	20	18%			
Discrimination (YES)					
Workplace	45	39%	0.05 [*]	0.48 ^b	0.58 ^b
Community	64	56%	0.00 [*]	0.00 [*]	0.73 ^b
Home	21	18%	0.05 [*]	0.00 [*]	0.12 ^b
Social Media	15	13%	0.00 [*]	0.00 [*]	0.00 [*]

*Factor is significant at 0.05 level of significance, ^aPearson correlation, ^bChi-square Test

The Impact on Mental Health. In terms of severity of the mental health impact among HCWs using the Filipino translated DASS-21, this study has shown a relevant proportion of respondents who had moderate scores on depression, anxiety and stress (22%, 18% and 12% respectively). A substantial group of respondents had severe to extremely severe scores of 11% to 12% on anxiety. This was comparable to a study done by Elbay, et al. wherein participants had moderate to severe scores with DASS-21 tool, however, our population consists of HCWs who got infected with COVID-19.²⁰ In another study done by Chen et al., 75.5% of the healthcare

Table III. Coping Strategies of COVID 19 Healthcare Workers

Coping	Weighted mean	Standard Deviation	Rank
Religiosity	3.56	0.53	1
Substance Use	2.24	0.40	9
Problem Solving	3.33	1.02	2
Social Support	2.67	0.76	5.5
Tolerance	2.67	0.76	5.5
Emotional Release	2.11	0.52	8
Over activity	2.36	0.58	7
Relaxation/Recreation	2.96	0.53	3
Cognitive Reappraisal	2.84	0.65	4

workers had none/mild anxiety and depression, and 24.5% had moderate/severe anxiety and depression. Anxiety and depression were significantly concomitant in their respondents, since 32.26% healthcare workers had anxiety and depression at the same time.²¹ In a cross-sectional study done by Al Ateeq et al. of 502 healthcare workers, more than half of them had depressive disorder (55.2%), which ranged from mild (24.9%), moderate (14.5%), and moderately severe (10%) to severe (5.8%). Half of the sample had generalized anxiety disorder (51.4%), which ranged from mild (25.1%) and moderate (11%) to severe (15.3%).²²

Sociodemographic Profile. Age was not statistically significant in the presence of depression, anxiety and stress. A study done by Liang et al. tried to see the relation between age and depressive symptoms. Though medical staff at younger age (<30 years) had higher self-rated depression scores than those with older age (30 years), the difference was not statistically significant (23). Most of the healthcare workers who participated in our study mostly came from Cebu City, which had the second highest number of positive cases in the Philippines next to the National Capital Region (NCR). However, the place of residence did not correlate with the presence of depression, anxiety and stress.

In this study, gender was statistically significant with depression ($p=0.01$) and HCWs who tested positive are mostly females (66%). This was comparable to the data in the systematic review and meta-analysis by Pappa et. al. which showed higher prevalence of depression of women compared to men (26-87% and 20-34%, respectively).⁷ In another study, it was shown that being younger and women having less work experience and exposed to the frontlines were associated with higher DASS total and sub-scale scores in the whole sample.²⁰ A study by Lai J., showed that being a woman and possessing an intermediate professional title was associated with higher anxiety, depression, and distress.²

This study showed that regardless of HCW occupation, there is statistical significance ($p<0.05$) in stress and depression scores. These results may be confounded by the fact that HCWs irrespective of their job description may still have some degree of exposure in the hospital setting. According to a study by Xu et al., the psychological impact of the crisis is not only felt by

frontline medical personnel but also HCWs of other specialties.²⁴ Interestingly, this study showed that, HCWs assign in the non-COVID areas still has a significant score in depression ($p<0.05$).

Majority of the respondents in this study were nurses and physicians (35% and 21%, respectively) with more female participants compared to males. A higher DASS21 score is more prevalent in females which has already been an established gender gap for anxiety and depressive symptoms based on a study by Albert.²⁵ In other literatures, nursing staff exhibited higher scores on both anxiety and depression compared to doctors.⁷

This study showed significant level of anxiety and stress for healthcare workers with comorbid conditions of hypertension and diabetes. In a matched case control study of 395 respondents by Sayeed et al., the prevalence estimates of stress, anxiety and depression were significantly higher among those with comorbidities (73.7%; 59%; 71.6%, respectively).²⁶ Chi-square tests showed significant associations between having chronic diseases and mental health outcomes. A conditional logistic regression showed that respondents with asthma, diabetes, cardiovascular conditions or any combination had higher odds of feeling stress, anxiety and depression than those without.

Respondents with diabetes showed a significant value ($p=0.02$) for having stress symptoms. Furthermore, the study of Sayeed et al. stated that the prevalence estimate of stress symptoms among diabetics was 49.2%, 1.47 times higher than healthy controls. Cases with more than one chronic disease had ten times the odd of reporting stress, five times the odds of reporting anxiety.²⁶ Comorbidities like hypertension and diabetes could be an important predictor or correlate of poor mental health.

In this study, discrimination was prevalent in the community (56%), workplace (39%) and social media (13%). According to Singh et.al, healthcare providers are the key players in managing COVID-19 cases. Multiple factors such as social isolation, stigma and discrimination places added burden to our HCWS, and in turn cause psychological dilemma. These may cause unnecessary alteration in the mental wellbeing of our HCWs and affect their attention and decision capabilities. Several HCWs working in hospital and laboratories experienced discrimination by some hospitality sector and face challenges in securing food and shelter.²⁷

Discrimination by HCWs assigned in non-COVID areas such as refusal to engage in conversation and portraying disapproval to eat in the same place was noted by frontline HCWs.²⁷ Displeasure was also noted by neighbours and the community especially to frontline HCWs despite all the necessary precautions.²⁷ Ransing, et al reported experiences of discrimination in housing, verbal abuse and social devaluation to COVID-19 patients, relatives, and HCWs deployed in COVID-19 areas.²⁸ This is study was consistent with the studies of

Singh and Subedi and Ransing et al. which showed discrimination in the workplace and the community.

Coping Strategies. In this study, results showed religiosity as the top coping strategy of the health care workers who tested positive. Phua et al reported significant use of emotion-focused and problem-solving coping strategies during a severe acute respiratory outbreak. And among the emotion-focused coping strategies, Filipino HCWs significantly preferred turning to religion to help them cope compared to non-Filipinos.²⁹ Rilveria using the Filipino Coping Strategies Scale also revealed Filipinos top domains were religiosity, problem-solving, cognitive reappraisal, and relaxation/recreation, and less likely to engage in substance use. The results of the study were comparable to Phua et.al and Rilveria which showed positive health care workers more likely use religiosity followed by problem-solving and relaxation/recreational activities as coping strategies. This study also reported that substance use was the least coping strategy used which implies that HCWs were less likely to engage in smoking, drinking alcohol, and drug related activities and is comparable to the findings of Rilveria.^{9,32}

CONCLUSION

In conclusion, this study found that a seemingly large percentage of HCWs diagnosed with COVID-19 had moderate level and a notable portion of respondents had severe to extremely severe level in each of the psychological domains namely depression, anxiety and stress in which factors such as gender, occupation, comorbidities, area of assignment and disease severity have brought significant impact.

Discrimination is prevalent in the community and surprisingly in the workplace. In contrast, appreciation was felt more at home and in the workplace. Religiosity was shown to be the top coping strategy among HCWs who tested positive. These findings should reiterate the need for continued support and improvement of services that support the mental wellbeing of all healthcare workers.

SCOPE AND LIMITATIONS

The scope of this study includes all HCWs employed in Perpetual Succour Hospital both in the medical and non-medical category who tested positive for COVID-19 via RT-PCR regardless of severity. The sample size is limited since the population was focused only on HCWs working at a single tertiary hospital who tested positive with COVID-19. Secondly, some employees may have resigned or currently on leave during the conduct of the study, thus they were excluded during data gathering. Lastly, the results of the DASS-21 and Filipino Coping Strategies Scale differed among participants with different educational background and working assignments.

RECOMMENDATION

We recommend that health care institutions provide adequate training and counselling for HCWs who will be

assigned in the frontline, provide accurate information regarding the disease in terms of contagion and protection, promote a clear and systematic approach, treatment protocols and spiritual guidance among HCWs who would possibly contract the disease in order to alleviate stress and increase HCW security and confidence. Furthermore, we recommend that future studies with regards to the mental health of HCWs who contracted COVID-19 should provide an in-depth analysis of individual scores in relation to each demographic profile with whichever validated tool will be utilized.

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APPENDIX A

Definition of Terms

1. **Depression** - defined as who suffer from persistent feelings of sadness and hopelessness and lose interest in activities they once enjoyed, can also present with physical symptoms such as chronic pain or digestive issues, symptoms must be present for at least 2 weeks.⁶
2. **Anxiety** - defined as an emotional state that included feelings of apprehension, tension, nervousness, and worry accompanied by physiological arousal.⁵
3. **Stress** - suffering from persistent feelings of sadness and hopelessness and loss of interest in activities once enjoyed, physical or psychological effect of the stressor.^{6,9}
4. **DASS - 21** - is a validated self-report tool containing 21 items that assess three constructs: Depression, Anxiety, and stress.¹⁴
5. **Coping strategies** - is defined as the individual's cognitive and behavioural responses to manage the internal and external demands of stress.⁹
6. **Cognitive reappraisal (pagsusuri)**- refers to changing one's view or assumptions about the problem and includes optimistic and hopeful thinking, alterations of goals and values, and meaning-making.
7. **Social support (paghingi ng tulong)**- refers to helpseeking behaviors, receiving advice or professional care, support from friends and family, and sharing of one's problems.
8. **Problem-solving (pagtugon)**- involves planning, taking action to confront the source of stress, and aims to eliminate the stressor.
9. **Religiosity (pagkarelihiyoso)**- has its distinct domain because it involves some religious behaviors such as praying, leaving everything to God, believing in destiny and will of God.
10. **Tolerance (pagtitiis)**- would involve enduring the difficulty and stress without constant effort in confronting it.
11. **Emotional release (paglabas ng saloobin)**- would refer to venting out of emotions may it be through anger, humor, and cry.
12. **Overactivity (pagmamalabis)**- means overextension of work or overexertion of one's activity to distance oneself from the stress.
13. **Relaxation/recreation (paglilibang)**- involves engaging in activities that would make the person feel at ease and lessen the cognitive and emotional load of the stress.
14. **Substance use (pagbibisyo)**- would entail using drugs, drinking alcohol, smoking, or even taking medicines to relieve some physical and mental manifestations of stress.
15. **Healthcare worker (HCW)** - a medical or non-medical personnel who is an employee of Perpetual Succour Hospital Cebu that contracted and recovered from COVID-19.

APPENDIX B

DASS 21 Instrument

DASS21	Name:	Date:
<p>Basahin ang mga talata at bilugan ang mga numero na nagpapahayag ng mga nararamdaman mo o nangyayari sayo 1ra sa nakalipas na linggo. Walang tama o maling sagot. Iwasang pagtuunan ng maraming 1ra sang bawat talata. (Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you <i>over the past week</i>. There are no right or wrong answers. Do not spend too much time on any statement.)</p> <p><i>Panuto (The rating scale is as follows):</i></p> <p>P Hindi nangyayari / nagaganap sa akin (Did not apply to me at all)</p> <p>P Paminsanminsang nangyayari / nagaganap sa akin (Applied to me to some degree, or some of the time)</p> <p>2 Pangkaraniwang nangyayari / nagaganap sa akin (Applied to me to a considerable degree, or a good part of time)</p> <p>3 Madalas na nangyayari / nagaganap sa akin. (Applied to me very much, or most of the time)</p>		
1	Nahihirapan akong tumimo (I found it hard to wind down)	0 1 2 3
2	Batid ko ang panunuyo ng aking bibig (I was aware of dryness of my mouth)	0 1 2 3
3	Hindi ko man lang maranasan ang makaramdam ng mabuti (I couldn't seem to experience any positive feeling at all)	0 1 2 3
4	Nakakaranas ako ng hirap na paghinga (hal. Sobrang bilis ng paghinga, kawalan ng hinga kung hindi aapuhin ito (experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0 1 2 3
5	Nahihirapan akong magkusa na gumawa (I found it difficult to work up the initiative to do things)	0 1 2 3
6	Masyado akong nagiging intimidida sa mga situasyon (I tended to over-react to situations)	0 1 2 3
7	Nakaranas ako ng panginig (hal. Sa kamay) (I experienced trembling (eg, in the hands)	0 1 2 3
8	Naramdaman ko na masyado akong gumagamit ng aking nevous energy (I felt that I was using a lot of nervous energy)	0 1 2 3
9	Nangangamba ako sa mga situasyong kung saan maari akong matuliro makagawa nang hindi matino (I was worried about situations in which I might panic and make a fool of myself)	0 1 2 3
10	Nararamdaman ko na wala naman akong inaasahan I felt that I had nothing to look forward to	0 1 2 3
11	Nakita ko na lang ang sarili na masaya (I found myself getting agitated)	0 1 2 3
12	Nahihirapan akong magrelaks / mamahinga (I found it difficult to relax)	0 1 2 3
13	Naramadaman kong maging mapagkumbaba at matamlay (I felt down-hearted and blue)	0 1 2 3
14	14 Hindi ko pinapansin ang bagay na nakakahadlang sa aking ginagawa (I was intolerant of anything that kept me from getting on with what I was doing)	0 1 2 3
15	Naramdaman kong muntik na akong matuliro (I felt I was close to panic)	0 1 2 3
16	Hindi ko nagagawang maging magilas / aktibo sa kahit anong bagay (I was unable to become enthusiastic about anything)	0 1 2 3
17	Naramdaman kong wala akong kwenta (I felt I wasn't worth much as a person)	0 1 2 3
18	Naramdaman kong sa halip ay nagiging mapangkupkop ako (I felt that I was rather touchy)	0 1 2 3
19	Batid ko ang galaw ng aking puso kahit hindi ako kumikilos (hal. Pagbilis ng pintig, pagkawala ng pintig ng puso (I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0 1 2 3
20	Natatakot ako ng walang kadahilanan (I felt scared without any good reason)	0 1 2 3
21	Naramdaman kong walang kahulugan ang buhay (I felt that life was meaningless)	0 1 2 3

APPENDIX C

Filipino Coping Strategies Scale (After Item Analysis)

Name	Educational Attainment			
Age	Occupation			
Sex <input type="radio"/> Male <input type="radio"/> Female	Socioeconomic Status <input type="radio"/> Mababa (Low) monthly family income < P 15,000.00 <input type="radio"/> Katamtaman (Average) P 65,000 > monthly family income <input type="radio"/> Mataas (High) monthly family income > P65,000			
FILIPINO COPING STRATEGIES SCALE				
Gaano kadalas mong gawin ang mga sumusunod sa tuwing ikaw ay nakaranas ng matinding problema o stress? Lagyan ng marka ang nakalaang patlang. (How frequently do you perform the following when you experience a stressful event? Put a mark on the space provided provided.)				
	1 Hindi (Never)	2 Minsan (Sometimes)	3 Madalas (Most of the time)	4 Palagi (Always)
1. Nag-iisip ako ng positibo tungkol sa aking problema. (I think something positive about my problem)				
2. Nag-iisip ako ng paraan para masolusyunan ang aking problema. (I think of ways to solve my problem)				
3. Ipinagdarasal ko sa Diyos ang aking problema. (I pray my problems to God)				
4. Iniiyakan ko ang aking problema. (I cry my problems out)				
5. Pinapagod ko ang sarili sa isang partikular na gawain para mabawasan ang stress na aking dinadala. (I exhaust myself doing something to lessen the stress I have)				
6. Nililibang ko ang aking sarili (I entertain myself)				
7. Umiinom ako ng alak para mabawasan ang aking stress. (I drink alcohol to reduce my stress)				
8. Inaalang ko ang magandang dahilan kung bakit ako may ganitong klaseng problema. (I think of a good reason why I have this kind of problem)				
9. Humihingi ako ng payo mula sa aking mga kaibigan. (I solicit advice from my friends)				
10. Sinisikap kong malampasan ang mga bagay na nagbibigay sa akin ng stress. (I work hard to overcome my stress)				
11. Naniniwala ako na tutulongan ako ng Diyos sa aking problema. (I believe that God will help me in my problem)				
12. Tinatanggap ko na lang ang stress na aking nararamdaman hanggang sa ito ay mawala. (I tend to just accept the stressful feeling until it is gone)				

13. Naghahanap ako ng mapagbubuntunan ng galit dahil sa stress. (I find something to release my anger to because of my stress)				
14. Sinusubsob ko ang sarili sa trabaho (I overwork)				
15. Pumupunta ako sa mga lugar kung saan makakapagpahinga ako. (I go to places where I can rest)				
16. Naninigarilyo ako upang mawala ang negatibong pakiramdam sa problema. (I smoke to ease my negative feeling)				
17. Iniisip kong kaya kong malagpasan ang aking problema. (I think I can overcome my problem)				
18. Gumagawa ako ng mga hakbang patungo sa pagkaya ng problema. (I make ways to solve my problem)				
19. Nananalangin ako sa Panginoon para mawala ang aking stress. (I pray to God in order to take my stress away)				
20. Kinakailangan kong mapagod sa paggawa ng ibang bagay. (I need to be tired doing other things)				
21. Gumagawa ako ng mga gawaing nakakapagpakalma sa akin. (I engage in activities that would make me calm)				
22. Umiinom ako ng gamot na makakatulong sa aking pakiramdam at pag-iisip tungkol sa problema. (I take medicine that would help me feel and think better)				
23. Tinitingnan ko ang magandang dulot ng aking stress. (I look at the good effect of this stress)				
24. Nangangailangan ako ng suporta mula sa ibang tao. (I need support from other people)				
25. Tinititi ko ang stress na aking nararanasan. (I endure the stress I am experiencing)				
26. Nilalabas ko ang aking hinanakit. (I release my emotional pain)				
27. Nagdadagdag ako ng marami pang gawain para maiba ang aking iniisip. (I burden myself with other things to do in order to redirect my thoughts)				
28. Ipinapahinga ko ang aking sarili. (I take time to rest)				
29. Gumagamit ako ng mga gamot na nakakapagpaginhawa ng aking pakiramdam. (I take medicine that provides relief)				
30. Sinisikap kong tingnan ang problema mula sa ibang perspektibo. (I take to view the problem in a different perspective to view the problem in a different perspective))				
31. Nangangailangan ako ng pagkalinga at pag-intindi mula sa mga taong malapit sa akin. (I need care and understanding from the people who are close to me)				
32. Lahat ng posibleng solusyon ay ginagawa ko para lang mapagtagumapayan ang aking problema. (I consider all possible solutions just to overcome my problem)				
33. Naniniwala akong kagustuhan ng Diyos ang nararanasan ko ngayon. (I believe that what I am experiencing is God's will)				

34. Ipinapadama ko sa iba ang aking negatibong emosyon. (I let others feel my negative emotion)				
35. Kumakain ako nang marami at natutulog nang matagal upang panandaliang mabawasan ang stress. (I eat a lot and sleep longer hours to temporarily lessen the stress load.)				
36. Naghahanap ako ng mga gawaing nakakapagpahinga ng aking isipan. (I find activities that can relax my mind)				
37. Nagpapakalango ako sa alak para panandaliang makalimutan ang problema. (I drown myself with alcohol to ignore my problem for the meantime)				
Kung may iba ka pang mga ginagawa para makayanan mo ang iyong stress o problema, isulat ang mga ito at lagyan ng marka ang nakalaan patlang. (If there are other ways you cope with a stressful event which were not mentioned in the 37-item scale, you may write them down and rate them accordingly)				