


Experiences of COVID-19-Recovered Healthcare Workers in a Tertiary Hospital in the Philippines: A Mixed-Method Inquiry

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Abstract

COVID-19 pandemic affected the mental health of the global population. Among the most vulnerable are the healthcare workers (HCWs) who got infected but returned to the frontline after recovery. Currently, there is a dearth of information and understanding on the psychological status and actual lived experience of the recovered HCWs in the Philippines. The present study investigated the psychological status and experiences of 93 COVID-19-recovered HCWs from a tertiary hospital in the Philippines using a mixed-method approach, particularly the explanatory-sequential design. Participants completed the Impact of Event Scale-Revised, and the Depression, Anxiety, and Stress Scale-21 in the quantitative phase. Selected participants took part in focus group discussions in the qualitative phase. Integrated results showed that our participants experienced significant COVID-19-related distress (mean IES-R score=25.5; partial impact), anxiety (mean subscale score=7.4; mild), and depression (mean subscale score=8.1; mild). Certain sociodemographic and professional characteristics and the length of quarantine days appear to affect the psychometric scores. The quantitative results are supported by the participant's description of recovery experiences as living in uncertainty, distress, fatigue, dissociation, and valuation of life. In summary, adequate psychological support and intervention program should be prioritized and provided by hospital management for recovered HCWs to prevent the development of more serious mental health concerns that may significantly affect their tasks in caring for patients and in-hospital management.

Keywords

COVID-19, anxiety, depression, healthcare worker, lived experience

What do we already know about this topic?

Healthcare workers are at high risk of developing mental health issues due to their exposure to COVID-19 and their work.

How does your research contribute to the field?

Our study is the first to describe the psychometrically assessed levels of posttraumatic impact of COVID-19 and actual lived experience among the recovered healthcare workers in a Philippine tertiary hospital.

What are your research's implications for theory, practice, or policy?

Our study implies that healthcare institutions should prioritize mental health support for COVID-19-recovered healthcare workers to prevent the long-term debilitation in service delivery to a patient or the overall hospital management.

Introduction

The coronavirus disease 2019 (COVID-19) is considered the worst infectious disease pandemic of the new millennium.¹ The Philippines is the first country to record death from COVID-19 outside China.² As of February 7, 2022, the

Philippine Department of Health (DOH) reported more than 3.6 million total cases of COVID-19, with more than 54,000 mortality.³ The recent breakdown of cases indicated that 29,368 healthcare workers (HCW) were infected, the majority of which had already recovered (28,714) while 117 died.⁴



Medical professionals, such as nurses and physicians, topped the HCW infection cases, but non-medical hospital workers were also reported. Various global researchers indicated the adverse effects of the COVID-19 pandemic on HCWs. These effects include serious physical, moral, and psychological challenges that can affect their personal and professional lives.^{5,6} Experts attribute the most significant impact to psychological effects since they can linger within the affected individual.⁷ Several authors reported high levels of fear, stress, depression, and anxiety among HCWs.^{6,8} Similar findings were also reported among Filipino HCWs, particularly nurses.⁹⁻¹² Other studies also described significant psychological effects on non-medical and non-patient managing HCWs, including hospital administrators and support staff.^{13,14} In a similar developing country like Bangladesh, factors including inadequate training, infection control, and personal protective equipment have been associated with higher levels of fear among HCWs.¹⁵ Regardless of the level of exposure to infected patients, all types of HCWs are at risk of developing adverse mental health effects from the pandemic, given the nature of hospitals as frontline service providers to COVID-19 patients¹⁶ and the stressful work environment during the pandemic.¹⁷ Despite these findings, HCWs, particularly those from the low to middle-income countries (LMICs), remain mentally overwhelmed, leading to an increase in demand for psychological and psychiatric needs of the workers.¹⁸ This situation implies that the availability of organization-wide interventions and support for HCWs at the hospital level is critical for the recovery of the workers and improving their work environment.¹⁹

Despite the abundance of literature on the psychological effects of COVID-19 in the general and surviving populations, only a few researchers dealt with COVID-19-recovered HCWs.²⁰ Although recovered HCWs only comprise a subpopulation of survivors, they represent a unique group since they are faced with a social and moral dilemma to serve on the frontline again, with the risk of reinfection. This population also faces a higher degree of stigmatization and mental health vulnerability in the community.²¹ In two studies, researchers found higher levels of posttraumatic stress symptoms among recovered HCWs compared to the general population of survivors.^{22,23} Fatigue, depression, and anxiety appear to be significant symptoms after recovery.²⁴⁻²⁷ The

development of these affective disorders after recovery and immediate re-exposure to the frontline may ultimately debilitate HCW's patient and hospital management service delivery. Important facets in determining the actual mental health status and support needed by the recovered HCWs may lie in their authentic lived experience, coping processes, and motivation to report back to the hospital after the traumatic event.²⁸ However, these aspects are not assessed in current reports of psychological evaluations in this vulnerable population. Currently, qualitative and integrative mixed methods studies that aim to understand the lived experience of recovered HCWs are very few.²⁹ Hence, the underlying factors that could have explained the reported high level of distress and trauma are often missed, as reflected in psychometric evaluations.

We believe that establishing the actual experiences of the recovered HCWs concerning their psychologically evaluated mental health conditions is essential. It primarily reveals the survivor's personal needs and challenges that may be useful to the families, friends, and co-workers in helping the HCWs deal and cope with the unseen post-COVID-19 impacts on their mental health. Our study explored the psychological states of recovered HCWs using a mixed-method approach to determine the objectively-assessed mental health outcomes and relate them to the individual's lived experience. Our study contributes to the integrative understanding of the mental health challenges experienced by recovered HCWs. Hopefully, it may give meaning to the recovery process faced by this mentally-vulnerable population in a major COVID-19 tertiary hospital in the Philippines.

Methods

Research Design

We utilized a mixed-method approach, particularly the explanatory-sequential design, divided into 2 phases. The quantitative first phase follows a cross-sectional, descriptive design³⁰ involving the administration of psychometric surveys [Impact of Event Scale-Revised (IES-R) and Depression, Anxiety and Stress Scale-21 (DASS-21)] to describe the presence of posttraumatic impact arising from COVID-19 infection. The qualitative second phase follows

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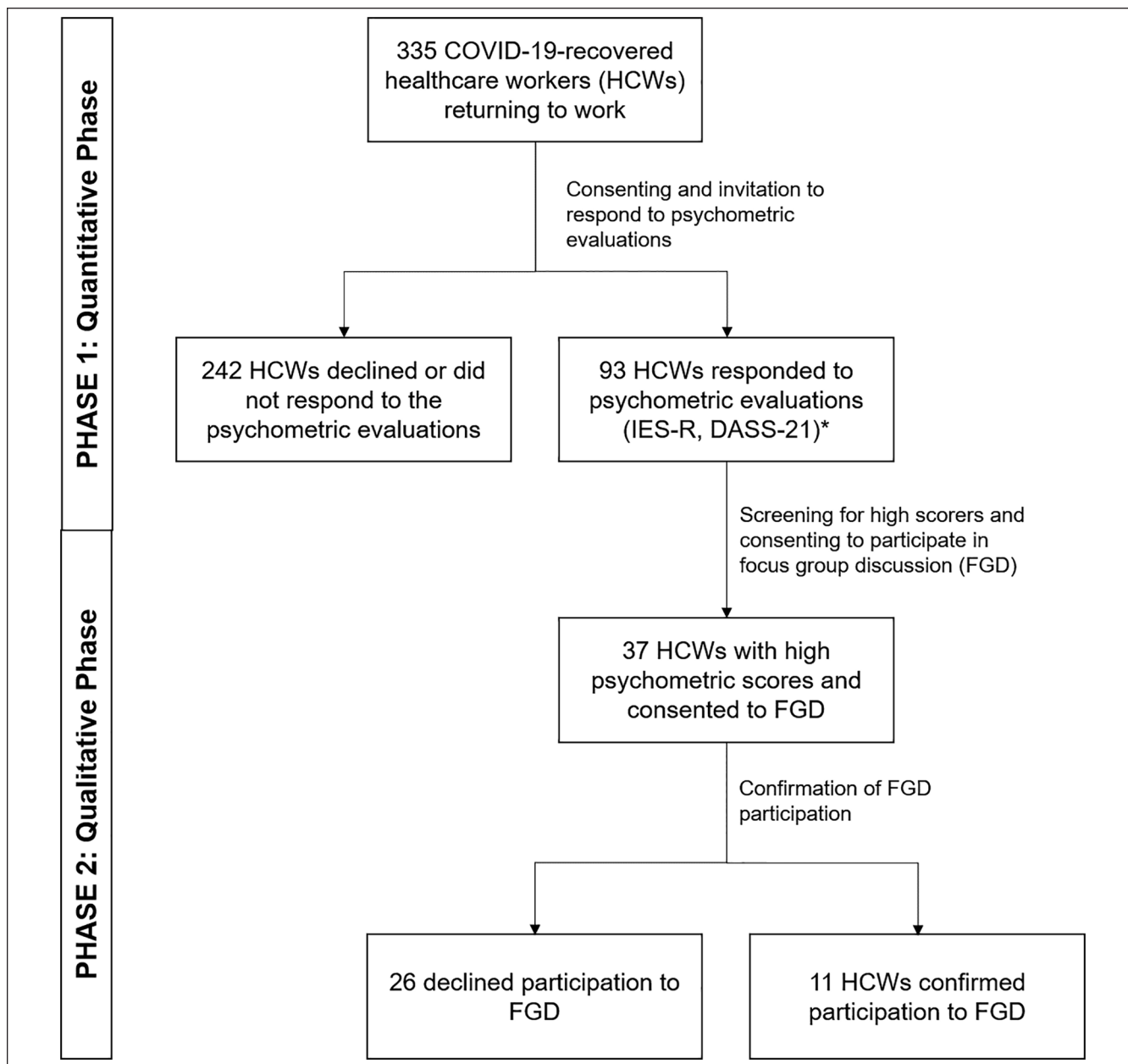


Figure 1. Study design workflow and participant selection for each data collection phase. (*IES-R and DASS-21 refer to Impact of Event Scale-Revised, and Depression, Anxiety and Stress Scale, respectively).

a phenomenological design that explores participant's lived experiences³¹ extracted from focus group discussions among HCWs with high scores in the psychometric surveys. The Medical City (TMC) Institutional Review Board approved the protocol for this study (GCS-2020-160). We conducted the first phase from March to May 2021 and the second phase in June 2021.

Research Setting and Participants

We conducted the study at TMC, a private tertiary hospital in Pasig City, National Capital Region, Philippines. At the

onset of the pandemic, TMC converted itself into a major COVID-19 hospital in Metro Manila, where most of the infection cases were reported. From March 1, 2020, to January 31, 2021, before the announcement and roll-out of vaccines in the Philippines, TMC reported 397 COVID-19-infected HCWs who eventually recovered. None of them died from the disease. Of the reported cases, 62 resigned immediately or shortly after recovery, giving us 335 potential participants for the study.

We summarized the study design workflow and participant selection in Figure 1. For the first phase, we released posters and virtual calls for participation in all hospital

Table 1. Guide Questions for the Focus Group Discussion.

Engagement Question: When the word COVID-19 is mentioned, how do you feel?

Exploration Questions:

1. What changes did you notice in your mental health pre-COVID infection and post-COVID infection?
 2. What came into your mind when you found out that you got infected with COVID-19?
 3. How did you feel during your recovery period?
 4. What are your hesitations after you recovered from COVID-19?
 5. How did you feel when you got back to work?
 6. How were your social interactions and activities affected by your experience of having COVID-19?
 7. How did you cope with how you feel after your recovery?
-

Exit Question: Is there anything else you wanted to share about the impacts of COVID-19 on your mental health?

departments. The eligible participants are non-physician, regular HCWs who got infected with COVID-19 and returned to work after recovery. We excluded physicians since they are non-regular staff. Several studies also indicated that physicians are expected to experience lower epidemic or pandemic-related psychological impacts due to their higher educational attainment and years of technical training in medicine.^{32,33} A total of 93 COVID-19-recovered healthcare workers (men=27; women=66) aged 21 to 60 years old ($M=35.8$ years old; $SD=8.6$) participated in the quantitative first phase. A non-probability convenient sampling method was utilized in selecting the participants. The qualitative second phase of the study had 11 participants (men=3; women=8) aged 25 to 48 years old ($M=37.0$ years old; $SD=6.7$). They were chosen from the sample pool of 93 who had high scores in the psychometric measures (>37 IES-R score, and mild to moderate score equivalent in DASS-21 subscales) and gave consent to participate in the focus group discussion (FGD). We selected only those with high psychometric scores to ensure capturing in-depth and relevant experience from the COVID-19-recovered HCWs even after several months of their recovery. Meanwhile, FGD was the strategy to capture shared personal experience through group interactions, and ensured a comfortable and relatable sharing environment for the participants. The FGD was conducted by scheduling either a physical or virtual meeting, depending on the participants' preference. For physical meetings, we set up a dedicated conference room and strictly observed the hospital's infection control policies to prevent COVID-19 transmission. We used the Zoom platform (Zoom, New York, USA) for virtual meetings. We recorded and transcribed all the FGD sessions and compiled them into an online document accessible to the investigators. All information gathered was coded for anonymity, and kept secured and confidential. Participation in both phases of the study was voluntary without remuneration.

Measures

Sociodemographic and infection characteristics. We collected sociodemographic data such as participants' age, gender, marital status, and service tenure in the hospital. We

also collected infection-related data such as the month of COVID-19 diagnosis and the length of the quarantine period. We classified the participants as health professionals (nurses, pharmacists, therapists, nutritionists), health associate professionals (medical and radiologic technologists, technicians, nursing associates), and health management/support personnel (managers, researchers, secretaries, clerks, office workers) based on the categories by the International Labor Organization.³⁴

Perceived impact of COVID-19. We used IES-R³⁵ to measure the overall perceived impact of COVID-19 on the participants as validated by Tee et al in the Filipino population.¹¹ We grouped the results based on the total scores and interpreted them using the interpretation scheme of Creamer et al.³⁶ In summary, we described the IES-R scores of the participants as normal (below 23), partial impact (24-32), probable posttraumatic stress disorder (PTSD; 33-36), and severe impact (37 or more). We also computed the participants' average scores in the symptom subscales, including intrusion, avoidance, and hyperarousal. The IES-R had Cronbach's alpha reliability of .92 in the present study.

Perceived depression, anxiety, and stress. We used DASS-21³⁷ to measure the participants' perceived levels of depression, anxiety, and stress after recovery from COVID-19. DASS-21 was validated and used by Tee et al¹¹ in their previous study on the Filipino population. We multiplied the total scores per aspect by 2 and interpreted them as per Lovibond and Lovibond.³⁷ We described the DASS-21 scores of the participants as normal, mild, moderate, severe, and extremely severe for each of the subscales for depression, anxiety, and stress. In the present study, DASS-21 had Cronbach's alpha reliabilities of .96 (depression and anxiety) and .94 (stress).

Lived experiences. Table 1 presents the interview guide prepared for the focus group discussion. The moderators, who are trained psychologists and registered psychometricians, facilitated the FGD. They advanced the discussion by asking follow-up questions including, but not limited to: "Why?," "How?," "Please explain further," and "What do you mean?" as adapted from the interview questions in a previous study.²⁸

Data Analysis

We used the explanatory-sequential approach to analyze the quantitative and qualitative results collectively.³⁸ Specifically, using the results of the qualitative analysis, we corroborated the observed patterns and outcomes of the quantitative analysis to provide a possible explanation of the recorded psychological phenomena. We performed the quantitative data analysis using SPSS Statistics version 22.0 (IBM SPSS, USA). For the study's first phase, we presented the demographic and survey data using descriptive statistics. We used a one-way Analysis of Variance (ANOVA) with Tamhane's T2 multiple comparison post hoc test and independent t-test to determine if there are significant differences in the levels of psychological impacts associated with sociodemographic and infection characteristics. We set the p-value at $<.05$ in considering statistically substantial results, and computed the effect size using Cohen's d. For the second phase of the study, we used Collaizi's descriptive phenomenological method.³⁹ For the first step, two authors (MBC, PEC) encoded and read (multiple times) the transcripts from the recorded sessions. In the second step, we listed down all the accounts relevant to the study's objectives. In the third step, the accounts were discussed with the FGD moderators (OLACC, SMSZ) to extract their applicable meanings. In the fourth step, the team clustered the meanings into themes common to all accounts. Afterward, we compiled the descriptions and groupings of the themes (fifth step) and condensed the definitions into succinct statements (sixth step). Finally, we verified the statements to the participants to ensure that all FGD accounts were considered.

Results

Phase 1: Psychological Profile of COVID-19- Recovered Healthcare Workers

Most of the survey participants were female (71%), single (55.9%), health management and support personnel (40.9%), and got infected from July to October 2020 and January 2021. The mean age of the participants is 35.8 years (SD=8.6), the mean tenure is 11 years (SD=8.0), and the mean quarantine length of 17.6 days (SD=8.1). Table 2 summarizes the sociodemographic and infection-related data of our survey participants. Among the resigned HCWs during the data collection period, our human resources database revealed new employment, career change, career advancement outside TMC, family matters, and health conditions as the reasons for the resignation. Meanwhile, for the non-completers and non-responders of the initial psychometric scales, the common reasons declared include non-interest in the study, non-consenting in answering the demographic questions, and no time to answer the tests.

The mean IES-R score of the participants is 25.5 [95% Confidence Interval (CI) = 21.4 to 29.6; partial impact]. The

Table 2. Sociodemographic Profile and Infection Characteristics of the Participants.

Characteristics (n = 93)	n (%)
Age in years (mean = 35.8, standard deviation = 8.6)	
21-30	23 (24.7)
31-40	50 (53.8)
41-50	14 (15.1)
51-60	6 (6.4)
Gender	
Male	27 (29.0)
Female	66 (71.0)
Marital status	
Single	52 (55.9)
Married	41 (44.1)
Professional category	
Health professional	36 (38.7)
Health associate professional	19 (20.4)
Health management and support personnel	38 (40.9)
Years in service (Mean = 11.0; Standard Deviation = 8.0)	
0-5	30 (32.3)
6-10	19 (20.4)
11-15	22 (23.7)
16-20	12 (12.9)
21-25	4 (4.3)
26-30	3 (3.2)
Above 30	3 (3.2)
Month of infection	
March 2020	2 (2.2)
April	3 (3.2)
May	3 (3.2)
June	1 (1.1)
July	21 (22.6)
August	11 (11.8)
September	14 (15.1)
October	17 (18.3)
November	7 (7.5)
December	3 (3.2)
January 2021	11 (11.8)
Quarantine days (mean = 17.6; standard deviation = 8.1)	
10-14	49 (60.2)
15-30	41 (44.1)
More than 30	3 (3.2)

majority of the participants (60.2%) scored within the normal range. More than one-fifth (20.4%) of the participants had high scores (>37), which we interpreted as those with severe posttraumatic stress symptoms. The average scores of the participants in the symptom subscales are 1.2 (95% CI=0.9-1.3) for intrusion, 1.0 (95% CI=0.8-1.1) for avoidance, and 0.9 (95% CI=0.7-1.1) for hyperarousal. For DASS-21, the overall mean score is 25.9 (95% CI=20.6-31.2). For

Table 3. Psychological Profiles of the Participants based on the Impact of Events Scale-Revised (IES-R) and Depression, Anxiety, and Stress Scale (DASS-21).

Scoring Interpretation	IES-R Responses n (%)	DASS-21, Depression Scale n (%)	DASS-21, Anxiety Scale n (%)	DASS-21, Stress Scale n (%)
Normal	56 (60.2)	62 (66.7)	49 (52.7)	73 (78.5)
Partial impact ^a /mild	12 (12.9)	12 (12.9)	9 (9.7)	5 (5.4)
Probable PTSD ^a /moderate	6 (6.5)	6 (6.5)	20 (21.5)	4 (4.3)
Severe	19 (20.4)	5 (5.4)	6 (6.5)	7 (7.5)
Extremely severe	Not applicable	8 (8.6)	12 (12.9)	2 (2.2)

^aCounterpart scoring interpretation for IES-R Scale.

the subscales, 8.1 (95% CI=6.9-9.2; normal to mild) is the mean score for depression, 7.4 (95% CI=6.5-8.3; normal to mild) for anxiety, and 10.1 (95% CI=8.7-11.5; normal) for stress. Most of the respondents have normal scores for depression (66.7%), anxiety (52.7%), and stress (78.5%) subscales. Several participants reported mild depression (12.9%), moderate (21.5%), and extremely severe (12.9%) anxiety. We presented a summary of these findings in Table 3.

We hypothesized significant differences in the psychometric scores of each professional category, age group, service tenure, and quarantine length group, given the nature and level of exposure based on profession, diversity in age groups, and variability in quarantine days of the recovered HCWs. Table 4 shows the results of the ANOVA and post hoc tests for each mentioned category. We found that health professionals have the highest anxiety scores compared to health associate professionals, health management, and support personnel (p -value = .03, effect size = 0.61). Meanwhile, participants who are less than 30 years old have the highest depression (p -value < .01, effect size = 1.02-1.58), anxiety (p -value < .01, effect size = 0.97-1.71), and stress (p -value = .01, effect size = 1.33-1.57) scores compared to other groups. Similarly, HCWs with lower tenure (less than 5 years) have higher depression (p -value = .04, effect size = 1.45-1.82) and anxiety (p -value = .03, effect size = 0.97-1.61) scores than those working for more than 30 years in the hospital. HCWs who are quarantined for less than 14 days have lower depression (p -value = .01, effect size = 0.58-1.15) scores than those who are quarantined for 14 or more days. Finally, based on the independent t -test, females have significantly higher depression scores than males, though at an almost moderate effect size (p -value = .048, effect size = 0.53). The independent t -test did not reveal significant findings for the marital status variables.

Phase 2: Lived Experiences of COVID-19-Recovered Healthcare Workers

For the qualitative phase, we recruited eight female and three male participants. Eight participants are classified as health management and support personnel, two are health professionals, and one is a health associate professional. The average

IES-R score of the participants is 37.4 (with severe impact), while their average DASS-21 scores are: 12 for depression (mild), 12 for anxiety (moderate), and 15 for stress (mild). Our data analysis produced 37 codes, 13 subthemes, and 5 themes (Table 5). The five main themes identified from the lived experience of COVID-19-recovered HCWs are: living in uncertainty, living in distress, living in fatigue, living in dissociation, and living in value of life. The themes presented are based on the confirmed experience of the participants throughout their journey of recovery from COVID-19.

Theme 1: Living in uncertainty. Participants experienced worry, paranoia, and being preoccupied with complex situations and worst-case scenarios. The majority of them reported being helpless by not knowing what to do during the recovery process, how to explain their feeling, and how to feel normal again. They also expressed the need for someone to validate their feelings, reflecting that they haven't talked to experts or their support systems about it. All participants experience certain forms of social anxiety, such as uneasiness around groups of people, hesitation to go to public areas, and inability to initiate social interactions. These experiences stem from their mindset that they might still be contagious (during recovery) or they might get reinfected (post-recovery). The following translated statement from a participant sums up their experiences described as living in uncertainty:

"After [recovering from] COVID-19, I feel paranoid, especially when there are a lot of people. I feel afraid. I feel uneasy because I might get infected again if I am with a [COVID-19] positive person. I don't want to be in a big scene." (Participant 3, Female)

Theme 2: Living in distress. Participants reported fears related to the infection process and social validation. These include fear that their family will get COVID-19, recurrence of the infection and its long-term effects, discrimination, invalidation in the neighborhood, and being blamed as the origin of the infection in the community. Meanwhile the posttraumatic stress symptoms that most of the participants described include avoidance of stimuli that will make them recall their experience (ie, hearing ambulance, sight of quarantine facilities), feeling traumatized when COVID-19 is mentioned,

Table 4. Analysis of Variance (ANOVA) with Tamhane's T2 post hoc test evaluation of the different variables with the participant's scores in Impact of Event Scale-Revised (IES-R) and Depression, Anxiety, and Stress (DASS-21) subscales.

Variables	ANOVA		Tamhane's T2					
	F ^a	p ^b	Variable comparison ^c	MD ^d	SE ^e	p ^f	95% CI ^g	
Professional category								
IES-R Score	<.01	.99	na ^{**}	nc ^{***}	nc	nc	nc	nc
Depression Score	0.92	.4	na	nc	nc	Nc	nc	nc
Anxiety Score	3.61	.03*	HP and HMSPh	5.36	2.08	.04	0.26	10.47
Stress Score	2.75	.07	na	nc	nc	nc	nc	nc
Age Group								
IES-R Score	2.66	.06	na	nc	nc	nc	nc	nc
Depression Score	5.95	<.01*	<30 and 41-50 years	9.44	2.88	.02	1.39	17.48
			<30 and >50 years	13.44	2.58	<.01	6.08	20.79
			31-40 and >50 years	6.32	1.36	.03	2.56	10.08
Anxiety Score	6.37	<.01*	<30 and 41-50 years	8.44	2.78	<.01	.7	16.18
			<30 and >50 years	13.54	2.49	.03	6.46	20.61
			31-40 and >50 years	6.43	1.48	<.01	2.14	10.71
Stress Score	4.03	.01*	<30 and >50 years	13.22	2.48	<.01	6.05	20.38
			31-40 and >50 years	8.28	1.25	<.01	4.87	11.69
			41-50 and >50 years	6.43	1.63	.01	1.39	11.46
Service Tenure								
IES-R Score	1.22	.41	na	nc	nc	nc	nc	nc
Depression Score	2.27	.04*	<5 and >30 years	11.73	2.18	<.01	4.53	18.93
			11-15 and >30 years	8.33	1.51	<.01	3.11	13.56
			<5 and 16-20 years	8.17	2.48	.04	.13	16.21
Anxiety Score	2.48	.03*	<5 and >30 years	12.33	2.08	<.01	5.47	19.2
			6-10 and >30 years	9.12	2.26	.01	1.28	16.97
			11-15 and >30 years	6.152	1.53	.01	.87	11.43
Stress Score	1.42	.21	na	nc	nc	nc	nc	nc
Quarantine days								
IES-R Score	.92	.4	na	nc	nc	nc	nc	nc
Depression Score	4.75	.01*	<14 and 15-30 days	-5.47	2.04	.03	-10.48	-4.46
			15-30 and >30 days	9.51	2.14	<.01	3.89	15.13
Anxiety Score	2.47	.09	<14 and 15-30 days	-4.68	2.06	.08	-9.73	.37
Stress Score	2.86	.06	na	nc	nc	nc	nc	nc

^aF-value at the corresponding degrees of freedom.

^bp-value of one-way ANOVA.

^cVariables within the category with significant differences between each other.

^dMean difference.

^eStandard error.

^fp-value in Tamhane's T2 test.

^g95% confidence intervals (lower limit-upper limit).

^hHealth professionals (HP) and health management and support personnel (HMSp).

*Significant at p-value < .05.

**Not available due to insignificant result in ANOVA.

***Not computed due to insignificant result in ANOVA.

and difficulty sleeping at night. The following translated statement from a participant sums up their experiences described as living in distress:

"I'm afraid that I might be judged by the people. I might get discriminated against. Our landlord does not want to accept us anymore because we might be contagious. We don't want to go out anymore because they might think that when someone tested

positive [in our community], we are the source [of the virus]."
(Participant 5, Female)

Theme 3: Living in fatigue. The majority of the participants reported a general feeling of sadness and tiredness even after recovery from COVID-19. Most of the participants felt sad because they were quarantined far from home or alone in quarantine facilities most of the time. After recovery, several

Table 5. Themes, Subthemes, Codes, and Code Frequency from the Qualitative Analysis of the FGD.

Themes	Subthemes	Codes	Code frequencies ^a
Living in uncertainty	Intrusive thoughts	General feeling of anxiety and uneasiness	P1-3/P3-4/P4-4/P5-1/P9-3/P10-1/P11-3
		General feeling of worry	P1-2/P3-5/P4-5/P5-1/P6-2/P7-4/P9-2/P10-2/P11-1
		Feeling preoccupied	S3-1/S4-1/S6-1
		Thinking of complicated situations	P2-1/P3-3/P4-1/P5-1/P6-2/P9-3/P10-1/P11-1
		Entertaining the worst-case scenario that could happen	P1-2/P3-5/P4-1/P6-1/P7-1/P9-1/P10-1
	Helplessness	Do not know how to overcome the situation	P1-1/P3-1/P4-1/P5-1/P7-1/P9-2/P10-1/P11-1
		Need for someone to validate their feelings	P1-1
		Need for a sense of normalcy	P5-1
	Social anxiety	Feeling uneasy around groups of people	P1-2/P3-1/P4-2/P5-2/P6-2/P9-3/P10-1
Hesitation to go to public areas		P1-2/P4-2/P5-1/P6-1/P9-2/P10-2	
Inability to initiate social interactions		P1-3/P3-3/P4-3/P6-2/P7-1/P9-4/P10-2	
Living in distress	Induced fear	Fear of family contracting the infection	P1-3/P2-1/P3-7/P4-6/P5-6/P6-3/P7-4/P9-1/P10-2
		Fear of recurrence of the infection	P3-1/P4-2/P6-1/P7-1/P9-2/P10-2/P11-4
		Fear of the long-term effect of the infection	P3-1/P4-3/P6-1
		Fear of discrimination and invalidation	P1-3/P3-4/P4-3/P5-1/P6-4/P7-2/P8-2/P9-3
		Fear of being blamed as the source of infection	P1-5/P3-3/P4-2/P6-1/P8-1/P9-2
	General distress	Do not want to hear things that would recall the past infection events	P1-2/P4-3/P5-1/P6-1/P7-1
		Feeling traumatized	P2-1/P3-3/P4-3/P5-2/P8-1/P9-1/P10-2/P11-1
		Difficulty in sleeping	P8-1/P10-1
		Homesick	P1-1/P2-2/P3-1/P4-1/P5-1/P6-1/P7-1/P10-1
Living in fatigue	Feeling of sadness	Loneliness	P1-1/P2-2/P3-1/P4-3/P5-1/P6-1/P7-1/P10-1
		Limited energy in work	P1-2/P3-3/P4-1/P6-1/P11-3
	Feeling of tiredness	No drive to finish tasks	P1-2/P3-3/P4-1/P10-2/P11-3
Living in dissociation	Brain fogginess	Disorganized thoughts	P1-3/P3-5/P4-3/P5-2/P6-1/P7-1/P10-1/P11-1
		Unfocused on doing tasks	P1-2/P3-3/P4-3/P5-2/P7-1/P11-1
		Staring blankly	P4-3/P6-1
	Detachment from self	Not feeling oneself	P1-1/P3-2
		Noticeable changes in the mood and behavior	P3-4/P5-2/P6-1/P7-1/P10-1
		Feeling crazy	P3-3/P5-1/P6-1
Living in value of life	Cognitive dissonance	Asking oneself about the mistakes done leading to the situation	P1-1/P4-3
	Fatalism	Letting go of uncontrollable things in life	P3-1/P4-1/P5-1/P6-1/P7-2/P8-2/P10-1/P11-1
	Mortality salience	Feeling that life is short	P4-1/P5-1/P6-1/P7-1
		Feeling that death may come anytime	P3-1/P6-1
	Valuation of human experience	Life is worth living	P1-1/P2-1/P4-1/P6-1/P7-2/P8-2/P11-1
Feeling of resiliency	P1-1/P3-1/P4-2/P5-2/P8-3/P9-1/P10-2		
Appreciation of support from family and work	P9-3/P10-4/P11-2		

^aP1-P11: Participants 1 to 11.

participants reported having limited energy at work or no motivation to finish tasks. The following translated statement from a participant sums up their experiences described as living in fatigue:

“[After recovering from COVID-19], I feel like my energy got lost. Before [COVID-19], I can work overnight, even past my duty hours. Two to three months after recovering, after 5 PM [end of shift], I feel weak.” (Participant 1, Female)

Theme 4: Living in dissociation. The majority of the participants felt dissociated from their usual professional and personal

lives after COVID-19. In terms of their professional lives, most participants reported having disorganized or unfocused thoughts leading to unfinished tasks. Two participants even reported staring blankly for long periods during their work performance. Meanwhile, several participants reported self-detachment, cognitive dissonance, and a fatalistic mindset in their personal lives. They manifested self-detachment by consciously identifying that they are not the same as they were before their infection (in terms of general mood and behavior) and that, at times, they feel crazy. They also manifested cognitive dissonance by asking themselves if they had

made mistakes that led to their infection. This phenomenon persisted even after recovery. Lastly, most participants retreated by adopting a mindset to let go of uncontrollable things in their lives, such as other people's perceptions, risk of reinfection, and the long-term effects of COVID-19. The following translated statement from a participant sums up their experiences described as living in dissociation:

"I'm really afraid. Is this me? I have so many plans that I cannot finish. My mom even told me that my attitude changed. Sometimes I feel crazy. I want to shout. I feel like I can't breathe."
(Participant 5, Female)

Theme 5: Living in value of life. Although most of their experiences have negative impacts, the participants still cited some realizations and positive effects after recovering from COVID-19. For instance, several participants experienced mortality salience or the feeling that there is an inevitable death in this pandemic situation. With this realization, most participants mentioned that they now value their life more by living every day to the fullest, being more resilient, and being more appreciative of their families and work. In particular, they cited celebrating after their recovery, allotting more family bonding times, and being more empathic toward their co-workers who also got infected with COVID-19. The following translated statement from a participant sums up their experiences described as living in value of life:

"After I exited the quarantine facility, I immediately bought rocky road [ice cream]. I want to eat every food I missed. [I want] to go back to normal. I want to relax. It feels like there is a scar left in my existence, but I want to reset. I want to restart [my life]." (Participant 6, Female)

Explanatory-sequential analysis

We confirmed the findings of our qualitative analysis by re-examining the results of the psychometric tests. The experiences described by our participants as living in uncertainty corroborated our finding that the intrusion subscale has the highest average score in IES-R compared to others, albeit only to a minimal degree. As described recently, the intrusion subscale represents factors including mind pre-occupation, frequent thoughts of the experience, and the need to express their feelings,⁴⁰ majority covering the experience of our recovered HCWs. Meanwhile, living in distress matches our finding that COVID-19 significantly impacted the recovered HCWs based on the overall IES-R scores. Living in fatigue matches our result that a certain degree of depression was felt by our participants, as indicated in the overall depression subscale score. While fatigue may not directly equate to depressive symptoms, a mild depression profile, taken with other psychological disturbances, may significantly contribute to the manifestation of COVID-19-related fatigue.⁴¹ Similarly, living in dissociation could also be reflected in the significant overall scores of participants in the IES-R and

depression and anxiety subscales of DASS-21. Stress was not an essential finding in our qualitative analysis, and it corroborated with the overall low score of our participants in the stress subscale. The experiences described as living in value of life is a finding not captured by the administered psychometric tests.

Discussion

The present study reports the psychological effects of COVID-19 on recovered Filipino HCWs. It is among the first to describe their actual lived experience throughout their recovery and return to the frontline. We conducted this study during the period when recovered HCWs still have no access to vaccination, and the knowledge about the virus is still sparse. We believe that this timing reflects the actual psychological status of the participants at the highest state of the stimulus (COVID-19), given that no solution has been offered at the time. In brief, our findings provided insights on the critical aspects to consider in managing hospital human resources during a global crisis.

Our results reported a higher mean score in COVID-19-related distress (IES-R score = 25.5) than the general Filipino population at the onset of the pandemic (IES-R score = 19.6¹¹). Meanwhile, recovered HCWs had a similar overall depression, anxiety, and stress (DASS-21 score = 25.9) compared to the general public (average DASS-21 score = 25.9).¹¹ Upon subscale comparison, as presented in another study, it appears that the recovered HCWs have slightly lower stress (mean score of 10.1 vs 10.6) and depression (mean score of 8.1 vs 9.7), and marginally higher anxiety (mean score of 7.4 vs 7.3) than the general population.⁴² We also compared the psychometric test results of the recovered HCWs with that of the general Filipino HCWs. Tee et al reported in their sub-analysis that 87.8% of the general HCWs have normal to mild distress based on IES-R.¹¹ Our study found that only 73.1% of recovered HCWs scored normal to mild in IES-R, with a high percentage (20.4%) reporting severe posttraumatic stress symptoms. This result may indicate that, although HCWs may intrinsically experience high distress due to the nature of their jobs, those who contracted COVID-19, eventually recovered, and got back to the frontline may have an even higher level of impact. Studies in other countries support this insight.^{20,21} Our study reported an almost similar percentage of participants with normal to mild depression and stress, and a higher rate (40.9%) of recovered HCWs with at least moderate anxiety than Tee et al (26.6%).¹¹ Zahoor et al²⁷ reported that there appears to be no significant difference in the relative risk of developing depression and anxiety among recovered versus non-infected HCWs, although a longitudinal study to monitor the development of these psychological effects over time may be necessary. Upon comparing our results with HCWs from other developing countries, we reported lower percentages of depression (33.4% vs 44%) and anxiety (47.3% vs 78%) in our

recovered HCWs vs. the general HCWs in Bangladesh.^{15,43} However, subscale analysis among those with psychometric findings revealed predominance of those with mild depression and mild to moderate anxiety,⁴³ similar to what we have observed with our recovered HCWs. While developing countries may have similar overall demographic and economic profiles, other factors such as cultural resiliency, coping mechanisms, and government response could have affected the overall impact of the pandemic on the HCWs. These factors may have resulted in the differences in mental well-being as observed in the different countries. The findings of our study could add information to the limited studies conducted on the Filipino population.

Our study found that certain factors may affect the perceived impact of COVID-19 on the recovered HCWs. We found that younger HCWs, specifically those below 30 years old, are more likely to have higher depression, anxiety, and stress levels compared to the older HCWs. Similar findings have been reported elsewhere, indicating that the young population tends to think of themselves as strong and invulnerable, resulting in extreme shock and psychological detriments when they get infected.⁴⁴ Some researchers suggested that older HCWs deal better with the pandemic because of their vast experience in the field.⁴⁵ Hence, it is not surprising that we reported HCWs with high tenure, specifically those working in the hospital for more than 30 years, to have lower depression and anxiety levels than the younger workers. The length of quarantine or isolation also seems to affect the levels of depression and anxiety of the recovered HCWs, with more extended quarantine being related to higher psychometric scores. This result has also been reported in other studies, suggesting that the longer the quarantine, the longer the participants experience the stressor.^{46,47} Finally, we found that the different types of HCWs have different anxiety levels, with health professionals being more anxious than the health management and support personnel. This result is similar to the anxiety levels found between medical (patient-facing) and administrative (non-patient-facing) staff, as reported elsewhere.^{13,14} Larger representations from different HCW categories may be needed to confirm if there are differences in mental health outcomes correlated to the profession's levels of patient exposure. We found no difference in the event-related distress between the different groupings of the recovered HCWs, possibly indicating that regardless of the sociodemographic or infection characteristics, all of them are susceptible to developing posttraumatic stress symptoms.

The quantitative psychometric evaluations may not capture other in-depth psychological effects of COVID-19 on the recovered HCWs. Therefore, our study also explored their actual lived experience and related it to their results in IES-R and DASS-21. The themes we reported may indicate some aspects of the patients that may not be directly explored in most mental health studies of the survivors but are otherwise essential to address. However, it should be noted that

these experiences are from recovered HCWs with high scores in terms of IES-R and DASS-21, indicating that they may be more applicable only to those vulnerable to developing mental health issues or those psychometrically screened to have these conditions. The experiences under the theme "living in uncertainty" may reflect the participant's lack of knowledge about the infection (ie, infection process, pathology, and outcomes). These experiences may have caused the confusion and anxiety described by our participants even after recovering from the infection. This phenomenon has been described in another qualitative study on COVID-19 survivors.²⁸ Meanwhile, the experiences under the theme "living in distress" prelude the participant's complicated thought processes related to the observed effects in the previous theme. The fears described under this theme are commonly reported and may evolve into more significant psychological impacts such as anxiety and depression.²⁸ The experiences under the theme "living in fatigue" and "living in dissociation" may indicate a lack of social, emotional, and psychological support for the participants, either through their personal, social, or professional circles. As reported in another study, work dissociation has also been a significant psychosocial effect among recovered Chinese HCWs.¹⁸ Alarmingly, one study indicated that feelings of abandonment, frustration, and apathy in the workplace might eventually lead to gradual resignation.⁴⁸ Hence, these feelings and experiences that the recovered HCWs reported must be something that the hospitals should consistently monitor. Finally, the experiences under the theme "living in value of life" may correspond to the participants' hope for a better life after recovery, and a better understanding of the living conditions during a global crisis. Other studies also reported the increased valuation of life among recovered patients, focusing on the increased spirituality among critically ill survivors.⁴⁹ Our qualitative data corroborated our quantitative results by exposing potential underlying reasons for the observed psychological phenomena.

Studying the long-term post-COVID-19 effects (i.e., "long COVID") has been a growing interest globally. These effects on the recovered patients may manifest as neurological or neuropsychiatric symptoms, ranging from fatigue, weakness, impaired balance, and concentration or memory problems, among others.^{50,51} As these symptoms may directly overlap with mental health disorders, proper evaluation of developing chronic stress, depression, anxiety, or PTSD can be warranted for all recovered HCWs. As the study of "long COVID" is still evolving, it is currently hard to eliminate these confounding long-term effects in inferring the development of mental health disorders.

Limitations

The current study has several limitations. First, the cross-sectional data collection design may not capture the evolving experience of the recovered healthcare workers. However, as

we are reporting the baseline data for the recovered Filipino HCWs, we believe that our study provided important insights that can be studied and explored further in the future. Second, we could not control and minimize the risk of systematic order bias since the sequences of the IES-R, and DASS-21 questions were not randomized. Nevertheless, the reliability coefficients of the two scales in our present study were considered high. Third, our study only collected data from a single institution and may not reflect the psychological status and actual lived experience of recovered HCWs from other healthcare institutions. Despite this, the TMC facility served as a major COVID-19 hospital in the Philippines, making us believe that our observations are valid and more likely synonymous with that of the other COVID-19 hospitals in the country. Fourth, our study did not consider the long-term post-COVID-19 psychopathological effects, which may confound the results of the psychometric evaluations and FGD. Our study did not intend to replace formal psychological evaluations for the development of neuropsychiatric disorders in these recovered HCWs. Lastly, our study captured only a limited number of participants, and the gender representation for each phase may not be equal. Therefore, readers should take caution in interpreting and generalizing our results. We believe that our statistical tools and diversity of our data collection methods (quantitative and qualitative) helped improve the level of our analysis, making it a valid study to address our objectives.

Conclusion

The psychological effects of COVID-19 vary in different populations. Our study reported the psychological impact and lived experience of the relatively understudied recovered HCWs in a major COVID-19 hospital in the Philippines. We found that a high level of COVID-19-related distress is rampant among the recovered HCWs, and this effect may evolve into severe posttraumatic stress disorder if not addressed immediately. We also found a mild degree of depression, stress, and significant anxiety levels among the recovered HCWs affected by various sociodemographic and quarantine factors. Future studies on HCWs should explore these factors and provide more precise insights on how to address them holistically. Future studies can also extend the qualitative analysis to the recovered HCWs with low psychometric scores or modify it to personal in-depth interviews to capture more generalizable data on the population's lived experiences. Equal representation from both male and female HCWs may also be warranted. Finally, we recommend expanding the study to look into other protective and community factors that could affect the overall psychometric scores and experience of the recovered HCWs.

Addressing the psychological states and needs of HCWs, particularly those who returned to the frontline after recovery, should be prioritized as these effects might negatively impact the quality of patient care and hospital management. As

learned previously, organization-wide interventions and support to HCWs, particularly the recovered ones, are critical in ensuring the protection of the worker's well-being while maintaining an effective work environment.¹⁹ In the context of local healthcare management, government or private institutions may prepare HCWs for the long-term psychological effects of the pandemic by providing sufficient mental health training, aligning workload, increasing hospital management support and motivation, recognizing staff contribution, and increasing access to healthy coping mechanisms (green spaces, gymnasiums, etc.).⁵² Increasing the availability and access to psychiatric support institutions at the national level could also benefit the recovered HCWs. In the end, mentally incapacitating our HCWs through apathy and ignorance of their call for help is a risk that we should not be taking, especially during a global health crisis.

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Availability of Data and Material

The datasets generated during and/or analyzed for the current study are available from the corresponding author upon reasonable request.

Code Availability

Not applicable.

Ethics Approval

The Medical City Institutional Review Board approved the protocol for this study, with a research registry number of GCS-2020-160.

Consent to Participate

Each participant gave their informed consent before participation. Participants were briefed on the nature of the study, were aware that their participation was purely voluntary without remuneration, and was assured that all data collected will be kept confidential,

CRedit Authorship Contribution Statement

Mark B. Carascal: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing- original draft, Writing-review & editing, Supervision, Project administration. Pedro E. Capistrano: Conceptualization, Methodology, Formal analysis,

Investigation, Data curation, Writing- review & editing. Marlouie DL Figueras: Formal analysis, validation, Investigation, Data curation, Writing- review & editing. Osmuniard Lanz Angelo C. Cataylo: Methodology, Investigation, Data curation, Writing- review & editing. Spencer Mathew S. Zuñiga: Methodology, Investigation, Data curation, Writing- review & editing. Marc Eric S. Reyes: Formal analysis, Writing- original draft, Writing- review & editing. Kathleen Kaye S. Medriano: Formal analysis, Writing- original draft, Writing- review & editing. Anthony T. Gamo: Conceptualization, Data curation, Writing- review & editing. Paz D. Mendoza: Data curation, Writing- review & editing. Shirley Luz B. Macalipay: Conceptualization, Methodology, Data curation, Writing- review & editing, Supervision, Project administration.

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