

Fear, Anxiety, and Depression among Employees of the Department of Rehabilitation Medicine-Philippine General Hospital amidst Changes from the COVID-19 Pandemic: A Cross-sectional Study

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ABSTRACT

Objective. This study described levels of fear, anxiety, depression, and contributing factors among health providers and administrative staff of the Department of Rehabilitation Medicine, Philippine General Hospital (PGH-DRM) during the COVID-19 pandemic.

Methods. The cross-sectional study was conducted from August to November 2020. We recruited 71 participants who were working in the premises of the hospital and those who were working from home by purposive sampling. The fear numerical rating scale and Hospital Anxiety and Depression Scale were used to determine the presence of fear, anxiety, and depression. The 36-Item Short Form Survey (SF-36) was used to determine the baseline level of physical and mental wellness among participants.

Results. Seventy-three percent of the full-time, permanent employees of the PGH-DRM unit joined the study. Majority of the respondents were health providers (86%) but only one hospital staff had high-risk contact with patients with COVID-19. Most participants (63%) did a combination of on-site work and home-based work and three (4%) worked entirely from home. Moderate to severe levels of fear was reported by 54% of the participants. Fear levels were highest among those who worked on-site. Anxiety was borderline in 32%, and abnormal in 30%, while depression was borderline in 21%, and abnormally high in 34% of the participating employees. Feelings of anxiety were higher among those who worked on-site and who worked both on-site and from home, while depression was highest among those who worked from home. The SF-36 Physical Health Summary score (\bar{x} = 72.49) was higher than the Mental Health Summary score (\bar{x} = 55.45). Employees who worked from home had the highest SF-36 summary scores for both mental and physical health.

Conclusion. The employees of the DRM had low-risk contact work assignments when the PGH transitioned to a tertiary level COVID-19 referral hospital. Half of the employees experienced fear, anxiety, and depression and had low SF-36 summary scores in mental health. Further studies are needed to determine the key factors that affect their mental health and well-being during the pandemic. A relevant mental health and wellness program is strongly recommended.

Key Words: depression, anxiety, fear, COVID 19, mental health, rehabilitation medicine

INTRODUCTION

There is a growing concern over the mental health of hospital employees since the World Health Organization (WHO) declared the COVID-19 pandemic in March 2020.¹⁻⁵ A study in China showed that the rapid rise in COVID-19 cases, overwhelming workload, and depletion of equipment were common causes of psychological stress

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among their health care workers (HCW).⁶ Another study that stratified hospital staff into administrative and medical staff found higher levels of fear, anxiety, and depression in the latter group.⁷ A study in Pakistan showed that HCWs have been under mental pressure because of the high risk of infection, inadequate protective equipment, isolation, exhaustion, and inadequate contact with families.⁸ The possibility of infecting vulnerable members of the family, like the elderly, adds more mental stress.⁹ Despite these, very few HCWs readily seek or receive structured mental health care.¹⁰ In the United States (US), results of studies on the mental health of HCWs during the pandemic showed a need to augment the psychosocial programs of existing mental health support systems.¹¹ At the time of writing this paper, there were no published studies that described the outlook of Filipino HCWs during the pandemic.

Fear is defined as a negative, yet powerful emotion, which can be accompanied by a high level of arousal.¹² Anxiety is a generalized response to unknown threats or internal conflict.¹³ Depressive disorders are the second leading cause of disability worldwide.¹⁴

The Philippine General Hospital (PGH) is a premier tertiary level government facility and is the largest training hospital in the country. Soon after the onset of the pandemic it, became a COVID-19 referral center. Medical and nursing staff from various departments were pulled out of their usual duties and were decked to the COVID-19 wards. Health care workers were tasked to perform work outside their normal routines and specialties without adequate preparation. These unexpected changes in the workplace, and the threat of infection by an unfamiliar disease could affect the general well-being of employees and cause overwhelming feelings of fear, anxiety, and depression. A variety of personal factors can affect an employee's risk for mental stress, such as, their maturity, susceptibility to infection and illness, concern for family and sense of responsibility, and support system. Support programs for the mental health and well-being of the front liners and hospital staff of the DRM were not available at the time of the study. The interplay of factors that could have affected the mental health and

well-being of the employees of the PGH-DRM during the COVID-19 pandemic are summarized in Figure 1. This served as the conceptual framework for the study.

This study aimed to identify what psychological struggles that employees of the PGH-DRM are facing. It simulates the research design of the February 2020 study conducted by Wen Lu et. al at the Fujian Provincial Hospital in Fuzhou, China.⁷ Understanding the concerns of DRM employees that affect their well-being will help the hospital put in place systematic guidelines, management protocols, and wellness programs to prevent and alleviate any mental distress among its healthcare workers and other personnel during these distressing times.

The study aimed to determine the levels of fear, anxiety, depression, physical health and mental health, and contributing factors, among the health care providers and non-medical staff of the PGH-DRM during the COVID-19 pandemic.

METHODS

The target population for this descriptive cross-sectional study were all full-time, salaried employees of the PGH Department of Rehabilitation Medicine (DRM) with at least one year of continuous service. Purposive sampling was used based on the following inclusion criteria: 1) willingness to join the study, 2) ability to return the survey instrument, and 3) absence of any mental or psychological illness before the pandemic. Employees who tested positive for COVID-19 and those involved in the study were excluded. Having a previous mental illness and/or COVID-19 infection may be confounding factors affecting feelings of fear, anxiety, and depression.

The period of study was three months. Data was collected from August to September 2020 through an online survey tool that used the Google Forms software. A print copy of the tool was also available for participants who preferred this medium. The survey instrument was in English. It included a brief description of the study and summarized description of the informed consent form, with a link to the full informed

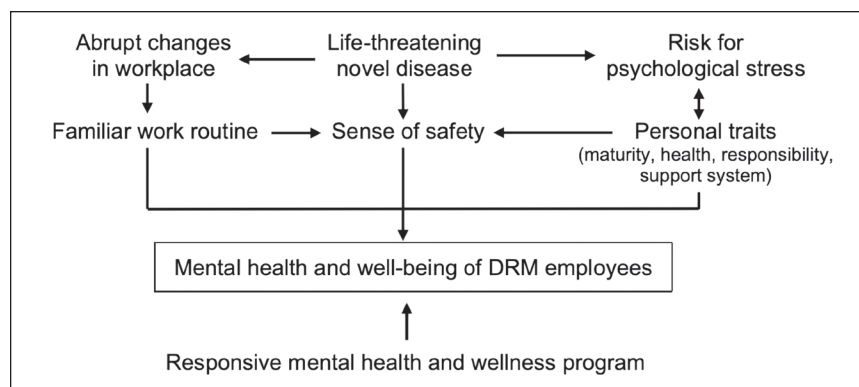


Figure 1. Conceptual framework used in the design of the study.

consent form. Most of the 67 questions were close-ended and were grouped into four sections: 1) demographic profile and current work status; 2) general well-being and Numerical Rating Scale for fear; 3) Hospital Anxiety and Depression Scale (HADS) tool, and 4) the 36-item Short-Form Survey (SF-36) instrument. Respondents were given 15 minutes to answer the questionnaire. Data collection was done once.

Questions on the general well-being of the respondents were lifted from the questionnaire used by Wen Lu et. al. at the Fujian Provincial Hospital.⁷ The questions asked about common concerns felt by health workers regarding COVID-19.

The Numerical Rating Scale (NRS) was used to assess the level of fear, with a score of 0 as no fear, 1 being least intense, and 10, being most intense feeling of fear. Scores of 1–3 were considered to be mild fear, 4–6 moderate fear, and 7–10 severe fear.

Levels of anxiety and depression were measured using the HADS for those who preferred an English questionnaire, and the Filipino Hospital Anxiety and Depression Scale (HADS-P) for those who preferred a Filipino questionnaire. The HADS was developed to provide clinicians and researchers with a reliable, valid and practical tool for identifying the two most common forms of psychiatric illness in patients (anxiety and depression).¹⁵ However, this self-rating scale is also often used to assess psychological distress in non-psychiatric patients.¹⁶ The HADS tool was validated in Filipino with a sensitivity of 75% and a specificity of 70%, and a positive predictive value of 75%.¹⁷ Interpretation and analysis of HADS-P is the same with HADS. Scores range from 0 to 21. A score of 0–7 is normal; 8–10 indicates borderline abnormal; and 11–21 indicates an abnormal score.

The physical component summary (PCS) and the mental component summary (MCS) of the 36-item Short Form (SF-36) were used to assess the physical and mental health status of the DRM employees. The SF-36 health survey tool has eight multi-item health concepts.¹⁸ The PCS score is the average score in the domains on 1) physical functioning, 2) role limitations caused by physical health problems, 3) body pain, and 4) general health perceptions. The average score of the remaining four domains on 5) energy/fatigue or vitality, 6) social functioning, 7) role limitations caused by emotional problems, and 8) emotional well-being, made-up the MCS. A Swedish study that used the SF-36 to measure health-related quality of life among adolescents standardized the PCS and MCS scores to a mean of 50 and set scores above 50 to represent better than average function, and scores lower than 50 as poorer than average function.¹⁹

All data were processed electronically using the Microsoft Excel and STATA 13.1 (StataCorp. 2013. Stata Statistical Software: Release 13. College Station, TX: StataCorp LP) software's. Scores for the NRS, HADS and SF-36 were obtained. Continuous variables were presented as mean and standard deviation (SD) while categorical variables were presented as frequencies and percentages.

Missing values were neither replaced nor estimated. P values ≤ 0.05 were considered statistically significant. Differences among subgroups (employees working on-site and working from home) were determined using the mean difference. Staff working on-site was subgrouped into COVID and non-COVID ward rotators and differences were also determined using mean difference.

RESULTS

Of the 97 full-time employees of the PGH-DRM, only 71 were eligible to join the study based on the inclusion and exclusion criteria. This represents 73% of the full-time tenured employees of the department. This number was enough to reach a 0.05 α -level of significance and 80% power. This was based on an assumed 0.3162 correlation coefficient or a 10% R^2 of simple binary logistic regression analysis of any factors in predicting fear, anxiety or depression. Fourteen staff were ineligible due to the following reasons: 3 were part of the study, 2 did not give consent, 2 became COVID-19 positive, and 7 had pre-existing mental/emotional illness. All nursing staff were excluded because they were operationally employees of a special division under PGH, and not the DRM.

Most participants were 20 to 30 years old [$n = 53$ (75%)], predominantly female [$n = 45$ (63%)], and have been employed for an average of 1 to 5 years [$n = 43$ (61%)]. Majority (53%) were paramedical staff, 33% were medical staff, and 14% non-medical staff. Most paramedical staff were rehabilitation therapists: 27% were physical therapists (PT), 14% occupational therapists (OT), 6% were speech and language therapists (SLT) and 6% were psychologists. For the medical staff, there were more resident (23%) than consultant (10%) respondents. Of the 10 non-medical staff, 7 were maintenance personnel and 3 were secretarial staff. Twenty-four (34%) respondents reported living with an elderly. Differences in the demographic profile variables of the participants investigated were not statistically significant in terms of: age ($p = 8.68$), sex ($p = 0.49$), number of years employed ($p = 6.43$), work status ($p = 0.94$), work location assignment ($p = 0.33$), and number of people > 60 years old living with participant ($p = 0.80$).

Only three (4%) employees worked entirely from home. Most of the department staff (63%) alternated between reporting on-site and working from home. Majority [$n = 61$ (86%)] of the DRM employees did not have direct contact with persons who were COVID-19-positive. Of the ten participants who had direct contact with infected patients, half were exposed for three weeks or more. Eight of these ten respondents were health providers assigned to COVID-19 wards in PGH, while two had direct contact outside of the workplace. There was no significant difference in terms of exposure to the disease ($p = 0.52$) among the participants. Seven respondents (10%) reported having previous emotional/mental health issues. Eight participants

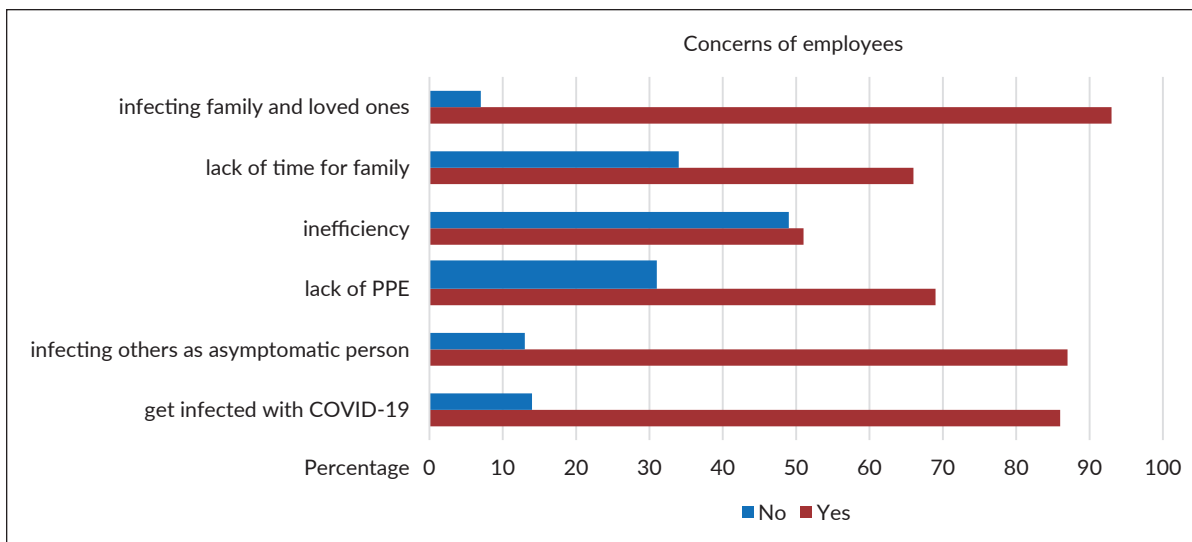


Figure 2. Percentage distribution of responses of DRM employees to questions on concerns related to the pandemic.

did not answer the question. The P-value for this item was not statistically significant.

Figure 2 shows the distribution of the respondents regarding concerns related to the pandemic. Most respondents were concerned about getting infected with COVID-19 and being a source of the infection especially for their loved ones. More than half felt they have less time for the family and were concerned about the lack of personal protective equipment (PPE). Nearly half of the employees expressed inefficiency during the pandemic.

Only 70% of the participants rated their level of fear using the NRS. In this group of 50 respondents, 76% had NRS scores within the moderate-to-severe levels of fear. None of them reported an absence of fear (score of 0) nor worst imaginable fear (score of 10). The mean NRS score was 5.

The mean HADS score was 9.18 for HADS-Anxiety with 32% in the “borderline abnormal” range (score 8 to 10), and 30% in the “abnormal” anxiety range (score 11 to 21). The mean score for HADS-Depression was 8.15. The HADS survey results showed abnormally high depression in 34% of the respondents, and borderline depression in 21%.

The mean scores for both mental and physical health component summary scores were above 50. However, the mean MHC score (\bar{x} = 55.45) was much lower and closer to the lower limit for average function, compared to the mean PHC score (\bar{x} = 72.49). Table 1 presents the mean scores for each of the eight health domains in the SF-36. The highest mean score was for the sub-scale on physical functioning, and the lowest means scores were for vitality and role limitations due to emotional problems. More than half of the respondents had below-average function for vitality.

Mean scores for the subgroup analysis is summarized in Table 2, while the mean difference and P-values are presented in Table 3.

Table 1. Mean scores and standard deviation (SD) for the eight health domains and component summaries of the SF-36 health survey

Health domain or sub-scale	Mean	SD
SF-36 Physical Functioning	85.28	15.809
SF-36 Role Limitation (Physical)	67.61	38.821
SF-36 Body Pain	75.60	18.398
SF-36 General Health	61.48	13.820
SF-36 Vitality	46.93	18.011
SF-36 Social Functioning	62.20	22.805
SF-36 Role Limitation (Emotional)	50.23	40.187
SF-36 Mental Health	62.42	19.868
SF-36 Physical Health Summary	72.49	15.297
SF-36 Mental Health Summary	55.45	18.185
Overall SF-36 Summary score	63.97	

Table 2. Comparison of mean scores for NRS, HAD-Anxiety, HAD-Depression, SF-36 MHC, and SF-36 PHC summary scores among the participants sub-grouped by place of work

Scale	Work from home (N=3)	Work on-site (N=23)	Mixed worksite* (N=45)
NRS	3.67 (±0.58)	5.86 (±1.66)	4.54 (±1.88)
HAD-Anxiety	5.33 (±0.58)	9.39 (±0.58)	9.33 (±4.19)
HAD Depression	13.33 (±1.53)	7.83 (±3.99)	7.98 (±4.49)
SF-36 MHC	79.25 (±2.61)	52.26 (±17.84)	55.49 (±17.96)
SF-36 PHC	88.33 (±3.82)	64.51 (±17.14)	75.51 (±12.85)

MHC, mental health component; PHC, physical health component summary score; HAD, Hamilton Anxiety and Depression; SF, Short Form

*Mixed worksite - employees who sometimes worked from home and on other days were required to report to the PGH-DRM workplace

Table 3. Summary of mean difference in scores between WOS, WFH and WOS-WFH groups

Dependent Variable	Sub-group Analysis 1: Working on-site or from home		Mean Difference	P-Values
Numerical Fear Scale Rating (1-10)	On-Site	From Home	2.194	0.005
		Both	1.325	0.042
		From Home	-2.194	0.005
	From Home	On-Site	-0.869	0.232
		Both	-1.325	0.042
		From Home	0.869	0.232
HADS³-Anxiety	On-Site	From Home	4.058	0
		Both	0.058	0.998
	From Home	On-Site	-4.058	0
		Both	-4.000	0
	Both	On-Site	-0.058	0.998
		From Home	4.000	0
HADS-Depression	On-Site	From Home	-5.507	0.007
		Both	-0.152	0.989
	From Home	On-Site	5.507	0.007
		Both	5.356	0.011
	Both	On-Site	0.152	0.989
		From Home	-5.356	0.011
SF-36 Physical Health Summary	On-Site	From Home	-23.822	0
		Both	-11.003	0.027
	From Home	On-Site	23.822	0
		Both	12.819	0.011
	Both	On-Site	11.003	0.027
		From Home	-12.819	0.011
SF-36 Mental Health Summary	On-Site	From Home	-26.986	0
		Both	-3.223	0.763
	From Home	On-Site	26.986	0
		Both	23.763	0
	Both	On-Site	3.223	0.763
		From Home	-23.763	0

WOS, Work on-site; WFH, Work from home; HADS, Hospital Anxiety and Depression Scale; SF, Short Form

The three employees who worked entirely from home had the lowest NRS scores for fear, were the least anxious and had the highest physical and mental health component summary scores. However, their HADS showed abnormally high depression. The psychological status of the respondents who reported to the hospital, whether full-time or part-time were similar. More participants in these two groups had moderate-to-severe levels of fear, borderline abnormal to abnormal levels of anxiety and depression and had lower MHC and PHC scores. However, the physical health status was poorer for those working entirely on-site. The better physical and mental health scores of the work-from-home group was statistically significant when compared to the two other groups. The poorer physical health scores of the work-on-site group was also statistically significant when compared to the other two groups.

DISCUSSION

The study hypothesized that the COVID-19 pandemic affected the mental health and general well-being of the employees of the PGH-DRM because of the threat to life by the novel virus and the abrupt changes in the normal routine of the staff when the hospital transitioned to a COVID-19 referral hospital. The study was done when the COVID-19 cases averaged about 8,000 to 9,000 daily and vaccines were not yet available.²⁰ Results of the study revealed emotions of fear, anxiety, depression and low mental health component summary scores in more than half of the DRM employees. The authors can only assume that their current mental health is related to the pandemic. The results of this study is best analyzed against data on their pre-pandemic mental health status, and/or in comparison with other hospital employees in PGH, and/or medical rehabilitation groups. The SF-36 survey scores, in particular, are best evaluated against a normative data.^{21,22}

The use of a purposive sample with high variability and small representative size could also affect the inferential analysis of the collected data. The design of this study duplicated the research in Fuzhou, China which was a hospital-wide survey with 2,299 respondents. Psychological stresses were highest with hospital personnel with high-risk contact with patients with COVID-19. Although PGH is also a large public government hospital, this study was limited to employees of one of the smaller departments in PGH. In this study only eight (11%) medical staff rotated in the PGH COVID-19 wards. The staff who did on-site work had higher levels of fear, anxiety and depression even if they did not have direct contact with persons who have COVID-19. Similarly, with the very small sample size of the work-from-home employees, it is difficult to ascertain if their better mental and physical health was related to the lower risk of infection. During the period of study, the effect of the pandemic on the mental health of the DRM employees could be the same as that of the general population. Globally, levels of fear, stress, anxiety, depression, loneliness and substance abuse were higher because very little was known about the control and treatment of the emerging virus that rapidly spreads with serious morbidity and mortality, and had undesirable social and economic effects.^{23,24} The general effect of the pandemic may be the reason behind the higher level of depression in the work from home group.

Another possible stressor to the mental health and wellness of the DRM employees was the sudden change from face-to-face patient care to telerehabilitation. Consultations using audio calls and text messages were entertained to ensure accessibility of the services even to technologically-challenged patients. The duration of the telerehabilitation sessions were longer than on-site sessions, and health providers had difficulty assessing and managing the clients without a visual image of them.

Although the study was unable to identify the factors that contributed to the psychological stresses of the DRM employees, it established a strong need for a mental health and wellness program for them. At the time of this writing, there is still uncertainty about when the COVID-19 pandemic would end. New variants of the virus threaten to cause a surge of infection and the limited number of available vaccines do not guarantee complete immunity against the COVID-19 virus. The administrators of the DRM should continually monitor the overall health of their employees. The results of this study can serve as baseline data when evaluating the effectiveness of their wellness program. Self-monitoring and self-care should also be promoted.

Further studies are needed to determine the key factors that affect the mental health and well-being of medical rehabilitation service providers during the COVID-19 pandemic. The holistic care of persons with disability will be difficult if members of the rehabilitation team cannot balance their own lives and cope with unexpected challenges in their workplace. Future studies using a larger sample that will include more departments or hospitals may also be helpful in knowing what factors affect the mental health and well-being of hospital employees.

CONCLUSION

About half of the employees in the DRM experienced fear, anxiety and depression, had fair mental health, and had concerns about getting infected during the COVID-19 pandemic. A relevant mental health and wellness program and regular monitoring of their general well-being are strongly recommended. Further studies are needed to determine the key factors that affect their mental health and well-being under difficult circumstances, such as the COVID-19 pandemic.

Statement of Authorship

All authors contributed in the conceptualization of work, acquisition and analysis of data, drafting and revising and approved the final version submitted.

Author Disclosure

All authors declared no conflicts of interest.

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