# Degree Of Burnout and Its Association with Depression, Anxiety and Stress Among Health Care Workers in a Tertiary Hospital in Mandaue City During The COVID-19 Pandemic

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## Abstract

**Background:** On top of adjusting to the societal shifts and emotional stressors faced by everyone, health care workers are also confronted by stressors such as an increased risk of exposure, extreme workloads, moral dilemmas, and a dynamic practice environment that differs greatly from what was familiar. These can lead to burnout, a state of physical, emotional, and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding.

**General Objective:** This is a descriptive cross-sectional study that intends to measure the degree of burnout and determine its association with depression, anxiety, and stress among health care workers in Chong Hua Hospital Mandaue during the COVID-19 pandemic.

**Methodology:** The data collection process entailed the researchers' physical and online administration of a questionnaire which included the health care workers' socio-demographic data and questions lifted from both the Copenhagen Burnout Inventory (CBI) and Depression, Anxiety, Stress Scales (DASS) 42-item. Also included was an open-ended questionnaire to enumerate outbreak-specific contributors to burnout.

**Results:** 222 health care workers were surveyed. Almost half (98, 44.2%) of the health care workers registered moderate to high overall burnout scores on the CBI but none of them had severe burnout. The degree of burnout was determined to be moderately associated with all three negative emotional states using the Cramer's V coefficient: depression (V = .448), anxiety (V = .378), and stress (V = .415). The foremost factor identified to be a contributor to burnout was the high workload which was exacerbated by the onset of the pandemic.

**Conclusion:** The study showed that burnout and the negative psychological states of depression, anxiety, and stress, are prevalent in health care providers with results comparable to other global studies. The contributors to burnout identified by the respondents were either present pre-pandemic but were aggravated by it and those which were outbreak-specific.


**Keywords:** Burnout, COVID-19, Depression, Anxiety, Stress

## Introduction

COVID-19 is considered to be the "central health crisis of this generation." It has exhausted health care workers caring for COVID-19 patients and patients suspected to have COVID-19.[1] Although the chief focus has been on reducing transmission through prevention and combating infection, little attention has been given to the critical issue of burnout and the psychological well-being of health care workers.[2]

Burnout, a state of physical, emotional, and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding, was already a prevalent problem among physicians and other

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health care workers compared to the general population before the pandemic.[3,4] Since all types of healthcare professionals care for patients with COVID-19, the pandemic has upended their sense of order and control. An after-effect of such disruption has resulted in substantial stress in the short term and a higher risk for burnout in the long term.[5] This also has a direct negative impact on depression, anxiety, fatigue, mood disorders, substance abuse, suicide, poor quality patient care, early retirements, and unexpected resignations.[6,7]

The significance of this study is to determine the prevalence of health care worker burnout and its association with the other factors negatively affecting psychological well-being such as depression, anxiety and stress, so that basic measures towards identifying and managing it may be instituted before it overwhelms and drives health care workers into quitting and/or destructive behaviors. It is imperative to maintain an adequate number of health care workers who can perform to their full potential over an extended period despite the growing demands of the pandemic. Identification of the contributors will help remediate outbreak-specific issues to avoid unwanted social, psychological, and even economic burdens.[6,7]

## Methodology

The study is a descriptive, cross-sectional study performed between June to October of 2020 at a tertiary hospital in Mandaue City, Philippines. The select population included all health care workers who were employed/affiliated with the hospital during the duration of the study i.e., physicians (residents, consultants/attending physicians), nurses, nurse aides, medical technologists, radiology technologists, respiratory therapists, physical and occupational therapists, nutritionist/dieticians and pharmacists. All participants were required to be able to comprehend and answer an English-language questionnaire. Age and length of tenure were not considered as part of the selection criteria. The study utilized a non-random sampling strategy, snowball sampling, which included those who have matched the aforementioned criteria.

The data collection process entailed the use of a questionnaire that included the health care workers' general socio-demographic profile and questions lifted from both the Copenhagen Burnout Inventory (CBI) and the Depression, Anxiety, Stress Scales (DASS). The questionnaire also included an informed consent that explained the purpose of the study, its procedure, risk and benefits, and an agreement of participation by the respondent. Using a non-probability sampling method (snowball sampling), the authors began by approaching the key participants of the study- health care workers who were exposed to frontline work and the heads of the different hospital departments. Subsequently, with consideration to the inclusion criteria, the key persons were asked to share an online link or hard copy of the questionnaire with their colleagues. The respondents had the option to answer it either online through the link that was provided via e-mail or instant messaging services (i.e., *Viber*™ or *FB Messenger*™) or through hard copies that were given physically to the section heads of the different hospital departments. For the online link, implied consent was obtained from the participants by completing the questionnaire on the link provided. No duplication of participants was ensured. An item, not part of the CBI or DAS, was added to openly enumerate outbreak-specific contributors. The respondents had a freehand to provide their answer and answers were categorized and tabulated based on content and similarity of ideas, thereafter.

*Copenhagen Burnout Inventory (CBI).* There are eight validated measures of burnout cited in literature from 1997 to 2007.[8] The oldest and most widely known and used is the Maslach Burnout Inventory (MBI). However, there have been several methodological and conceptual problems regarding this inventory. First of which is its limitation for professions which are not people-oriented. Second, there is a limitation in the understandability of items across cultural groups. Lastly, MBI is not in the public domain and researchers are made to pay for its use. Thus, critics have advocated for the development and utilization of other burnout measures.[9]

This study adopts the 2001 definition of Schaufeli for burnout that stresses on fatigue and exhaustion as the primary core feature in contrast to Maslach's concept of having three (3) dimensions. The Copenhagen Burnout Inventory (CBI) assumes the same framework.[10]

The CBI is a 19-item questionnaire divided into 3 sub-dimensions of personal (6 items), work-related (7 items) and patient-related (6 items) burnout. The personal burnout scale evaluates the level of burnout in people, despite their occupational status. Work-related burnout scale evaluates whether the person is attributing the fatigue and exhaustion experienced by him to his work. Patient-related burnout scale evaluates whether the person is attributing the fatigue and exhaustion experienced by him, to his work related with his patients. The validity and reliability of the CBI have been assessed by the developers of the tool, using the baseline and follow up data from the PUMA (Danish acronym for Project on Burnout, Motivation and Job Satisfaction) study. The same study shows high internal consistency values.[10] CBI has also been used and validated in many other countries like Hong Kong, Taiwan, New Zealand, Denmark and Sri Lanka.[11] Interpretation of the CBI is based on a cut off criteria of a mean of 50 for every scale/dimension to indicate that there is burnout. Further classification based on severity is as follows: less than 50 means low or no burnout, 50-74 means moderate burnout, 75-99 means high burnout and 100 means severe burnout.[10]

The Cronbach's alpha in a previous study was between 0.80-0.95 confirming stable reliability and high repeatability of the questionnaire.[12]

*Depression, Anxiety, Stress Scales (DASS).* Depression, anxiety, and stress may be measured using the Depression, Anxiety, Stress Scales (DASS). It is a set of three self-report scales constructed not merely as

**Table I. Socio-demographic Profile of the Respondents**

| Socio-demographic Profile | Frequency | Percent |
|---|---|---|
| Age (years) | | |
| ≤30 | 143 | 64.4 |
| 31 – 35 | 38 | 17.1 |
| 36 – 40 | 13 | 5.9 |
| > 40 | 28 | 12.6 |
| Sex | | |
| Male | 60 | 27 |
| Female | 162 | 73 |
| Marital Status | | |
| Married | 47 | 21.2 |
| Single | 175 | 78.8 |
| Profession | | |
| Medical Technologist | 11 | 5 |
| Nurse | 73 | 32.9 |
| Nurse Aide | 8 | 3.6 |
| Nutritionist/Dietitian | 7 | 3.2 |
| Occupational Therapist | 2 | 0.9 |
| Pharmacist | 12 | 5.4 |
| Physical Therapist | 8 | 3.6 |
| Physician | 43 | 19.4 |
| Attending/Consultant | 52 | 23.4 |
| Physician – Resident | 6 | 2.7 |
| Respiratory Therapist | | |
| Years in Service | | |
| 0 – 5 | 175 | 78.8 |
| 5 – 10 | 21 | 9.5 |
| > 10 | 26 | 11.7 |
| Covid-19 Test Result | | |
| Test Done – Negative | 105 | 47.3 |
| Test Done – Positive | 24 | 10.8 |
| Test Not Done | 93 | 41.9 |
| Hours worked per week | | |
| 40 hours and below | 145 | 65.3 |
| More than 40 hours | 75 | 33.8 |
| Missing | 2 | 0.9 |
| Mean (±SD) | 53.15 (37.63) | |

**Table II. Degree of Overall Burnout**

| Degree of Overall Burnout | Frequency | Percent |
|---|---|---|
| No / Low | 124 | 55.9 |
| Moderate | 79 | 35.6 |
| High | 19 | 8.6 |
| Severe | 0 | 0 |

**Table III. Depression, Anxiety and Stress among Health Care Workers.**

| Domain | Severity | Frequency | Percent |
|---|---|---|---|
| Depression | *Normal* | 118 | 53.2 |
| | *Mild* | 22 | 9.9 |
| | *Moderate* | 40 | 18 |
| | *Severe* | 27 | 12.2 |
| | *Extremely Severe* | 15 | 6.8 |
| Anxiety | *Normal* | 101 | 45.5 |
| | *Mild* | 9 | 4.1 |
| | *Moderate* | 38 | 17.1 |
| | *Severe* | 34 | 15.3 |
| | *Extremely Severe* | 40 | 18 |
| Stress | *Normal* | 125 | 56.3 |
| | *Mild* | 35 | 15.8 |
| | *Moderate* | 32 | 14.4 |
| | *Severe* | 24 | 10.8 |

another set of scales to measure conventionally defined emotional states, but to further the process of defining, understanding, and measuring the ubiquitous and clinically significant emotional states usually described as depression, anxiety and stress. Each scale contains 14 items, divided into subscales of 2-5 items with similar content.[13]

The Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. Scored as Normal – 0-9, Mild – 10-13, Moderate – 14-20, Severe – 21-27, and Extremely Severe – 28+.

The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. Scored as Normal – 0-7, Mild – 8-9, Moderate – 10-14, Severe – 15-19, and Extremely Severe – 20+.

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. Scored as Normal – 0-14, Mild – 15-18, Moderate – 19-25, Severe – 26-33, and Extremely Severe – 34+.

Subjects are asked to use four-point severity/frequency scales to rate the extent to which they have experienced each state, in this study, over the past six (6) months. Scores for Depression, Anxiety, and Stress are calculated by summing the scores for the relevant items. DASS has been shown to have high internal consistency and to yield meaningful discriminations in a variety of settings. The principal value of the DASS in a clinical setting is to clarify the locus of emotional disturbance, as part of the broader task of clinical assessment.[14] In a previous study, the Cronbach's alpha for DASS was proven at 0.97, 0.92, and 0.95 on depression, anxiety, and stress, respectively.[15]

Furthermore, the research protocol was submitted to the Institutional Review Board (IRB) of Chong Hua Hospital and data gathering commenced only after IRB approval was granted. All test results were privately and confidentially treated following the Data Privacy Act of 2012. Participants with significant outcomes for the Copenhagen Burnout Inventory (CBI) and Depression, Anxiety, Stress Scale (DASS) were informed of their results, and suggestions for an appropriate referral to a specialist/counselor were made through a letter. Informed consent was required for all participants.

## Results

The data was collected between June to October 2020 during the height of the pandemic where the admission census for the department of Internal Medicine reached 239 in monthly average from June to November 2020.

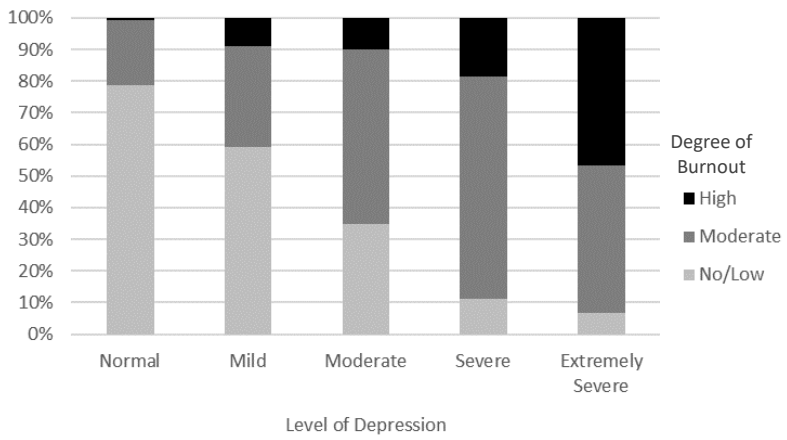


**Figure 1. Degree of Burnout According to Level of Depression**

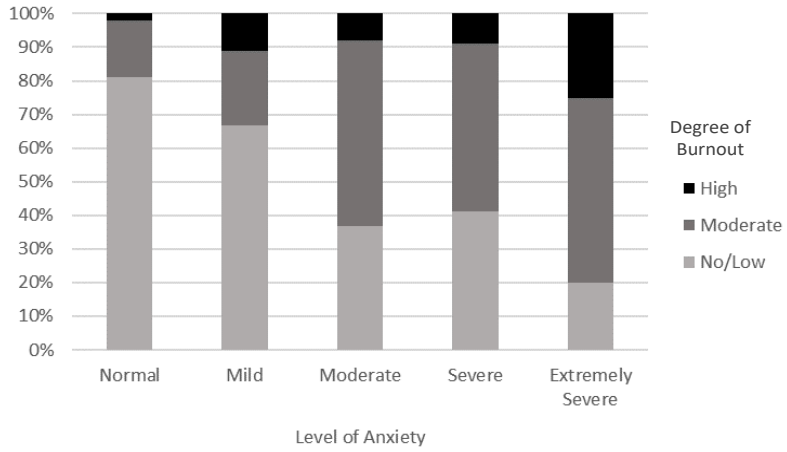


**Figure 2. Degree of Burnout According to Level of Anxiety**

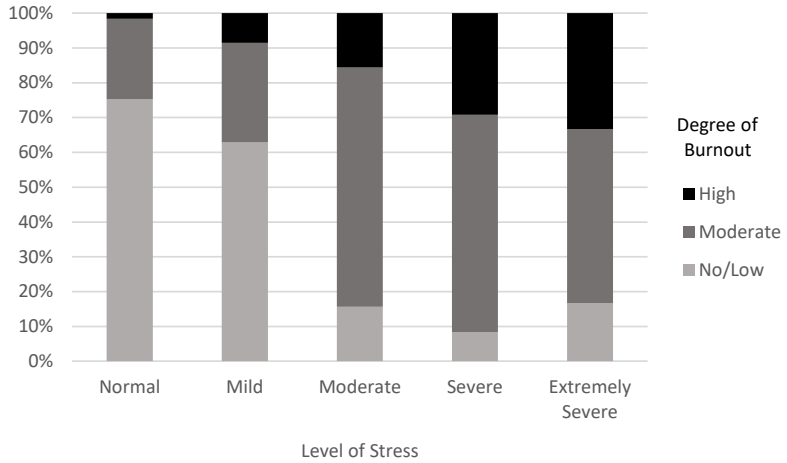


**Figure 3. Degree of Burnout According to Level of Stress**

*(This is compared to the census of April and May 2020 that averaged at 145 admissions per month*). The data were processed using the IBM Statistical Product and Service Solutions (SPSS®) Version 24 software. A total of 222 healthcare workers were gathered as respondents. With a target of 250, the response rate was 88%.

The general socio-demographic profile of respondents including age, sex, marital status, medical/medical-related profession, years in practice or service, work hours per week, and COVID-19 testing status are seen in *Table I*.

The calculated overall burnout scores as measured using the Copenhagen Burnout Inventory (CBI) were stratified according to severity: Severe Burnout (100), High Burnout (75-99), Moderate Burnout (50-74) and No/Low Burnout (<50).

The majority of the health care workers had no to low degree of overall burnout (124, 55.9%) but almost half experienced combined moderate to high (98, 44.2%) overall burnout. It can be noted that none of the health care workers had severe burnout (*Table II*).

The burnout score for every sub-dimension of the CBI was also calculated to determine which among the three (Personal, Work-related, Patient-related) mostly contributed to health care worker burnout.

The respondents scored highest in work-related burnout (52.91±18.73), followed by personal burnout (51.71± 21.36) and least in patient-related burnout (38.4± 21.28). In both work-related and personal burnout, the mean score of the respondents indicates a moderate severity. A large proportion of the respondents experience no to low level of personal (97, 43.7%) and patient-related burnout (151, 68%). However, most health care workers experienced moderate work-related burnout (96, 43.2%).

The assessment of the three negative states of depression, anxiety, and stress of the health care workers was done utilizing the Depression Anxiety Stress Scales (DASS) and was then categorized by severity.

Results showed that the majority of the respondents have no depression (118, 53.2%), and normal levels of stress (125,

**Table IV**. **Self-reported 'outbreak-specific' contributors to burnout**

| Self-reported contributors to burnout | Frequency (%) |
|---|---|
| Increased workload and longer hours spent at the hospital, changing workloads | 66 (30.7) |
| Fear of Getting Infected / Personal Health Risks | 52 (24.2) |
| Hassle of wearing PPE and the additional time needed to don and doff hazmat | 31 (14.4) |
| Increased demands from patients and Unappreciative patients | 24 (11.2) |
| Fear of infecting other individuals like family and other loved ones | 23 (10.7) |
| Insufficient manpower | 21 (9.8) |
| Lack of a reward system | 20 (9.3) |
| Feelings of helplessness in saving a patient's life and highly morbid patients and with increased mortality | 19 (8.8) |
| Lack of external avenue for destressing or stress-relief | 19 (8.8) |
| Losing time spent with family or at home / or with friends and other loved ones | 17 (7.9) |
| Professional pressure - pressure from peers to do better, balancing ward work and academics for residents | 17 (7.9) |
| Financial Problems including insufficient compensation to meet daily needs, lack of other avenues for financial income | 16 (7.4) |
| Workplace conflict | 16 (7.4) |
| Difficulty in transportation or commuting | 13 (6) |
| Seclusion from patients and peers, decreased time and level of interaction | 11 (5.1) |
| Lack of support from superiors | 10 (4.7) |
| Lack of sleep or rest | 8 (3.7) |
| Seeing peers also being burnt out, stressed | 6 (2.8) |
| Lack of foresight/ability to predict the future leading to anxiety | 6 (2.8) |
| Discrimination from the public for being a HCW, public shaming of HCWs | 5 (2.3) |
| Lack of psychological support such as debriefing | 5 (2.3) |
| Loss of drive, motivation | 5 (2.3) |
| Feeling dispensable | 2 (0.9) |
| Lack of support from the public and government | 2 (0.9) |
| Lack of credible information for public consumption; spread of fake news and unproven alternative means | 1 (0.5) |
| High cost of health care, high cost of diagnostics, limited access to diagnostics (i.e., RT-PCR, Rapid antibody testing) | 1 (0.5) |
| Adjusted lifestyle at home e.g., homeschooling | 1 (0.5) |

*Only 215 out of 222 respondents gave answers to the last part of the questionnaire, thus percentage was calculated as (n/215) x100

56.3%) while almost half of the health care workers have normal levels of anxiety (101, 45.5%) (*Table III*). It can also be noted that although the proportions are not that high, some of the health care workers experience severe and extremely severe levels of depression, anxiety, and stress.

To determine the association between the levels of burnout to the levels of depression, anxiety, and stress, the Cramer's V coefficient was computed. Values < 0.300 indicate a weak association, 0.300 - 0.700 means moderate association while values > 0.700 indicate a strong association. Values very close to zero (0) may indicate a very weak association while values close to one (1) would indicate a very strong association.

Results revealed that the degree of burnout was moderately associated with all three negative emotional states tested: depression (V = 0.448), anxiety (V = 0.378), and stress (V = 0.415) (*Figures 1-3*).

The researchers also attempted to establish an association between the socio-demographic profile and the degree of burnout among health care workers.

There was a weak association between the degree of burnout to age (V = 0.224) and marital status (V = 0.166) However, a moderate association of the degree of burnout with the type of profession was established (V = 0.334). More than half of medical technologists, nurses, and resident physicians experienced moderate to a high degree of burnout. While all of the occupational therapists only experienced no to low burnout. None of those who are more than ten years in practice have a high degree of burnout. However, at least 30% of those who have rendered service for less than 10 years have moderate burnout, and at least 10% of those in service for less than 5 years have high burnout. No specific trend was seen in terms of the work hours per week and its relationship to the degree of burnout.

On top of the degree of burnout, the socio-demographic profile was also matched to the levels of depression, anxiety, and stress to determine an association.

Results showed that the level of depression was weakly associated with age (V = 0.235), marital status (V = 0.302), profession (V = 0.253) work hours per week, and the years in service or practice (V = 0.245) of the health care workers.

The level of anxiety was weakly associated with age (V = 0.225), marital status (V = 0.218), profession (V = 0.261), work hours per week and years in service (V = 0.209).

The level of stress was weakly correlated with age (V = 0.183) and profession (V = 0.244).

The last part of this study included an open question regarding what the respondents deemed as outbreak-specific contributors to burnout. There were 215 of the 222 respondents who enumerated their answers which are categorized based on similarity of content or idea. All answers are tabulated below (*Table IV*).

## Discussion

*Burnout*. In 1961, the novelist Graham Greene used the term "burnt-out" in describing a fictional architect who lost the ability to connect with his emotions or spirituality.[16] In 1974, 'burnout' was introduced to scientific literature by American psychologist Herbert Freudenberger defining it as "a state of mental and physical exhaustion caused by one's professional life," exclusively for frontline human service workers.[8] However, in 1976, Maslach and Jackson further characterized burnout as a syndrome composed of three dimensions: emotional exhaustion, depersonalization, and a low sense of personal accomplishment.[17] Emotional exhaustion was described as an overburdened feeling when a person feels depleted of emotional and physical resources while depersonalization pertained to a negative and cynical attitude towards people. All three dimensions combined to negatively affect work life.[18] In 2005, Kristensen et al contested this long-standing model of burnout and proposed that the core feature of burnout was fatigue and exhaustion; depersonalization was only secondary as a coping mechanism. The reduced sense of self-accomplishment as a consequence of the first two rather than a defining feature.[19] This was consistent with Schaufeli's "historically evolved" definition that asserted burnout as "a state of physical, emotional, and mental exhaustion resulting from long-term involvement in work situations that are emotionally demanding."[3,10]

Burnout has many undesirable effects including a deterioration in work performance, lowered satisfaction, and care quality, which subsequently leads to errors that can potentially result to harm.[20] It may progress to more disruptive and destructive behaviors including substance abuse, increased interpersonal conflicts, broken relationships, poor quality of life, withdrawal, depression, suicide ideation and may even end up in suicide itself.[20-23]

The global prevalence of burnout among postgraduate doctors is estimated to be at 27-75%.[11] Literature suggests that burnout is becoming a prevalent problem among physicians and other health care workers compared to the general population.[4] Maslach and Leiter in 1997 have identified the six (6) mismatches to be the source of burnout in the modern world: 1) work overload, 2) lack of control, 3) insufficient reward, 4) breakdown of community, 5) lack of fairness, and 6) conflicting values.[21] An article by Chris Lewis identifies the causes of physician burnout. One is the loss of autonomy. Physicians and other health care workers may have to adapt to more stringent policies and requirements that are put in place to regulate care practice and to protect the patient. Experienced physicians who are accustomed to established norms, may find these new constraints restricting and may have adverse effects. Another is poor communication and failure of engagement. Failure to communicate and engage can happen on several different levels: between members of the care team, across the hospital system, or out among the community as spokespersons for the hospital.[14] However, the aforementioned causes are not considered outbreak-specific. However, these were factors determined to be present before the onset of the pandemic.

The pandemic has resulted in substantial stress in the short term and a risk of burnout in the long term for all types of healthcare professionals who are caring for patients with COVID-19.[5] Shanafelt et al discussed more recently the sources of anxiety for health care professionals during the COVID-19 pandemic. These are as follows: 1) (lack of) access to appropriate personal protective equipment, 2) being exposed to COVID-19 at work and taking the infection home to the family, 3) not having rapid access to testing if a health care worker develops COVID-19 symptoms and the concomitant fear of propagating infection at work, 4) uncertainty whether the organization will not support/take care of personal and family needs if they develop an infection, 5) access to childcare during increased work hours and school closures, 6) support for other personal and family needs as work hours and demands increase (food, hydration, lodging, transportation), 7) being able to provide competent medical care if deployed to a new area (e.g., non-ICU nurses having to function as ICU nurses), and 8) lack of access to up-to-date information and communication.[1,20] In this study, we found out that despite the majority (124, 55.9%) of health care workers experiencing no to low levels of burnout, a significant fraction (98, 44.2%) have moderate to high overall burnout scores. The overall burnout score in this study refers to the mean of all three sub-dimension scores of the CBI. These results are consistent with other studies worldwide conducted in this area of mental health.[11,22,24] Thus, making it apparent that during this pandemic, burnout is a prevalent problem among physicians, nurses, and other health care workers.[2,11,21,22,24,25] The highest rates of overall burnout were found among medical technologists, where all 11 respondents (100%) experienced moderate to high burnout. A review of their responses to the open question identifies insufficient manpower due to increased workloads from patient influx as the leading cause of burnout. Medical technologists in the institution are the ones tasked to do specimen collection for the SARS-CoV-2 polymerase chain reaction (RT-PCR) test. Swabbing of patients with unknown COVID-19 status adds to the fear of acquiring the infection and possibly becoming symptomatic.

The majority of resident physicians (52.0%), nurses (51.70%), nurse aides (50.0%), and respiratory therapists (50.0%) also scored moderate to a high degree of burnout. Like the medical technologists, the leading reason cited is the high workload. In previous literature, however, even before the pandemic, an increase in work demand was already an established contributor to burnout, especially in professions that were very emotionally demanding like that in health care.[11] In a pandemic, the surge of patients adds up to the overwhelming pressure felt by the health care worker on top of what is already a high workload. The high workload is the first in a chain that leads to longer work hours, work-life imbalance, sleep deprivation, and neglect of personal and family needs, among others.[2,20]

The determined burnout score for every sub-dimension of the CBI revealed that respondents scored highest in work-related burnout (52.91±18.73). Contributors to such, as identified by the respondents from the open-ended question of this study, included the following: 1) Increased workload and longer hours spent at the hospital, including constantly changing work assignments, 2) Fear of getting infected from exposure to patients and/or peers, 3) Additional burden of wearing personal protective equipment (PPE) and the additional time needed to don and doff PPEs, 4) Lack of manpower due to understaffing or workers getting sick, 5) Lack of a reward system such as a higher overtime pay, additional hazard pay, 6) Feelings of helplessness in saving patients' lives because of highly morbid cases leading to an increased mortality, 7) Professional pressure – which the respondents have described as the pressure to excel in their respective fields i.e., for resident physicians balancing ward work and academics, for nurses ensuring delivery of quality bedside patient care, for other health care workers it includes upholding to the standards set by their superiors, 8) Workplace conflict as an effect of miscommunication or lack thereof, 9) Lack of engagement from the organization, and alignment from executives regarding values, mission, purpose and at times compensation, 10) Lack of sleep or rest, 11) Burnout of peers, colleagues, and 12) Lack of psychological support such as debriefing, well-being enhancement programs, stress management etc. These factors are consistent with those identified by Shanafelt et al.[1]

In personal burnout (51.71±21.36), the mean score of the respondents indicates a moderate severity. Personal-related causes include loss of drive and motivation, longing for family and loved ones, lack of avenues to de-stress, seeing one's self as lacking the foresight to predict the ongoings of the pandemic/anxiety about the future. Some of the respondents' enumerated personal causes come about because of societal reasons, either because of how they think they are perceived by society or the society's inherent lack of support. An example of the former is the constant public discrimination and shaming of health care professionals by laymen whether in person or on social media. An example of the latter is the government's presumed insufficient response to the pandemic, including lack of public transport for those who commute to work, lack of other avenues for financial gain for those with families who cannot be sustained by their income alone as health care workers, lack of communication and sufficient information from the government and deemed ineffective methods to educate the public to prevent the spread of fake news and false teachings. All of these have been identified as contributors, not only to burnout, but also to physical and mental fatigue, anxiety, and stress.[20]

More than half of health care workers experienced no to low patient-related burnout (151, 68%). The only enumerated patient factor was when patients became too demanding or were unappreciative of the healthcare workers' efforts. This is in line with a prior study using the CBI showing that personal-related burnout is consistently lower in male and female physicians compared to work-related and personal burnout.[21]

Furthermore, this study was not able to find a conclusive relationship of burnout to the socio-demographic profile of the respondents including their age, sex, marital status, years in practice or service, work hours per week, and COVID-19 testing status. This is in stark contrast to the previous studies that show female health care workers were more likely to suffer from all three kinds of burnout than their male counterparts and that those with lesser years of experience (< 5 years) were more likely to have burnout.[3,21,24] In terms of the type of profession, however, this study shows that more than half of medical technologists, nurses, and physicians experienced moderate to a high degree of burnout. The same population was determined to be at risk in a study of health care providers in Japan during the COVID-19 pandemic but only with the exclusion of radiology technologists and pharmacists.[24]

*Depression, Anxiety, and Stress.* There is no unified consensus among researchers who study burnout regarding its overlap with depression. It was Freudenberger who characterized burnout patients as somewhat looking and acting as if they were depressed, and this is exemplified by the following: *anhedonia*, i.e., the loss of interest or pleasure, depressed mood, fatigue or loss of energy, impaired concentration, and feelings of worthlessness; decreased or increased appetite, sleep problems (hypersomnia or insomnia) and suicidal ideation. However, several other researchers contend that burnout and depression are two different constructs.[26] Ahola and Hakanen in 2007 said that emotional exhaustion is not the same as depression. One major factor that appears to distinguish burnout from depression is the fact that burnout is work-related and situation-specific, whereas depression is context-free and pervasive.[27] Burnout, also, is not mentioned in DSM-V and still, no diagnostic criteria exist for identifying it. A meta-analysis by Koutsamani et al in 2019 tried to examine the relationship but their results showed that while there is a statistical relationship between burnout and depression, they are truly not the same constructs.[26]

Another factor that is linked to burnout, but is rarely investigated is anxiety. The same study by Koutsamani et al examined the relationship where the same conclusion with depression was drawn.[26] A study done during this pandemic on ICU physicians reveals that about half of them have anxiety and while 30% have symptoms of depression. The anxiety is attributed to the lack of knowledge and experience about COVID-19.[22]

The relationship between burnout and stress is observed in sporadic studies indicating a direct correlation of stress with a high degree of emotional exhaustion and lack of personal accomplishment.[28]

In this study, it is shown that the majority of the health care workers have no depression (118, 53.2%), and normal levels of stress (125, 56.3%) while almost half have normal levels of anxiety (101, 45.5%). However, some of the health care workers experienced severe and

extremely severe levels of depression, anxiety, and stress.

Compared to a Pakistani study done at the early phase of this pandemic where depression, anxiety, and stress of the health care workers were at 10.1%, 25.4%, and 7.3%, respectively, prevalence of depression, anxiety and stress (combined mild to extremely severe) of the health care workers in this study were higher (104, 46.9%; 121, 54%; 97, 43.7%).[29] The frequency of depression, anxiety, and stress in that study was higher in nurses as compared to other health care workers i.e. doctors, medical technologists, pharmacists, and other staff. The identified predictors for depression in that study were age, gender, and profession, while predictors for anxiety were age and gender alone. The profession was also a predictor of stress.[29] This study was not able to duplicate the aforementioned findings, but rather only shows that the socio-demographic profile was weakly associated with the three negative emotional states of depression, anxiety, and stress.

Another objective of this study was to determine an association with the degree of burnout to depression, anxiety, and stress. In all three, a moderate association was established. This analysis of burnout with a complementary assessment of the three negative psychological states of depression, anxiety, and stress is done to help overcome the limitation of the cutoffs of burnout measures.[30] A meta-analysis on the prevalence of depression, anxiety, and insomnia among health care workers done by Pappa et al. performed in China during this pandemic shows that in 12 studies there was a pooled prevalence for anxiety at 23.2%, and in 10 studies a pooled prevalence for depression at 22.8%.[31] Collectively, these findings affirm the impact of this pandemic on the psychological health of health care providers. The high levels of anxiety may suggest the presence of a ubiquitous state of tension that could potentially lead to the development and/or worsening of burnout and other mental health problems.

## Conclusion

This research shows the presence of healthcare worker burnout in the population studied with a prevalence comparable to that of other global researches. It establishes that health care providers have a risk of developing burnout and the other negative psychological states of depression, anxiety, and stress, from which a moderate association was found. The onset of the COVID-19 pandemic may have exacerbated the development of these psychological states as evidenced by the factors determined to be contributors to burnout identified by the respondents. These factors include those which have existed pre-pandemic and those which are outbreak-specific. The foremost example for the former is a high workload. Outbreak-specific contributors include the fear of acquiring COVD-19 and becoming symptomatic, infecting loved ones with the disease, the hassle of wearing PPEs, and the lack of avenues for de-stressing due to quarantine restrictions among others.

Preventive measures should be adopted now that the contributors have been identified to reduce burnout, its prevalence and degree of severity, and the other psychological distress states that come with it. It is in the hopes of the researchers, that even with COVID-19, burnout does not become a different pandemic on its own. Further studies that focus on the identification of burnout in health care workers and studies on intervention to prevent and lessen the risk of burnout, and resilience studies are recommended. A serial study may be done to identify change in prevalence or degree of burnout severity on the same population.

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